COUNTY OF ESSEX

HAZARD MITIGATION PLAN

2025 UPDATE

VOLUME 2

APRIL 2025

BLACK & VEATCH

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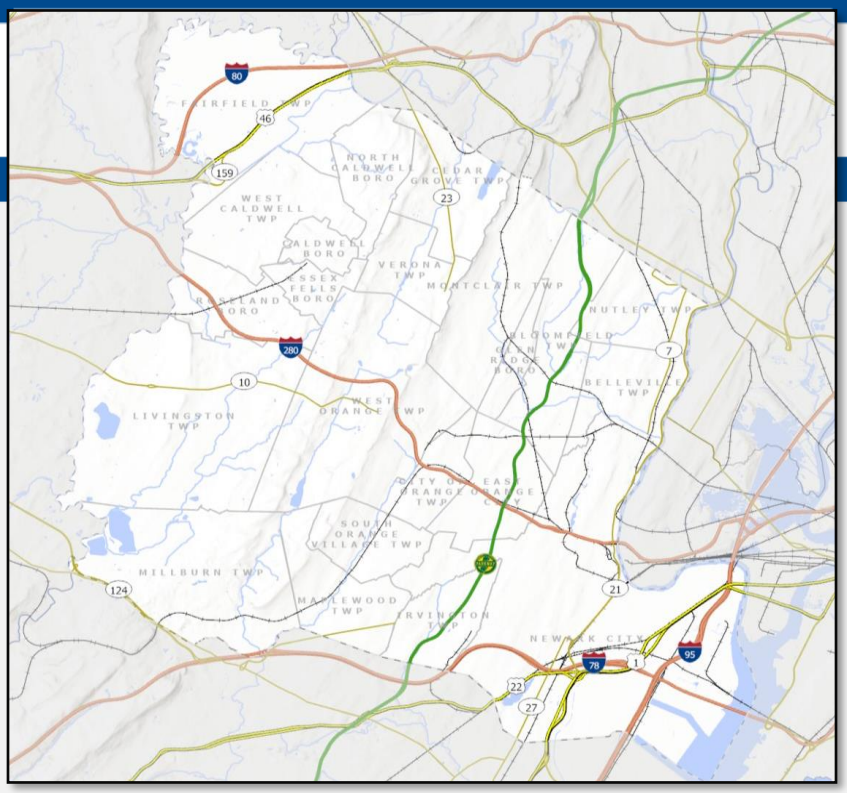
Essex County



POPULATION STATISTICS

854,130
TOTAL POPULATION (2023 ACS)

0.08%
Change in population since 2010 Census

317,473
TOTAL HOUSEHOLDS

AT RISK POPULATION

119,383
Population Over 65

53,778
Population Under 5

103,030
Living With Disability

7,622
Households Without Vehicle

173,131
People Renting Homes

POVERTY AND LANGUAGE

70,293
Households Below Poverty Level

124,168
Population With English as 2nd Language

POPULATION AND BUSINESSES

848,653
Daytime Population

27,525
Total Businesses

396,088
Total Employees

FLOOD VULNERABILITY

15,089
Number of People in 1% SFHA

4,640
Number of Buildings in 1% SFHA

69
Community Lifelines in 1% SFHA

1 Essex County

1.1 Jurisdictional Profile

Essex County, with 22 municipalities ranging over 127 square miles and a total population of 863,728, is New Jersey's second most populous County. It is an urban county with outlying suburban communities. Essex County includes the City of Newark, the largest municipality in the state by population. Generally, the eastern portion of the County is more urban compared to the more suburban western portion of the County.

Essex County is located in northern New Jersey, approximately 20 miles south of the New York State border, and 10 miles west of Manhattan. The County is bordered by Passaic County to the north, Bergen County to the east-northeast, Hudson County to the east, Union County to the south and Morris County to the west. The eastern and western borders of Essex County are defined by the Passaic River. The County is separated from Morris County by the eastern branch of the Passaic River. The southeast border of the County is situated on the Newark Bay with approximately 3.5 miles of shoreline. The County land area is 127 square miles and the water area is 3.3 square miles.

The County's topography is flat in the east and slowly rises toward the west upon the approach of the Watchung Mountains. The Watchung Mountains run roughly north south through the center of Essex County. To the west of the Watchung Mountain, the slope gently declines back to a flatter topography as it approaches the western branch of the Passaic River. The highest elevations in the County are located in three municipalities within the Watchung Mountain range: Essex Fells, North Caldwell and Verona, with the highest point of 691 feet above sea level. The lowest point in the County is located at Newark Bay in the City of Newark. The average elevation of the County is 300 feet above sea level (Dalton 2003).

Essex County follows the county executive plan form of government. There is one elected County Executive and a nine-member board of County Commissioners. The County seat is the City of Newark (Essex County 2019).

Section 3 (County Profile), Volume I of this HMP includes additional details on Essex County's population, location, climate, history, and mitigation priorities.

1.2 Jurisdictional Risk Assessment

The following sections assess Essex County's risk to the hazards of concern identified for the 2025 HMP update.

1.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. Localized impacts from hazard events are discussed in each municipal annex.

Table 1-1. Hazard Event History Since 2020

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
Refer to hazard profiles in Volume I for the County's hazard event history			

1.2.2 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. Several County roadways have been identified as being floodprone.

For more information on localized flooding issues, refer to the municipal annexes.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Essex County. The NFIP is administered at the municipal level.

Table 1-2. NFIP Statistics

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
4,280	$5,850,793	$1,286,175,000	5,931	$159,960,219	580	146

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)

Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines owned and operated by Essex County that are located in the 1-percent floodplain.

Table 1-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Emergency Operations Center	Police	X
Essex County Airport	Airport	X
Essex County Correctional Facility	Correctional Institution	X

Source: Essex 2021; FEMA 2020

1.2.3 Growth and Development Trends

Development can result in an increase of hazard risk. Development and permitting is completed at the municipal level. Each municipal annex summarizes recent development since 2020 and expected future development (in the next five years) in Essex County, including major residential/commercial/industrial development and major infrastructure development.

Table 1-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Refer to municipal annexes					

1.2.4 Hazard Area Location and Extent

Hazard area location and extent maps were generated for Essex County that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Hazard specific mapping is included in each hazard profile. Municipal specific hazard area location and extent maps are included in the municipal annexes.

1.2.5 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Essex County, climate change is likely to have the following impacts:

- Heavy rainfall events and coastal storms are likely to increase in intensity, resulting in more frequent and severe flooding.
- Extreme drought presents a risk to the drinking water supply.
- Wildfire risk may increase.
- Extreme heat is likely to increase due to climate change and urban heat island impacts.

1.2.6 Risk Assessment Summary

- The Essex County K9/Bomb building lacks backup power.
- The County has acquired one switch generator, but it has been determined that an additional four are needed
- Several County owned roadways prone to flooding in heavy rainfall events. The roadways include:
    - Passaic Avenue and Bloomfield Avenue in Verona
    - JFK Parkway in Millburn and South Orange.
    - West Lindsley Road
- The Rahway River flows down from the 62-acre Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
- The Peckman River and Passaic River are prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues as well as reduction of navigable waters for emergency response. As multiple municipalities are impacted, a multi-jurisdictional approach to reducing risk along these rivers is needed.

- Bridges crossing into Hudson County from Newark are over-burdened. Loss of a bridge due to a hazard event would result in great economic damages.
- There are limited emergency potable water options in the event of a drought or other event that limits drinking water availability.
- Recent wildfire events have demonstrated the need for additional firefighting equipment.
- The Essex County Airport, under the jurisdiction of the Essex County Improvement Authority is located in the floodplain.
- Essex County has inspected many County bridges in the past several years and identified necessary resiliency upgrades at several bridges.
- Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.
- Several dams in Essex County have been found to have unsatisfactory or poor safety ratings based on their most recent inspections. Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
- The Essex County Emergency Operations Center is located in a flood zone on a first floor. Flooding could result in lack of access to the Emergency Operations Center or necessary shut down of the facility.
- Power failure results in the loss of traffic signals, causing unsafe traffic conditions, requiring police to direct traffic, and limiting staffing capabilities to respond to other aspects of the hazard event that caused the power failure.

1.3 Jurisdictional Capability Assessment

Essex County performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capabilities).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

1.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Essex County.

Table 1-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	No	-	-
Impact on Risk Reduction:			
Capital Improvement Plan	Yes	Capital Budget	County Administration
Impact on Risk Reduction: The Executive annually prepares both a capital budget and a capital program, the latter to consist of a capital improvement program of proposed and projected capital undertakings by the County during the ensuing six years. This includes mitigation-related projects such as county roadway improvements, drainage improvements on county roads, and various studies for county-owned structures and facilities. The County also includes projects that will assist with making the County more resilient to future storms.			
Stormwater Management Plan	No	-	-
Impact on Risk Reduction:			
Stormwater Pollution Prevention Plan	No	-	-
Impact on Risk Reduction:			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Park, Recreation and Open Space Master Plan of Essex County New Jersey, 2002	Essex County Department of Parks, Recreation and Cultural Affairs
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	New York City – Newark – Jersey City Metropolitan Statistical Area (NY-NJ MSA) Priority Climate Action Plan, March 2024	North Jersey Transportation Planning Authority, New York Metropolitan Transportation Council
Impact on Risk Reduction: The NY-NJ MSA is focused on three key objectives while developing the PCAP.16:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
1. Enabling regional collaboration to create comprehensive pathways for reducing pollution and maximizing benefits to communities in the region, especially in low-income and disadvantaged communities; 2. Positioning the region to apply for and receive funding that supports innovative programs and policies that can be scaled up across jurisdictions; 3. Identifying optimized measures to achieve significant emissions reductions by 2030. A Comprehensive Climate Action Plan (CCAP) is expected to be completed at the beginning of 2025.			
Transportation Plan	Yes	Essex 2045, Essex County Transportation Plan	North Jersey Transportation Planning Authority, Essex County Public Works
Impact on Risk Reduction: Essex 2045 proposes 43 candidate intersection and corridor projects, and a wide variety of policies, strategies, and studies, such as updating Complete Streets policies and plans; conducting corridor studies and traffic and roadway safety studies; and implementing Roadway Safety Audit and School Travel Plan improvements. The plan refers to the 2020 Essex County Hazard Mitigation Plan for identifying flooding locations and discusses past hazard events (NJTPA 2023). Goals include: • Essex County is committed to making the transportation system safer for all people and advancing a future without transportation-related serious injuries and fatalities • Essex County will prioritize reducing inequities across the transportation systems and the communities they affect. • Essex County will tackle the climate crisis by ensuring that transportation works to safeguard environmental sustainability and resilience.			
Economic Development Plan	Yes	Economic County Workforce Development Strategic Plan, 2024-2028	Workforce Development Board
Impact on Risk Reduction: The purpose of the Essex County WDB Strategic Plan is to guide the use of WIOA resources to develop or improve programs that uplift the economic conditions of the workforce in Essex County. This plan, developed under the guidance of the New Jersey State Employment and Training Commission (SETC) and regional entities (i.e., North Jersey Partners), will guide the activities of the Workforce Development Board.			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			
Additional Planning Capabilities			
List any additional plans that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • XXXX			

The table below summarizes the emergency response and recovery plans that guide Essex County to prepare for, respond to, and recover from hazard events.

Table 1-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Essex County Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
The Plan guides emergency response to disaster events. The Plan is updated every 2 years. Essex County continues to develop, enhance, and implement existing emergency response plans to utilize new and developing technology and information as it becomes available.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Continuity of Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Provides procedures to maintain vital operations in the event of a disaster event.			
Evacuation Plan	Yes	Evacuation Plan	Office of Emergency Management
Impact on Risk Reduction: Guides the orderly evacuation of areas in the event of disaster events.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Essex County Community Health Needs Assessment, 2022	Essex County Office of Public Health Management
Impact on Risk Reduction: The purpose of the Community Health Needs Assessment it to identify and prioritize the needs of the Essex County (NJ) community at large through strategic health planning. The report provides comprehensive information about the health status of the county population and what health issues need to be addressed. The specific objectives of the community health needs assessment are provided below. • Understand key health issues that impact the community; • Measure the health status and behaviors of Essex County residents; • Produce evidence for evaluating public health policies, strategies, and programs; and • Create data driven initiatives to advance health focused on the needs of Essex County residents. This project began during the summer of 2021 through a public-academic partnership developed between the Essex County Office of Public Health Management and the School of Public Affairs and Administration (SPAA) at Rutgers University-Newark. The two organizations worked together in the development and planning of a public health needs assessment in Essex County, New Jersey. The public health survey was conducted to understand key health issues impacting the health of community members in Essex County during the COVID-19 pandemic and included all 22 municipalities in the County (Essex County Office of Health Management 2022).			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Essex County.

Table 1-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	*Capability in Place? (Yes/No)*	*Code Citation (code chapter, date)*	*Department/Agency Responsible*
Building Code	No	-	-
Impact on Risk Reduction: Enforced at the local level.			
Zoning or Land Use Regulations	No	-	-
Impact on Risk Reduction: Enforced at the local level			
Subdivision Regulations	Yes	County review	Planning Board
Impact on Risk Reduction: At the county level, the Essex County Planning Board performs the review and approval for all subdivisions of land within the County. The subdivision application asks applicants to identify whether or not the site is in a floodplain. If so, they need to obtain a NJDEP permit. The site plan application asks applicants to identify existing and proposed impervious surfaces. It also asks the applicant to identify whether or not it is in the floodplain. If so, applicants will need to obtain a NJDEP permit.			
Site Plan Regulations	Yes	County review	Planning Board
Impact on Risk Reduction: Essex County performs site plan reviews prior to any local building official issuing a permit. Site plan review is performed for any proposed land development including commercial, industrial, multi-family structures containing five or more units, or any land development requiring an off-street parking area or an off-street standing area for an excess of five vehicles, or producing surface runoff directly or indirectly to a county road, on any property having frontage on a county road. The site plan must be submitted to the Essex County Planning Board for their review and approval/denial. While site plan reviews are not required for residential structures containing less than five units, the County encourages developers to consult with the Planning Board. Lastly, the site plan application asks applicants if the proposed development is located in the floodplain and the amount of existing and proposed impervious surfaces.			
Stormwater Regulations	No	-	-
Impact on Risk Reduction: Enforced at the local level			
Floodplain Regulations	No	-	-
Impact on Risk Reduction: Enforced at the local level.			
Environmental Protection Regulations	No	-	-
Impact on Risk Reduction: Enforced at the local level.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

1.3.2 Administrative and Technical Capabilities

The table below summarizes Essex County's departments, boards, and committees that contribute to risk reduction.

Table 1-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	Essex County Planning Board: Planning Board duties and responsibilities as defined in the State enabling legislation are to prepare and adopt a Master Plan for the physical development and orderly growth of the county; to review and approve applications for subdivision and site plans; to encourage the cooperation of the 22 county municipalities in matters of mutual concern; to advise the County Executive and Board of Chosen Freeholders with respect to the formulation of development programs and budgets for capital expenditures; to prepare the official County Map; and to be a depository of current municipal master plans and zoning ordinances. The Essex County Planning Board is also responsible for the State Review Process (Essex County 2024). Essex County Construction Board of Appeals: The Board of Appeals listens to hearings for person(s) aggrieved by any ruling, action, notice, order or decision of a local enforcing agency that enforces either the State Uniform Construction Code or the Uniform Fire Code, including, without limitation, any refusal to grant an application or any failure or refusal to act upon an application, but not including any order requiring the taking of emergency measures pursuant to N.J.A.C. 5:23-2.32(b).
Planning Department	The Division of Planning functions include responsibility for long-range planning relating to development and conservation of land and resources in the County. This includes studies pertaining to the census, safety, land use, traffic, storm water, and transportation. The Division of Planning supports all aspects of local planning and seeks to integrate natural hazard risk and support mitigation project identification and implementation through its planning programs and resources.
Public Works / Highway Department	Essex County Department of Public Works: The mission of the Department of Public Works is to enhance and sustain a healthy quality of life by providing efficient administration, planning, maintenance, construction management and technical engineering of the county's infrastructure. Services include permits, subdivisions and site plans, transportation planning, snow and ice removal, pothole repair, tree pruning, roadways repair and maintenance, and mosquito control. Essex County Utilities Authority (ECUA): The mission of the ECUA is to plan, develop, and implement cost-effective solid waste management methods for the County of Essex which emphasize the recovery of materials and energy with a minimum impact on the environment. ECUA develops and updates the Essex County Solid Waste Management Plan and develops and manages contracts for the environmentally safe and proper disposal of solid waste. The ECUA holds regular Household Hazardous Waste (HHW) events for Essex County residents to facilitate environmentally sound collection, recycling, and disposal of these materials.
Construction / Building / Code Enforcement Department	The Division of Buildings and Grounds is responsible for operating, repairing and maintaining all County-owned buildings, with the exception of Park facilities. The Division provides technical and mechanical services necessary for the safe and efficient operation of heating, ventilation, air conditioning, plumbing and electrical systems in all buildings. Additional responsibilities of this division include building maintenance functions and services such as housekeeping, pest control, locksmithing, carpentry, etc.

Department / Board / Committee	Description and Role in Risk Reduction
Engineering Department	The Division of Engineering provides professional engineering services which include design, construction, construction inspection, construction management, bridge inventory, and maintenance throughout Essex County. The Division is responsible for the reconstruction and non-routine maintenance of approximately 215 miles of existing County roads; construction of new County roads as required; the operation and maintenance of 4 swing bridges over the Passaic River; the non-routine maintenance of 131 stationary bridges with spans of twenty feet or more and 230 culverts with spans of less than twenty feet; and the non-routine maintenance of 460 signalized intersections and over 30,000 traffic signs. The Division is also responsible for performing all engineering services for all of the County's 18 parks, 5 reservations, and recreation facilities. The Division of Engineering also conducts the review of site plans and subdivisions submitted to the Essex County Planning Board. Site plans and subdivisions are reviewed for their traffic, drainage, and roadway impacts on the County roads.
Parks and Recreation Department	The Essex County Department of Parks, Recreation and Cultural Affairs oversees the County's 24 parks, 5 reservations, and variety of recreation facilities.
Open Space Board / Committee	Recreation and Open Space Advisory Board: Responsibilities of the Board include: • Make recommendations to the County Executive regarding the overall administration of the County Open Space Acquisition Program established pursuant to the Public Law 1989, Chapter 30. • Prepare a park, recreation, and open space plan for adoption by the County. • Develop and recommend to the County Executive a system to prioritize the selection of open space areas for acquisition, the system to include: • Consideration of existing municipal, County and state plans. • The identification of geographic areas for acquisitions based on established criteria. • The identification of the type of land to be acquired for open space. • Develop and recommend to the County Executive a funding assistance program, which may include: • Acquisition of lands for recreation and conservation purposes; • Development of lands acquired for recreation and conservation purposes; • Maintenance of lands acquired for recreation and conservation purposes; • Acquisition of farmland for farmland preservation purposes; • Historic preservation of historic properties, structures, facilities, sites, areas, or objects, and the acquisition of such properties, facilities, sites, areas, or objects for historic preservation purposes; and • Payment of debt service on indebtedness issued or incurred by a county or municipality for any of the purposes set forth above.
Environmental Board / Commission	Essex County Environmental Commission: The Environmental Commission provides advice, outreach, and education to the office of the Essex County Executive, Board of Commissioners and the municipal Environmental Commissions in order to protect, restore and renew Essex County's natural resources and to increase environmental awareness, ensuring that all Essex County citizens can enjoy a healthy environment and an enhanced quality of life within a sustainable regional community.

Department / Board / Committee	Description and Role in Risk Reduction
Emergency Management / Public Safety Department	The Essex County Sheriff's Office – Office of Emergency Management (ECSO OEM) goal is to mitigate, prepare for, respond to and recover from the effects of natural or man-made disasters and other hazards or emergencies that may occur within our region. The ECSO OEM maintains or facilitates the updating of more than 100 plans, annexes, appendices, and supporting documents that guide preparedness, response, and mitigation activities that can be applied to any disaster or emergency affecting the region. ECSO OEM works closely with all Essex County municipalities, all public safety disciplines, and critical private/public sector entities to engage in comprehensive disaster planning for Essex County. In addition to serving as a liaison to local, county, state, and federal agencies, the ECSO OEM also serves as a liaison to utility companies and private sector companies within our region. These partners are key players who help support response and recovery efforts during emergencies. Essex County has regularly scheduled meetings with Emergency Managers from each community. Training for all municipalities and colleges are provided for all community emergency response teams (CERT) within the County. In addition, the County has organized instructor-led training from utility companies regarding generator safety for LEPC members. LEPC meetings include agency representatives from public, private, utilities, non-profits, educational institutions. Essex County Community Organizations Active in Disaster (COAD): The Essex County Community Organizations Active in Disaster (COAD) brings together local organizations and houses of worship with local officials and emergency management professionals to strengthen the overall community response to a disaster and help the community better plan and prepare for whatever may lie ahead. The COAD does not deliver any services directly but fosters communication, coordination, collaboration, and cooperation among governmental and non-governmental organizations to provide the most effective services to our community. Through regular meetings, training, and information sharing, organizations build plans and form partnerships to respond better when a disaster strikes.
Fire Department	Essex County Fire Coordinator
Additional departments, boards, and committees	The Essex County Health Department services all of Essex County's 22 municipalities in the areas of solid waste enforcement, air noise and water pollution and hazardous response. The Health Department strives to be an environmental health education resource for all of Essex County.

Source(s): (County of Essex 2024); (Essex County 2024); (Essex County 2019); (Essex County 2019); (Essex County n.d.); (Essex County 2024); (Essex County 2024); (Essex County 2024); (Essex County 2024); (Essex County 2024); (Essex County 2024); (Essex County 2024) (Essex County 2024); (Essex County 2024); (Essex County Utilities Authority n.d.); (Essex Regional Health Commission n.d.); (Jersey Cares n.d.)

The table below summarizes Essex County's staff with skills and expertise that contribute to risk reduction.

Table 1-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Yes, located in the Division of Planning under the auspices of the Department of Public Works.

Staff	Description and Role in Risk Reduction
Engineer	Yes, located in the Division of Engineering under the auspices of the Department of Public Works.
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	In various departments
Staff with benefit / cost analysis expertise	Engineering
Staff trained in conducting substantial damage determinations	Sherriff's Office
Staff trained in GIS	In various departments
Staff that provide support to socially vulnerable populations	Department of Citizen Services, Office of Health, Department of Economic Development, Training and Employment
Additional staff with skills and expertise that contribute to risk reduction	OEM, Engineering, Planning

The table below summarizes development and permitting capabilities of Essex County.

Table 1-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Essex County Department of Public Works issues permits to construct, improve, work on, or occupy the County's sidewalks and roadways. Anyone who wants to perform work on County streets or sidewalks needs to obtain a permit from the Department of Public Works. The County will review site plans that impact County facilities (e.g. roads, drainage systems, county parks, county buildings). All subdivisions proposed in Essex County need to be by approved by Essex County Planning.
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	At the county level, the Essex County Planning Board performs the review and approval for all subdivisions of land within the County. The subdivision application asks applicants to identify whether or not the site is in a floodplain. If so, they need to obtain a NJDEP permit.
How does your jurisdiction inventory land available for new development?	No, this is done locally.
What percentage of your jurisdiction is available for new development?	Essex County is nearly 100 percent built out.

1.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of Essex County.

Table 1-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Capital improvements funding	Yes	Allocated annually
Open space acquisition programs	Yes	Essex County Recreation and Open Space Trust Fund: The Trust Fund can be used for: • Acquisition of lands for recreation and conservation purposes. Development of lands acquired for recreation and conservation purposes. • Maintenance of lands acquired for recreation and conservation purposes. • Acquisition of farmland for farmland preservation purposes. • Historic preservation of historic properties, structures, facilities, sites, areas or objects, and the acquisition of such properties, structures, facilities, sites, areas, or objects for historic preservation purposes. In August of 2024, the County announced the completion of the Independence Park Playground Modernization project. The County has ongoing efforts to revitalize its parks system overall. The Essex-Hudson Greenway Project, while is state led, is also another way Essex County is utilizing open space.
Impact fees for developers of new homes	Yes	As needed
User fees for water, sewer, gas, or electric	No	-
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	No	-
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	Yes	Emergency Response Cost Recovery: The County may recover all costs reasonably incurred by the County, its employees, agents and contractors in connection with an emergency response action, including the overtime costs of appropriately deployed emergency response personnel, costs incurred by the County in the recovery of these costs, and the costs of expendable items.

1.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of Essex County.

Table 1-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	The Communications Center monitors and directs all field units through the use of a computer aided dispatch (CAD) system. The CAD system is capable of tracking unit locations, creating incident files, applying hazard alerts to addresses, and creating statistical reports on crime and incident data. The municipalities utilize Nixle to rely emergency alerts to residents who register with the program.

Outreach Capability	Description and Role in Risk Reduction
Public Information Officer	
Website	The website is maintained through an outside consultant. The Sheriff's Office provides a significant amount of safety tips on their website (https://www.essexsheriff.com/safety-tips/). This includes informational brochures including preparedness, severe weather driving tips, making a 'go kit', and winter driving tips.
Social media	Facebook and X (formerly Twitter).
Public safety campaigns	Yes
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	Completed by Public Health, Citizen Services, etc.
Other outreach capabilities	The Sheriff's Office attends public events and distributes informational brochures about hazard risk and mitigation to attendees.

1.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of Essex County. Administration of the National Flood Insurance Program is the responsibility of the individual municipalities in Essex County.

Table 1-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Floodplain administration is the responsibility of local municipalities in Essex County.
What local department is responsible for floodplain management?	Floodplain administration is the responsibility of local municipalities in Essex County.
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Refer to municipal annexes.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	Refer to municipal annexes.
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Refer to municipal annexes.
How many properties have been mitigated (elevation or acquisition)?	Refer to municipal annexes.
Summarize the jurisdiction's Substantial Damage determination procedures.	Refer to municipal annexes.
Summarize the jurisdiction's Substantial Improvement procedures.	Refer to municipal annexes.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Refer to municipal annexes.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	Refer to municipal annexes.
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Refer to municipal annexes.

1.3.6 Community Classifications

Table 1-14 summarizes Essex County's participation in community classification programs.

Table 1-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	Not available	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Not available	-
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

1.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that Essex County has in place and will use to prepare for changes in risk due to climate change.

Table 1-15. Adaptive Capacity for Climate Change

Adaptive Capacities	*Comments*
What climate change associated risks have been identified by the jurisdiction?	Coastal flooding and erosion, tidal influenced waterways, severe storms, severe winter storms, tornado, wildfires, floods, extreme temperatures, hailstorm, hurricane, ice storm, disease outbreak, landslide, land subsidence, and nor'easter's.
What information does the jurisdiction use to understand potential climate change impacts?	NJTPA's 2024 Resilience Improvement Plan, the FY 2021-2022 On-Road Transportation Greenhouse Gas (GHG) Emissions Inventory & Forecast (I&F) of the NJTPA Region Analysis Report (2024), Plan 2050: Climate Change and Transportation Background Paper (2021), and the Passaic River Basin Climate Resilience Planning Study (2019).
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	The County has implemented several plans and strategies to address future climate change risks: Essex 2045 (2024), the Comprehensive Energy Master Plan (2017), the Support for the Green Amendment (2018) and working with Essex County municipalities like Montclair & Newark that have created their own Climate Action Plans. The County also follows the New Jersey Stormwater Quality Standards to manage and mitigate the impacts of stormwater runoff.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Director Sanjeev Varghese and the County Planner David Antonio.
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Essex County is proactively securing funding and allocating resources through various initiatives at the federal, state and local levels. Federal and State: Climate Pollution Reduction Grants & NOAA Resilience Funding. At County level: the 2025 Essex County Budget has been introduced, and it emphasizes investing in renewable energy, recycling programs and climate resilience

Adaptive Capacities	Comments
	projects which all reflect the County's commitment to addressing climate change impacts and preparing for future challenges.
How does the jurisdiction educate the public on potential climate change impacts?	Public engagement contributes to all the plans mentioned above. Websites, popups, forums, and public meetings are all used to educate the public and engage with the public for each study.

1.3.8 Capability Assessment Summary

Essex County's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

Essex County determined the following hazard capability effectiveness ratings.

Table 1-16. Essex County Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

1.3.9 Opportunities to Improve Capabilities and Integration

- Municipalities in Essex County do not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. Each municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- Recent wildfire events have demonstrated the need for wildfire preparedness planning.
- The existing Essex County Park, Recreation and Open Space Master Plan is outdated and in need of update. The current plan does not prioritize open space acquisition and uses that could help mitigate hazard risk.
- Multi-hazard events could result in power outages that would reduce the capabilities of the County for distributing important health information.
- Emerging disease outbreak risks such as monkeypox and avian flu represent new risks to the County. Emerging diseases require analysis of risk and capability assessment.

- Floodwaters can move contaminants from brownfield sites, storm sewers, and other unsafe locations. The public often is unaware of this risk.
- Emerging socially vulnerable populations due to population shifts and changes in demographics may require different approaches to outreach and education.

1.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for Essex County were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the County's reduction of risk through current capabilities.

Essex County reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the County discussed the following local factors that led to modifying the hazard rankings:

- The County agreed with the calculated hazard rankings.

Essex County agreed upon the following hazard rankings.

Table 1-17. Essex County Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Medium
Drought	Medium
Earthquake	Medium
Extreme Temp	Medium
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Medium

1.5 Jurisdictional Mitigation Strategy

1.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 1-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-ESSEX COUNTY-001	**Backup power for County facilities:** Obtain backup power for the following facilities: • Essex County K9/Bomb building – portable generator • OEM Storage/Crime Scene Facility – portable generator	Essex County Sheriff's Office	In Progress. The Essex County K9/Bomb building still needs a generator. Crime scene facility no longer in place	Yes	The Essex County K9/Bomb building still needs a permanent generator.
2020-ESSEX COUNTY-002	**Essex County Traffic Control Transfer Switch generator:** Purchase a portable generator to use during a utility interruption to operate the County's traffic control transfer switch.	Essex County Sheriff's Office	In Progress. The County has acquired one switch generator, but it has been determined that an additional four are needed.	Yes	Purchase four portable generators to use during a utility interruption to operate the County's traffic control transfer switch.
2020-ESSEX COUNTY-003	**Enlarge drainage system on JFK Parkway in Millburn:** Enlarge the drainage system on JFK Parkway in Millburn to reduce or eliminate flooding that occurs in this area.	County Engineering Office	In Progress. Culvert has been rebuilt, finishing retaining wall. Work under the highway and entrances to culvert have been completed. 100 percent DOT funded.	Yes	-
2020-ESSEX COUNTY-004	**Evaluate drainage systems in Essex County:** Conduct a study to evaluate drainage systems	County Engineering	In Progress. This action is just in early discussion phases.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	on roadways to reduce the impacts of flooding. The systems include: Passaic Avenue and Bloomfield Avenue in Verona and JFK Parkway in Millburn and South Orange.	Office, Essex County Sheriff's Office			
2020-ESSEX COUNTY-005	**Potable Water Trailers:** Purchase three 525-gallon potable water trailers to use in the event drinking water is not available to County residents.	Sheriff's Communication Bureau County Engineering Office	No Progress	Yes	-
2020-ESSEX COUNTY-006	**Voice / Data transmissions at DPW Headquarters:** Provide redundant methods for Voice/Data transmissions 4G wireless broadband at DPW Headquarters.	Sheriff's Communication Bureau, County DPW	No Progress. This problem has been addressed through additional sources of communication via Verizon and Comcast.	No	-
2020-ESSEX COUNTY-007	**Install quick-connects for emergency generators at eight County fueling stations:** Install a quick connect system at the fueling stations to allow generators to run the fuel pumps when needed.	County Engineering Office	No Progress. This action's solution uses an outdated methodology for fueling and is no longer a priority.	No, action is outdated and no longer a priority.	-
2020-ESSEX COUNTY-008	**Install a County-Wide emergency alert system:** Research the various countywide alert systems and	Essex County Sheriff's Office	No Progress. The County has elected to maintain the current system.	No, the County is supportive of maintaining the current system.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	identify the best one for Essex County. Install a countywide emergency alert system which will increase communication capabilities with residents in the County.	of Emergency Management			
2020-ESSEX COUNTY-009	**Conduct a functional exercise related to school safety:** Exercises are one of the core elements of the preparedness phase of emergency management. The Sheriff's Office will develop functional emergency exercises specific to school safety concerns (e.g. active shooter, hazardous materials release, explosions). Once the exercises are developed, the Sheriff's Office will conduct the exercises with schools in the County.	Essex County Sheriff's Office	No Progress.	No, this action is focused on non-natural hazards and will be addressed through other safety initiatives.	-
2020-ESSEX COUNTY-010	**Update Transportation Plan:** When updating the County's transportation plan in 2020/2021, a community resiliency element will be incorporated as appropriate. The plan will also incorporate hazard areas identified in the	Division of Planning	Complete. Essex 2045 was completed in 2023.	No, completed.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	2020 Essex County HMP and create goals related to reducing impacts to hazards, such as floodplains and areas with steep slopes.				
2020-ESSEX COUNTY-011	**Wildfire Preparedness Plan:** Develop a County Multi-jurisdiction Wildfire Preparedness Plan. Identify updated drafting locations in the reservation to ensure accessibility for pump trucks.	Essex County Sheriff's Office of Emergency Management	No Progress.	Yes	Develop a plan that takes into account lessons learned from recent fires.
2020-ESSEX COUNTY-012	**Purchase a brush truck:** Purchase a wildfire "brush truck" to combat wildfires within County.	Essex County Sheriff's Office of Emergency Management	No Progress. Recent events have demonstrated a need for a brush truck.	Yes	-
2020-ESSEX COUNTY-013	**Passaic River Bridge Crossing:** Work with Hudson County to construct a new Passaic River bridge crossing in the Newark area to relief currently over-burdened bridges and provide additional traffic redundancy in case of another hazard.	Essex County Department of Public Works, Hudson County	In Progress. In preliminary design.	Yes	-
2020-ESSEX COUNTY-014	**High Water Vehicles:** Acquire additional high water vehicles	Essex County Sheriff's Office of Emergency Management	No Progress. The County has identified several high water vehicles that can be used.	No, the County has sufficient stock of high water vehicles.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	that will permit ingress/egress of essential personnel and supplies during disasters.				
2020-ESSEX COUNTY-015	**Water Tender for County:** Purchase a water tender(s) to assist with firefighting in areas of limited fire hydrants	Essex County OEM and County Fire Coordinator	No Progress	Yes	-
2020-ESSEX COUNTY-016	**Riker Hill Art Park Hydrants:** Extend the water main to Riker Hill Park to provide proper fire protection to buildings.	Essex County OEM with support from Livingston Township officials	No Progress	Yes	-
2020-ESSEX COUNTY-017	**Natural Gas Generators Inventory:** The County will prepare a list critical facilities that use natural gas generators. The list will be shared with PSE&G and updated as appropriate. This will allow PSE&G to provide natural gas to these critical facilities and allow them to remain operational during utility interruptions.	Essex County OEM and Essex County DPW	Complete. Have identified 5 locations. DPW facility, 50 south Clifton (public assistance building), MLK justice building in Newark 465 MLK, 320 University Avenue Family courts building, 80 Duryea Street juvenile detention building in Newark.	No, complete.	-
2020-ESSEX COUNTY-018	**Update Open Space Plan:** Update the existing Essex County Park, Recreation and	Essex County Department of Parks,	In Progress. Update of the plan is not underway but	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	Open Space Master Plan to identify locations to acquire properties to turn into open space.	Recreation and Cultural Affairs	information gathering is taking place.		
2020-ESSEX COUNTY-019	**Critical Facility in Floodplain - ESCO Equipment Storage Facility:** The Sheriff's Office will evaluate the storage facility and identify what needs to be mitigated (electrical equipment, supplies, etc.). Once the evaluation is complete and solutions are identified, the Sheriff's Office will implement those solutions. The solutions can include elevating electrical equipment above the base flood elevation, use sand bags to create barrier around facility prior to flood events, and moving equipment prior to flood events to protect from damage.	Essex County Sheriff's Office	No Progress. Facility has been relocated.	No, the facility has been relocated.	-
2020-ESSEX COUNTY-020	**Critical Facility in floodplain – Essex County Airport:** The Sheriff's Office will notify the Improvement Authority that the airport is located in the floodplain and determine if the	Essex County Sheriff's Office working with the Essex County	In Progress. Will be discussing in March.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	facility is protected from floods. If the facility is not protected, the Sheriff's Office will provide mitigation options that the Improvement Authority can consider protecting the airport's critical assets.	Improvement Authority			
2020-ESSEX COUNTY-021	**Community Health Needs Assessment for Essex County:** Essex County Health Department will lead the efforts to conduct a Community Health Needs Assessment for the County. They will use primary source health data through the municipal health departments, conduct a community health survey, and involve other county and community stakeholders. This assessment will determine the top three health issues in Essex County. After the assessment is complete, the Health Department will develop appropriate public outreach and education materials.	Essex County Health Department with support from municipal health departments	Complete. The Assessment was completed in 2022 by the Essex County Office of Public Health Management New Jersey and the School of Public Affairs and Administration, Rutgers University Newark.	No	-
2020-ESSEX COUNTY-022	**Essex County Bridges:** Essex County will work with Hudson	Essex County Engineering with	In Progress.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	County (where appropriate) to replace these bridges in coordination with the New Jersey Transportation Authority (NJTPA) and U.S. Federal Highway Administration (FHWA). Erosion control and upgrade of pilings is included. To date the local concept development has been completed; design phase is scheduled for the next 6-8 months. $30-80 Million to replace each bridge.	support from Hudson County Engineering	Bridge street Bridge – In prelim design Clay Street Bridge-In final design Jackson Street-Applied for funding		
2020-ESSEX COUNTY-023	**Dam deficiencies in the County:** The HMP Coordinator (Essex County Sheriff's Office) will include in the next HMP update grant scope of work to reach out to NJDEP to establish ownership of dams in the County and identify opportunities for mitigation in coordination with the municipalities. This will enable municipalities to identify ownership, jurisdiction and next steps to mitigate deficient	Essex County Sheriff's Office	In Progress. Dams with deficiencies identified at recent inspections have been identified.	Yes	Offer support to municipalities and NJDEP for information and data to support dam mitigation.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	dams in the County leveraging grant funding.				

1.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, Essex County identified the following mitigation efforts completed since the last HMP:

- Bridges in the County were inspected in 2024 to identify resiliency improvement needs.

1.5.3 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, Essex County identified the following issues that require mitigation.

- Municipalities in Essex County do not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. Each municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The Essex County K9/Bomb building lacks backup power.
- The County has acquired one switch generator, but it has been determined that an additional four are needed
- Several County owned roadways prone to flooding in heavy rainfall events. The roadways include:
    - Passaic Avenue and Bloomfield Avenue in Verona
    - JFK Parkway in Millburn and South Orange.
    - West Lindsley Road
- The Rahway River flows down from the 62-acre Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
- The Peckman River and Passaic River are prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues as well as reduction of navigable waters for emergency response. As multiple municipalities are impacted, a multi-jurisdictional approach to reducing risk along these rivers is needed.
- Bridges crossing into Hudson County from Newark are over-burdened. Loss of a bridge due to a hazard event would result in great economic damages.
- There are limited emergency potable water options in the event of a drought or other event that limits drinking water availability.
- Recent wildfire events have demonstrated the need for wildfire preparedness planning.
- Recent wildfire events have demonstrated the need for additional firefighting equipment.
- The existing Essex County Park, Recreation and Open Space Master Plan is outdated and in need of update. The current plan does not prioritize open space acquisition and uses that could help mitigate hazard risk.
- The Essex County Airport, under the jurisdiction of the Essex County Improvement Authority is located in the floodplain.

- Essex County has inspected many County bridges in the past several years and identified necessary resiliency upgrades at several bridges.
- Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.
- Several dams in Essex County have been found to have unsatisfactory or poor safety ratings based on their most recent inspections. Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
- The Essex County Emergency Operations Center is located in a flood zone on a first floor. Flooding could result in lack of access to the Emergency Operations Center or necessary shut down of the facility.
- Multi-hazard events could result in power outages that would reduce the capabilities of the County for distributing important health information.
- Emerging disease outbreak risks such as monkeypox and avian flu represent new risks to the County. Emerging diseases require analysis of risk and capability assessment.
- The Port Authority of New York and New Jersey is responsible for Port Newark and Newark International Airport. Each facility is a vital economic driver for the region and needs to be resilient to various hazard threats.
- Floodwaters can move contaminants from brownfield sites, storm sewers, and other unsafe locations. The public often is unaware of this risk.
- Power failure results in the loss of traffic signals, causing unsafe traffic conditions, requiring police to direct traffic, and limiting staffing capabilities to respond to other aspects of the hazard event that caused the power failure.
- Emerging socially vulnerable populations due to population shifts and changes in demographics may require different approaches to outreach and education.

1.5.4 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. Essex County's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 1-19. Essex County 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Essex County-01	Substantial Damage Management Planning			X	X	X	X	X	X	X
2025-Essex County-02	Backup Power for the Essex County K9/Bomb Building			X	X	X	X	X	X	X
2025-Essex County-03	Essex County Traffic Control Transfer Switch Generator			X	X	X	X	X	X	X
2025-Essex County-04	Evaluate Drainage Systems in Essex County					X		X		
2025-Essex County-05	Pre-Flood Draw Down of Orange Reservoir					X		X		
2025-Essex County-06	Multi-Jurisdictional Approach to Peckman and Passaic River					X	X	X	X	
2025-Essex County-07	Passaic River Bridge Crossing			X		X	X	X	X	
2025-Essex County-08	Potable Water Trailers		X							
2025-Essex County-09	Wildfire Preparedness Plan									X
2025-Essex County-10	Brush Truck and Water Tender for Wildfire Response									X
2025-Essex County-11	Update Open Space Plan				X	X				
2025-Essex County-12	Essex County Airport Flood Risk					X		X		
2025-Essex County-13	Essex County Bridges			X		X		X	X	
2025-Essex County-14	Riker Hill Art Park Hydrants									X
2025-Essex County-15	Support Dam Mitigation					X				
2025-Essex County-16	Relocate Essex County Emergency Operations Center					X				
2025-Essex County-17	Develop Health Outreach Plan for Multi-Hazard Events	X				X				

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Essex County-18	Tabletop Exercises for Emerging Disease Outbreak Risks	X								
2025-Essex County-19	Port Newark and Newark Airport Risk Assessments	X	X	X	X	X	X	X	X	X
2025-Essex County-20	Public Education on Risks of Floodwater Contaminations	X				X				
2025-Essex County-21	Traffic Light Backup Power			X	X	X	X	X	X	X
2025-Essex County-22	Outreach for Emerging Socially Vulnerable Populations	X	X	X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 1-20. Essex County 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Essex County-01	Substantial Damage Management Planning	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Essex County-02	Backup Power for the Essex County K9/Bomb Building	1	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2025-Essex County-03	Essex County Traffic Control Transfer Switch Generator	1	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2025-Essex County-04	Evaluate Drainage Systems in Essex County	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Essex County-05	Pre-Flood Draw Down of Orange Reservoir	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2025-Essex County-06	Multi-Jurisdictional Approach to Peckman and Passaic River	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2025-Essex County-07	Passaic River Bridge Crossing	0	1	1	1	1	0	1	0	1	1	1	0	1	1	10	Medium
2025-Essex County-08	Potable Water Trailers	1	0	1	1	1	1	0	1	1	0	1	0	1	1	10	Medium
2025-Essex County-09	Wildfire Preparedness Plan	1	1	1	1	1	1	1	1	1	0	1	0	1	1	12	High
2025-Essex County-10	Brush Truck and Water Tender for Wildfire Response	1	1	1	1	1	0	1	1	1	0	1	0	1	1	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Essex County-11	Update Open Space Plan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2025-Essex County-12	Essex County Airport Flood Risk	0	1	1	1	1	1	1	1	1	0	1	1	0	1	11	High
2025-Essex County-13	Essex County Bridges	1	1	1	1	1	0	1	1	1	1	1	0	1	1	12	High
2025-Essex County-14	Riker Hill Art Park Hydrants	1	1	1	1	1	0	1	1	1	0	1	0	1	1	11	High
2025-Essex County-15	Support Dam Mitigation	0	1	1	1	1	0	1	1	1	0	1	0	1	1	10	Medium
2025-Essex County-16	Relocate Essex County Emergency Operations Center	1	1	1	1	1	0	1	1	1	0	1	0	1	1	11	High
2025-Essex County-17	Develop Health Outreach Plan for Multi-Hazard Events	1	0	1	1	1	1	1	1	1	1	1	0	1	1	12	High
2025-Essex County-18	Tabletop Exercises for Emerging Disease Outbreak Risks	1	0	1	1	1	1	1	1	1	0	1	0	1	1	11	High
2025-Essex County-19	Port Newark and Newark Airport Risk Assessments	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2025-Essex County-20	Public Education on Risks of Floodwater Contaminations	1	0	1	1	1	1	1	1	1	1	1	1	0	1	12	High
2025-Essex County-21	Traffic Light Backup Power	1	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Essex County-22	Outreach for Emerging Socially Vulnerable Populations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Essex County-01: Substantial Damage Management Planning

Lead Agency:	OEM	
Supporting Agencies:	Public Works, OEM	
Hazard(s) of Concern:	Earthquake, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. Municipalities in Essex County do not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. Each municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.	
Description of the Solution:	The County will support municipalities in the development of their Substantial Damage Management Plans, following the six step planning process in 2021 *Developing a Substantial Damage Management Plan* (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.	
Estimated Cost:	Low	
Potential Funding Sources:	County budget	
Implementation Timeline:	Within 5 years to develop the plans	
Goals Met:	2, 5	
Benefits:	Plans will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.	
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.	
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.	
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.	
Impact on Capabilities:	This action improves disaster recovery capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.	
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**

	No Action	-
	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Essex County-02: Backup Power for the Essex County K9/Bomb Building

Lead Agency:	Sheriff's Office	
Supporting Agencies:	Engineer, Public Works	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Essex County K9/Bomb building lacks backup power.	
Description of the Solution:	The County Engineer will determine the appropriate sized generator needed to power the K9/Bomb Building. Public Works will oversee installation of a fixed mounted generator and necessary electrical components to supply backup power to the K9/Bomb Building. Sheriff's Office will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	6	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Essex County-03: Essex County Traffic Control Transfer Switch Generator

Lead Agency:	Essex County Sheriff's Office
Supporting Agencies:	Public Works
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	The County has acquired one switch generator, but it has been determined that an additional four are needed
Description of the Solution:	The County will purchase an additional four portable generators to use during a utility interruption to operate the County's traffic control transfer switch.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	6
Benefits:	This action protects public health and safety and ensures continued traffic safety during a power outage.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical functions during an emergency.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Install permanent generators	Expensive and limited space
Install gates to shut down intersections during power outages	Requires manpower and will result in severe traffic

2025-Essex County-04: Evaluate Drainage Systems in Essex County

Lead Agency:	County Engineer
Supporting Agencies:	Public Works
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	Several County owned roadways prone to flooding in heavy rainfall events. The roadways include: • Passaic Avenue and Bloomfield Avenue in Verona • JFK Parkway in Millburn and South Orange. • West Lindsley Road
Description of the Solution:	The County will conduct studies of floodprone County roadways to evaluate drainage systems, determine the cause of flooding, and determine options to reduce the impacts of flooding. Cost-effective options will be implemented. JFK Parkway flood upgrades are currently underway in Millburn with NJDOT funding. The culvert has been rebuilt. Work under the highway and entrances to culvert have been completed. The retaining wall is being completed.
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, County budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	This action will provide the County with information on where flooding occurs and potential mitigation measures that the County can use to address the flooding.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	John F Kennedy Parkway is a critical roadway for the County.
Impact on Capabilities:	If flooding is addressed, emergency staff capabilities at the Township will be freed up, increasing emergency capabilities.
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Structural Projects
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Close access to JFK Parkway when flooding is forecast	Not feasible
Build stormwater detention facilities next to JFK Parkway to take on stormwater	Not enough space

2025-Essex County-05: Pre-Flood Draw Down of Orange Reservoir

Lead Agency:	County Engineer
Supporting Agencies:	Mayors Council Rahway River Watershed Flood Control
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Rahway River flows down from the 62-acre Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
Description of the Solution:	The Orange City Council passed a resolution in 2023 that let Millburn Township study the Orange Reservoir's potential as a retention basin during storms. The aim would be to use the lake to hold back thousands of gallons of water from entering the Rahway River, greatly reducing the volume of water flowing downstream. The idea is to install pipes that could drain the reservoir before a storm. This would increase the capacity of the reservoir, allowing more water to fill the reservoir before entering the Rahway River, reducing the amount of water heading downstream. The County Engineer will provide input on the impacts to the County from the current status and potential outcomes of a pre-flood draw down approach.
Estimated Cost:	Staff time
Potential Funding Sources:	County budget
Implementation Timeline:	Within 5 years
Goals Met:	4, 5
Benefits:	This action would reduce flood risk along the Rahway River downstream of the Orange Reservoir. Millburn Township believes that flooding could be reduced by as much as three feet with this project implemented.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	All development downstream of the Orange Reservoir on the Rahway River would benefit from this action.
Impact on Critical Facilities/Lifelines:	The Reservoir is a lifeline facility.
Impact on Capabilities:	This action would add a new flood risk reduction capability.
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Community Capacity Building
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Expand the carrying capacity of the channel	This may result in faster flooding of downstream areas
Build lake at Arboretum	Loss of other habitat for bird sanctuary

2025-Essex County-06: Multi-Jurisdictional Approach to Peckman and Passaic Rivers

Lead Agency:	Sheriff's Office	
Supporting Agencies:	Engineering, Municipalities	
Hazard(s) of Concern:	Flood, Geological Hazards, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Peckman River and Passaic River are prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues as well as reduction of navigable waters for emergency response. As multiple municipalities are impacted, a multi-jurisdictional approach to reducing risk along these rivers is needed.	
Description of the Solution:	The County will cooperate with municipalities impacted by flooding in the Peckman River and Passaic River in the region. A collective approach to maintenance of the river will be established including identifying and removing snags and fallen trees, addressing shoaling, and mapping the shoreline position to determine trends and areas that need to be addressed.	
Estimated Cost:	Medium	
Potential Funding Sources:	County budget	
Implementation Timeline:	3 years	
Goals Met:	1, 2, 5	
Benefits:	Flooding due to stream bank failure and debris snags will be reduced along the rivers	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the capabilities of the County and municipalities to maintain the Peckman and Passaic River and restore emergency response capabilities in navigable waters.	
Climate Change Considerations:	Climate change is likely to result in an increase in flooding events and severe weather events that cause downed trees and streambank erosion. This action aims to address the impacts and increased frequency of these events.	
Mitigation Category:	Natural Systems Protection, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Retreat from areas near Peckman River	High cost, unpopular
	Levees along Peckman River	Not feasible/environmentally damaging, costly

2025-Essex County-07: Passaic River Bridge Crossing

Lead Agency:	Essex County Department of Public Works	
Supporting Agencies:	Hudson County	
Hazard(s) of Concern:	Earthquake, Flood, Geological Hazards, Severe Weather, Severe Winter Weather	
Description of the Problem:	Bridges crossing into Hudson County from Newark are over-burdened. Loss of a bridge due to a hazard event would result in great economic damages.	
Description of the Solution:	The County will work with Hudson County to construct a new Passaic River bridge crossing in the Newark area to relief currently over-burdened bridges and provide additional traffic redundancy in case of another hazard. Preliminary design of the new bridge is currently underway.	
Estimated Cost:	High	
Potential Funding Sources:	Essex County, Hudson County, DOT	
Implementation Timeline:	Within 5 years	
Goals Met:	6	
Benefits:	Improved resiliency of the transportation system in the event of a bridge failure.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	These bridges are critical components of the transportation lifeline.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in an increase in severe weather events that could impair the existing bridge structures.	
Mitigation Category:	Structural Projects	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Construct tunnels	Costly
	Close bridges	Not feasible

2025-Essex County-08: Potable Water Trailers

Lead Agency:	Essex County Office of Emergency Management
Supporting Agencies:	County Engineering Office
Hazard(s) of Concern:	Drought
Description of the Problem:	There are limited emergency potable water options in the event of a drought or other event that limits drinking water availability.
Description of the Solution:	The County will purchase three 525-gallon potable water trailers to use in the event drinking water is not available to County residents.
Estimated Cost:	High
Potential Funding Sources:	County budget
Implementation Timeline:	Within 5 years
Goals Met:	6
Benefits:	Emergency response capabilities established for severe drought or other events resulting in loss of potable water.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often the first to need support in events where water is lost.
Impact on Future Development:	Continued development is likely to increase water usage.
Impact on Critical Facilities/Lifelines:	This action helps provide backup to existing water lifelines.
Impact on Capabilities:	This action improves emergency response capabilities.
Climate Change Considerations:	Climate change is likely to result in more severe drought events.
Mitigation Category:	Emergency Services
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Establish more extensive MOUs with neighboring counties for water resources / Resources may not be available in severe events.
	Establish more extensive MOUs with state agencies for water resources / Resources may not be available in severe events.

2025-Essex County-09: Wildfire Preparedness Plan

Lead Agency:	Essex County Office of Emergency Management
Supporting Agencies:	County Fire Coordinator, Neighboring Counties
Hazard(s) of Concern:	Wildfire
Description of the Problem:	Recent wildfire events have demonstrated the need for wildfire preparedness planning.
Description of the Solution:	The County will develop a County Multi-jurisdiction Wildfire Preparedness Plan. The Plan will identify updated drafting locations in the reservation to ensure accessibility for pump trucks. The Plan will use lessons learned from recent wildfire events in the County. The County will coordinate with neighboring counties to gather input and identify opportunities to share resources.
Estimated Cost:	Low
Potential Funding Sources:	County budget
Implementation Timeline:	Within 5 years
Goals Met:	5, 6
Benefits:	This action will result in improved wildfire fighting capabilities.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action will improve the security lifeline.
Impact on Capabilities:	Increase firefighting capabilities.
Climate Change Considerations:	Climate change is likely to result in more droughts that will increase the risk for wildfire events.
Mitigation Category:	Community Capacity Building
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Establish more extensive MOUs with neighboring counties for wildfire response	Slow response and lack of coordination of existing County resources
Establish more extensive MOUs with state agencies for wildfire response	Slow response and lack of coordination of existing County resources

2025-Essex County-10: Brush Truck and Water Tender for Wildfire Response

Lead Agency:	Essex County Office of Emergency Management	
Supporting Agencies:	County Fire Coordinator	
Hazard(s) of Concern:	Wildfire	
Description of the Problem:	Recent wildfire events have demonstrated the need for additional firefighting equipment.	
Description of the Solution:	The County will purchase a water tender(s) and brush truck to assist with firefighting in areas of limited fire hydrants	
Estimated Cost:	High	
Potential Funding Sources:	County budget, Emergency Management Performance Grants (EMPG) Program	
Implementation Timeline:	Within 5 years	
Goals Met:	5, 6	
Benefits:	This action will result in improved wildfire fighting capabilities.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will improve the security lifeline.	
Impact on Capabilities:	Increase firefighting capabilities.	
Climate Change Considerations:	Climate change is likely to result in more droughts that will increase the risk for wildfire events.	
Mitigation Category:	Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Establish more extensive MOUs with neighboring counties for wildfire response	Slow response and resources may not be available in large events.
	Establish more extensive MOUs with state agencies for wildfire response	Slow response and resources may not be available in large events.

2025-Essex County-11: Update Open Space Plan

Lead Agency:	Essex County Department of Parks, Recreation and Cultural Affairs
Supporting Agencies:	Engineering
Hazard(s) of Concern:	Extreme Temperature, Flood
Description of the Problem:	The existing Essex County Park, Recreation and Open Space Master Plan is outdated and in need of update. The current plan does not prioritize open space acquisition and uses that could help mitigate hazard risk.
Description of the Solution:	The County will update the existing Essex County Park, Recreation and Open Space Master Plan to identify locations to acquire properties to turn into open space. The County will also look to identify opportunities to convert brownfields to urban forests to trap stormwater and tree canopy to assist with heat island impact.
Estimated Cost:	Staff time
Potential Funding Sources:	County budget
Implementation Timeline:	Within 5 years
Goals Met:	2, 6
Benefits:	Increase in open space, reduction in flooding and urban heat island.
Impact on Socially Vulnerable Populations:	Urban forests can assist in the reduction of heat island impacts that overwhelm socially vulnerable populations in urban settings.
Impact on Future Development:	This action will guide the conversion and preservation of open spaces.
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	This action increases planning capabilities.
Climate Change Considerations:	With increasing risk of severe rainfall, flooding, and extreme temperatures, additional open space is needed to allow for flood storage and heat reduction through urban forests.
Mitigation Category:	Prevention, Community Capacity Building
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Only target open space acquisitions where remediation is not necessary / Brownfields and urban heat island not addressed.
	Focus on improvements for current open space preservation / Only minor changes in flood and extreme temperature risks.

2025-Essex County-12: Essex County Airport Flood Risk

Lead Agency:	Essex County Sheriff's Office
Supporting Agencies:	Essex County Improvement Authority
Hazard(s) of Concern:	Flood
Description of the Problem:	The Essex County Airport, under the jurisdiction of the Essex County Improvement Authority is located in the floodplain.
Description of the Solution:	The Sheriff's Office will notify the Improvement Authority that the airport is located in the floodplain and determine if the facility is protected from floods. If the facility is not protected, the Sheriff's Office will provide mitigation options that the Improvement Authority can consider protecting the airport's critical assets.
Estimated Cost:	Low
Potential Funding Sources:	FEMA HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, County Budget
Implementation Timeline:	Within 5 years
Goals Met:	6
Benefits:	Ensures continuity of operations of Essex County Airport.
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders and emergency managers to maintain critical services that socially vulnerable populations rely on.
Impact on Future Development:	The risk of significant damage occurring to the structure will be reduced, which will allow critical operations to be maintained or only briefly interrupted in severe events. This provides continued support to both current and future development in the service area.
Impact on Critical Facilities/Lifelines:	This action will protect Essex County Airport which is a critical facility, maintaining the critical services that it provides.
Impact on Capabilities:	This action improves continuity of operations during a flood event, allows for a more rapid return to pre-disaster capabilities after a flood event, and faster deployment of post disaster capabilities.
Climate Change Considerations:	This action addresses anticipated increases in flooding frequency and severity through protection to the 500-year (0.2-percent annual chance) flood level.
Mitigation Category:	
Priority:	High

Alternatives:	**Action**	**Evaluation**
	No Action	-
	Relocate facility	No space available
	Establish plans to enter into MOU with nearby airports to provide service during flood events	Not feasible

2025-Essex County-13: Essex County Bridges

Lead Agency:	Essex County Engineering
Supporting Agencies:	Hudson County Engineering
Hazard(s) of Concern:	Earthquake, Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	Essex County has inspected many County bridges in the past several years and identified necessary resiliency upgrades at several bridges.
Description of the Solution:	Essex County will work with Hudson County (where appropriate) to replace these bridges in coordination with the New Jersey Transportation Authority (NJTPA) and U.S. Federal Highway Administration (FHWA). Erosion control and upgrade of pilings is included. • Bridge street Bridge – In prelim design • Clay Street Bridge-In final design • Jackson Street-Applied for funding
Estimated Cost:	$30-80 Million to replace each bridge.
Potential Funding Sources:	NJTPA, FHWA, USDOT, County budget
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	Increased resilience of important roadways.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	These bridges are critical components of the transportation lifeline.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is likely to result in an increase in severe weather events that could further impair the existing structures.
Mitigation Category:	Structural Projects
Priority:	High

Alternatives:

Action	Evaluation
No Action	
Rebuild bridges	Costly
Close bridges as deficiencies are identified	Not feasible

2025-Essex County-14: Riker Hill Art Park Hydrants

Lead Agency:	Essex County OEM	
Supporting Agencies:	Livingston Township	
Hazard(s) of Concern:	Wildfire	
Description of the Problem:	Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.	
Description of the Solution:	The County will extend the water main to Riker Hill Park to provide proper fire protection to buildings.	
Estimated Cost:	Medium	
Potential Funding Sources:	County Capital Funds	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 5	
Benefits:	Fire hydrants and water lines maintained for emergency response	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will improve the water lifeline in the Riker Hill Art Park neighborhood.	
Impact on Capabilities:	This action will allow for increased firefighting capabilities.	
Climate Change Considerations:	Climate change is likely to increase the occurrence of conditions that promote wildfire. This action improves firefighting capabilities.	
Mitigation Category:	Emergency Services, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Purchase tanker truck for water	Costly
	Develop contract with neighboring towns for fire response	Too slow of response times, towns may be unavailable

2025-Essex County-15: Support Dam Mitigation

Lead Agency:	County Engineer
Supporting Agencies:	East Orange, Montclair, Dam facility managers, NJDEP Bureau of Dam Safety, County Engineer
Hazard(s) of Concern:	Flood
Description of the Problem:	Several dams in Essex County have been found to have unsatisfactory or poor safety ratings based on their most recent inspections. Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
Description of the Solution:	The County engineer will work with municipalities, dam managers, and the NJDEP Bureau of Dam Safety to review the most recent inspections of dams in the County that have resulted in a poor or unsatisfactory safety rating, identify the deficiencies, determine the necessary repairs and improvements necessary to address the deficiencies, identify available funding sources for the identified repairs/improvements, and implement the cost-effective repairs/improvements to increase the level of protection.
Estimated Cost:	Low for initial assessment of options, TBD for total cost based on mitigation actions selected
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), NJDEP, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	Dam failure will be avoided, which will reduce the risk of harm to people and property downstream. Certain safety requirements will be met that can allow for funding to be received for further mitigation projects.
Impact on Socially Vulnerable Populations:	The most vulnerable populations may live directly downstream of the dam and lack the ability to receive notifications of dam failure or evacuate when notified. Preventing dam failure allows those communities to remain intact and reduces the risk of loss of life and property in those areas.
Impact on Future Development:	Future development downstream of dams will also be protected from dam failure.
Impact on Critical Facilities/Lifelines:	Critical roads and utilities will be protected from potential damage or loss from unintended dam releases.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is resulting in an increase to annual precipitation. Much of this increase is in the form of heavy rainfall events. Consideration should be taken for increases in frequency and severity of rainfall events to ensure that the dam is designed to withstand these increases.
Mitigation Category:	Structural Projects
Priority:	Medium
Alternatives:	**Action**: No Action **Evaluation**: -

	Work without municipal involvement	Lack of coordination may cause problems with funding streams and necessary data
	Remove dams	Without proper analysis, dam removal may increase flooding risk

2025-Essex County-16: Relocate Essex County Emergency Operations Center

Lead Agency:	Essex County Sheriff's Office	
Supporting Agencies:		
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Essex County Emergency Operations Center is located in a flood zone on a first floor. Flooding could result in lack of access to the Emergency Operations Center or necessary shut down of the facility.	
Description of the Solution:	The Sherriff's Office will explore options for relocation of the Emergency Operations Center.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1	
Benefits:	This action protects the continuity of operations of the Emergency Operations Center.	
Impact on Socially Vulnerable Populations:	The Emergency Operations Center provides support to the entire county, including socially vulnerable populations.	
Impact on Future Development:	The Emergency Operations Center provides support to all current and future development within the county.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a flooding event.	
Impact on Capabilities:	This action ensures continuity of operations to maintain emergency management capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of flooding events. This action accounts for a likely increase in flooding events.	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Elevate the facility	Construction does not allow for elevation. Still would have access issues even if the structure was protected from flooding.
	Establish plans to enter into MOU with neighboring counties to provide service during flood events	Reduction in response times and delay of critical services in the immediate area.

2025-Essex County-17: Develop Health Outreach Plan for Multi-Hazard Events

Lead Agency:	NJLINCS - Essex County Health	
Supporting Agencies:	Essex County Sheriff's Office, stakeholders	
Hazard(s) of Concern:	Disease Outbreak	
Description of the Problem:	Multi-hazard events could result in power outages that would reduce the capabilities of the County for distributing important health information.	
Description of the Solution:	The County will conduct tabletop exercises with stakeholders, identifying opportunities to distribute health information in non-digital formats.	
Estimated Cost:	Low	
Potential Funding Sources:	County budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 3, 5, 6	
Benefits:	This action will protect the County's outreach and emergency messaging capabilities.	
Impact on Socially Vulnerable Populations:	This action addresses all populations in the County.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action helps enhances the health lifeline.	
Impact on Capabilities:	This action will result in enhanced outreach capabilities of the Health Department.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe weather events that could result in power outages and health concerns such as unsafe drinking water, mold, etc.	
Mitigation Category:	Emergency Services, Public Education and Awareness, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Establish MOUs with outside agencies to assist in emergency messaging	Less effective and outside agencies may also be overwhelmed in large scale events.
	Develop outreach continuity planning without stakeholder support	Outreach and messaging unlikely to be as effective without stakeholder support

2025-Essex County-18: Tabletop Exercises for Emerging Disease Outbreak Risks

Lead Agency:	NJLINCS - Essex County Health	
Supporting Agencies:	Essex County Sheriff's Office, stakeholders	
Hazard(s) of Concern:	Disease Outbreak	
Description of the Problem:	Emerging disease outbreak risks such as monkeypox and avian flu represent new risks to the County. Emerging diseases require analysis of risk and capability assessment.	
Description of the Solution:	The County will conduct tabletop exercises with county agencies and stakeholders, identifying gaps in understanding and capabilities for emerging disease outbreak event threats.	
Estimated Cost:	Low	
Potential Funding Sources:	County budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 5, 6	
Benefits:	This action will protect the County's disease outbreak capabilities.	
Impact on Socially Vulnerable Populations:	This action addresses all populations in the County.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action helps enhances the health lifeline.	
Impact on Capabilities:	This action will result in enhanced disease outbreak capabilities.	
Climate Change Considerations:	A changing climate may result in the spread of diseases.	
Mitigation Category:	Emergency Services, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Establish MOUs with outside agencies to assist in disease outbreak events	Outside agencies may also be overwhelmed in large scale events.
	Hold tabletop exercises without stakeholder support	Tabletop exercises unlikely to be as effective without stakeholder support

2025-Essex County-19: Port Newark and Newark Airport Risk Assessments

Lead Agency:	Port Authority of New York and New Jersey	
Supporting Agencies:	Essex County OEM	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Port Authority of New York and New Jersey is responsible for Port Newark and Newark International Airport. Each facility is a vital economic driver for the region and needs to be resilient to various hazard threats.	
Description of the Solution:	The Port Authority of New York and New Jersey will conduct risk assessments for each facility and use the findings to guide future investments to increase resiliency. The information from the risk assessments will be shared with Essex County OEM.	
Estimated Cost:	Medium	
Potential Funding Sources:	PANYNJ	
Implementation Timeline:	Within 5 years	
Goals Met:	4, 5, 6	
Benefits:	Increased understanding of risk and coordination between PANYNY and Essex County.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	The risk assessments will be used to guide future development and redevelopment of Port Newark and Newark International Airport.	
Impact on Critical Facilities/Lifelines:	Port Newark and Newark International Airport are critical facilities.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in an increase in the frequency and severity of weather events and flooding. Sea level rise is a risk at each facility.	
Mitigation Category:	Climate Resiliency, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Rely on hazard mitigation plans for risk assessments	Focused assessments of each facilities risks are needed.
	Conduct risk assessments but not share with Essex County OEM	Lack of coordination may lead to increased risks

2025-Essex County-20: Public Education on Risks of Floodwater Contaminations

Lead Agency:	Health Department	
Supporting Agencies:	NJIT	
Hazard(s) of Concern:	Disease Outbreak, Flood	
Description of the Problem:	Floodwaters can move contaminants from brownfield sites, storm sewers, and other unsafe locations. The public often is unaware of this risk.	
Description of the Solution:	The County will work with stakeholders to distribute outreach materials before flooding events are expected to explain the dangers of floodwaters and the health risks they pose.	
Estimated Cost:	Low	
Potential Funding Sources:	County budget	
Implementation Timeline:	Within 2 years	
Goals Met:	3	
Benefits:	Increased public awareness of public health risks associated with flooding.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often located near brownfields and other sources of contamination that may spread via flooding.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase education and outreach capabilities.	
Climate Change Considerations:	Climate change is likely to result in an increase in heavy rainfall and coastal flooding events.	
Mitigation Category:	Public Education and Awareness	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Rely on outside groups	Without coordination, the messaging may not reach all audiences and cover necessary topics.
	Develop messaging as needs arise	Reactive rather than preventative and unlikely to be efficient.

2025-Essex County-21: Traffic Light Backup Power

Lead Agency:	Essex County Sheriff's Office	
Supporting Agencies:	Public Works	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Power failure results in the loss of traffic signals, causing unsafe traffic conditions, requiring police to direct traffic, and limiting staffing capabilities to respond to other aspects of the hazard event that caused the power failure.	
Description of the Solution:	The County will install battery backup at critical County owned traffic signals.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	6	
Benefits:	This action protects public health and safety and ensures continued traffic safety during a power outage.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical functions during an emergency.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Install permanent generators	Expensive and limited space
	Install gates to shut down intersections during power outages	Requires manpower and will result in severe traffic

2025-Essex County-22: Outreach for Emerging Socially Vulnerable Populations

Lead Agency:	OEM	
Supporting Agencies:	County Departments, Stakeholders	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geologic, Severe Weather; Severe Winter Weather, Wildfire	
Description of the Problem:	Emerging socially vulnerable populations due to population shifts and changes in demographics may require different approaches to outreach and education.	
Description of the Solution:	The County OEM will work with internal departments and stakeholders to identify new socially vulnerable populations and underserved communities on an annual basis and determine if new outreach approaches such as new language interpretation options will be needed. Identified outreach approaches will be implemented.	
Estimated Cost:	Low	
Potential Funding Sources:	County budget	
Implementation Timeline:	Annually	
Goals Met:	3	
Benefits:	Increased public awareness of public health risks associated with flooding.	
Impact on Socially Vulnerable Populations:	This action will identify emerging socially vulnerable populations and provide outreach support that matches their needs.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase education and outreach capabilities.	
Climate Change Considerations:	Outreach will include climate change related education and outreach.	
Mitigation Category:	Public Education and Awareness	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Rely on outside groups	Without coordination, the messaging may not reach all audiences and cover necessary topics.
	Develop messaging as needs arise	Reactive rather than preventative and unlikely to be efficient.

1.6 Jurisdictional Hazard Mitigation Team

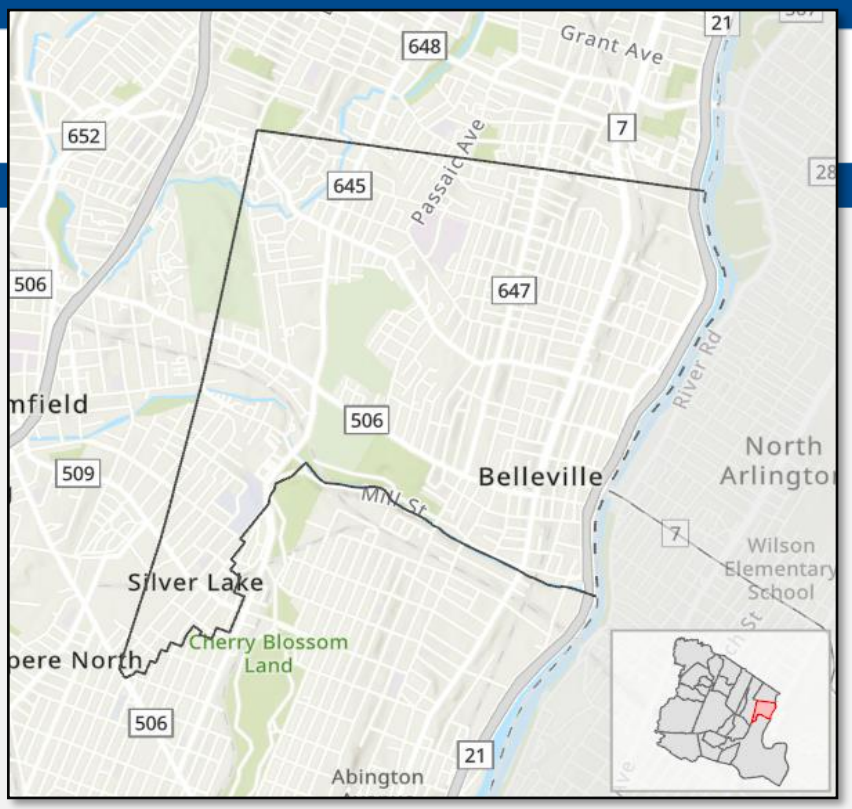
Table 1-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Sergeant Ryan Peter	Name and Title:	Detective Denise Teague
Address:	560 Northfield Avenue, West Orange, NJ 07052	Address:	560 Northfield Avenue, West Orange, NJ 07052
Phone Number:	973-324-9750	Phone Number:	9973-324-9750
Email:	rpeter@essexsheriff.com	Email:	dteague@essexsheriff.com

Table 1-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Sergeant Ryan Peter	Provided capabilities, reviewed previous actions, contributed to the mitigation strategy
Detective Denise Teague	Assisted with County outreach
Detective Mark Steinberg	Contributed to mitigation strategy
Richard Fernandez, Principal Engineer	Reviewed previous actions, contributed to the mitigation strategy

Township of Belleville



POPULATION STATISTICS

37,756
TOTAL POPULATION (2023 ACS)

0.05%
Change in population since 2010 Census

14,176
TOTAL HOUSEHOLDS

AT RISK POPULATION

5,496
Population Over 65

1,748
Population Under 5

4,337
Living With Disability

352
Households Without Vehicle

6,334
People Renting Homes

POVERTY AND LANGUAGE

2,219
Households Below Poverty Level

8,131
Population With English as 2nd Language

POPULATION AND BUSINESSES

28,696
Daytime Population

961
Total Businesses

19,093
Total Employees

FLOOD VULNERABILITY

525
Number of People in 1% SFHA

123
Number of Buildings in 1% SFHA

2
Community Lifelines in 1% SFHA

2 TOWNSHIP OF BELLEVILLE

2.1 JURISDICTIONAL PROFILE

The Township of Belleville is located along the Passaic River in northeastern Essex County. Bordered by Nutley Township to the north, the Passaic River and Bergen County (the Borough of North Arlington and Town of Kearny) to the east, the City of Newark to the south, and Bloomfield Township to the west. The Township is part of a larger urban area that maintains a substantial industrial base, clusters of well-established neighborhoods with neighborhood commercial development patterns, and established, mature residential neighborhoods (Township of Belleville 2021).

The Township was formed as a township in 1839, with a population of only 500. It became a city in 1874 and again became a township in 1876. Belleville became a town in 1910 but reverted to township in 1981 to gain a larger share of federal revenue sharing funds (Essex County 2020).

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

2.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Township of Belleville's risk to the hazards of concern identified for the 2025 HMP update.

2.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Belleville's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 2-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	No additional impacts or losses were reported by the Township for this event.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed	No additional impacts or losses were reported by the Township for this event.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	No additional impacts or losses were reported by the Township for this event.
April 3, 2024	Flooding	Heavy rain	Heavy rain caused Main Street to flood that resulted in fixed manned posts and barricades.
August 7, 2024	Flooding	Heavy rain	Heavy rain caused Main Street to flood that resulted in fixed manned posts and barricades.
August 18, 2024	Flooding	Heavy rain	Heavy rain caused Main Street to flood that resulted in fixed manned posts and barricades. Additionally, the DPW pumped flooded basements of residents.

Source: FEMA 2024; NOAA NCEI 2025

2.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. FEMA flood maps adequately address flood risk in the Township. The Passaic River flows towards the south, along the eastern border of the Township to its confluence with Newark Bay. The Second River flows eastward along the southern border of the Township to its confluence with the Passaic River. For approximately 3,000 feet, the Third River flows in an east-northeast direction through the northwestern part of the Township. The Township does not have a history of substantially damaged properties.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Belleville.

Table 2-2. NFIP Summary

Active NFIP Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss (RL) Properties	Severe Repetitive Loss (SRL) Properties
379	$310,916	$74,721,000	247	$10,947,550	40	7

Source: FEMA 2025; FEMA 2024a; FEMA 2024b

Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 2-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Food Basics-Belleville	Food, Hydration, Shelter	X
Sahay Getty Station-Belleville	Energy	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

2.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Belleville, including major residential/commercial/industrial development and major infrastructure development.

Table 2-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
508 Washington Ave.	Residential	TBD	B: 9001; L: 29-31	N/A	Proposed
Nicola Place	Residential	20	B: 9201; L: 1	N/A	Approved
202-2015 Belleville Ave.	Residential / Commercial	17 residential; 1 commercial	202-2015 Belleville Ave.	N/A	Approved
305 Union Ave.	Residential / Commercial	3 residential; 2 commercial	B: 6203; L: 16	N/A	Approved
605-609 Washington Ave.	Residential / Commercial	51 residential; 1 commercial	B: 8302; L: 9 & 10	N/A	Approved
81 Stephens Street	Residential	40	81 Stephens St	N/A	Approved
272-278 Washington Ave. 163 Valley St.	Residential / Commercial	TBD	B: 8701; L: 14, 15, 18	N/A	Proposed
11 Franklin Ave.	Residential / Commercial	175 residential; 4 commercial	B: 2301; L: 1.01-1.06	N/A	Proposed
45-53 Washington Ave.	Residential / Commercial	81 residential; 2 commercial	B: 7503; L: 15	N/A	Approved
705-757 Main St.	Commercial	2 warehouses	B: 10001; L: 3	Floodplain	70% complete
524 Union Ave.	Residential / Commercial	27 residential; 1 commercial	B: 7102; L: 1	N/A	30% complete
187-189 Main St.	Residential / Commercial	18 residential; 1 commercial	187-189 Main St.	N/A	Complete
229 Main St.	Commercial	Self-storage	229 Main St.	Floodplain	Complete
740 Washington Ave.	Residential / Commercial	114 residential; 1 commercial	740 Washington Ave.	N/A	75% complete

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
527-535 Union Ave.	Residential / Commercial	20 residential; 2 commercial	527-535 Union Ave.	N/A	Complete
74-102 Washington Ave.	Residential / Commercial	158 residential; 5 commercial	74-102 Washington Ave.	N/A	Complete
548-564 Franklin Ave.	Residential / Commercial	56 residential; 3 commercial	548-564 Franklin Ave.	N/A	Complete
91 Terry St.	Residential / Commercial	115 residential; 3 commercial	91 Terry St.	N/A	90% complete
666 Washington Ave.	Residential / Commercial	268 residential; 6 commercial	666 Washington Ave.	N/A	80% complete
675 Main St.	Commercial	2 warehouses	675 Main St.	Floodplain	Complete

2.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Belleville that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 2-1. Township of Belleville Community Lifelines

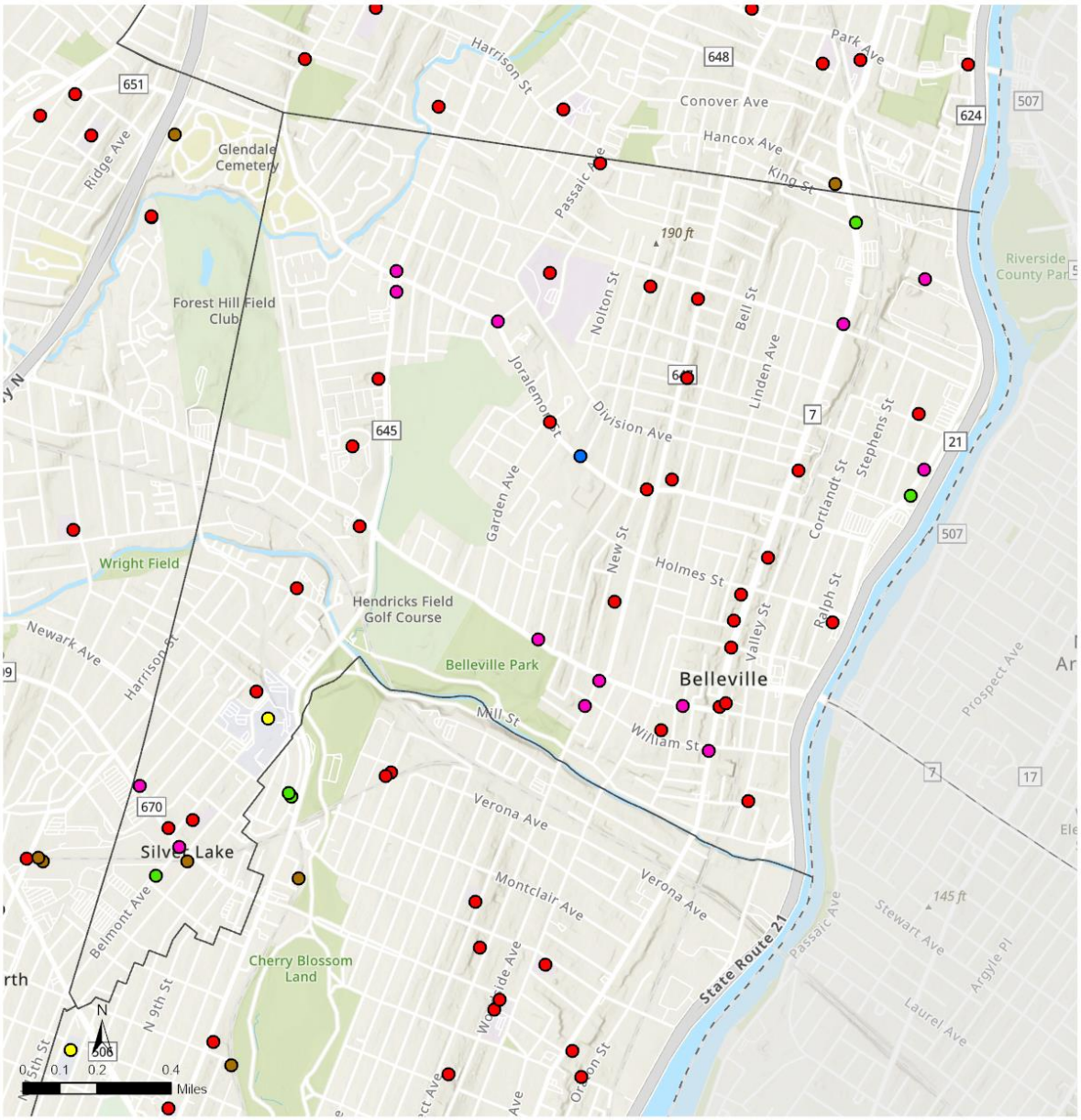


Figure 2-2. Township of Belleville Flood-Related Hazards

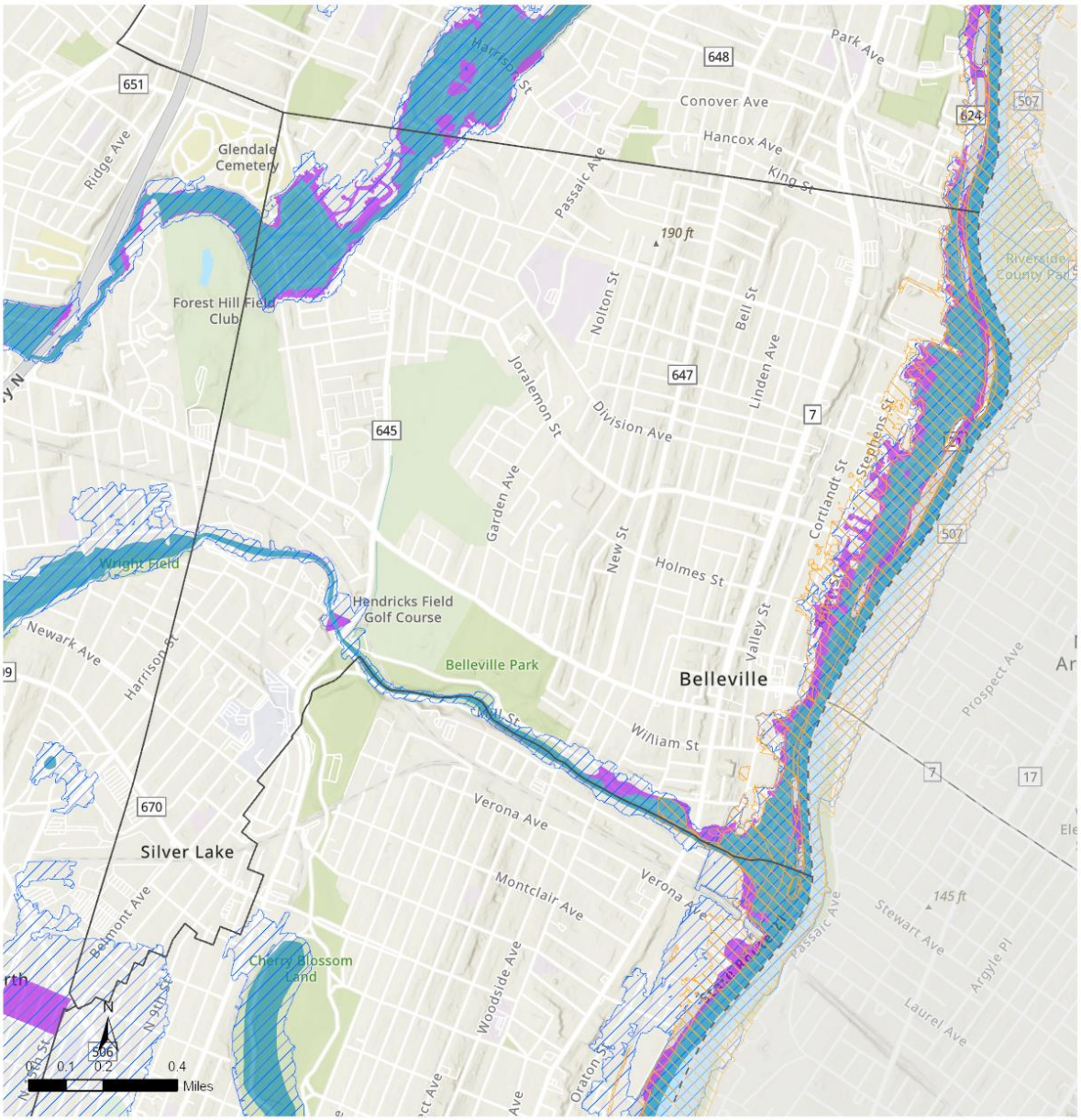


Figure 2-3. Township of Belleville Geological Hazards

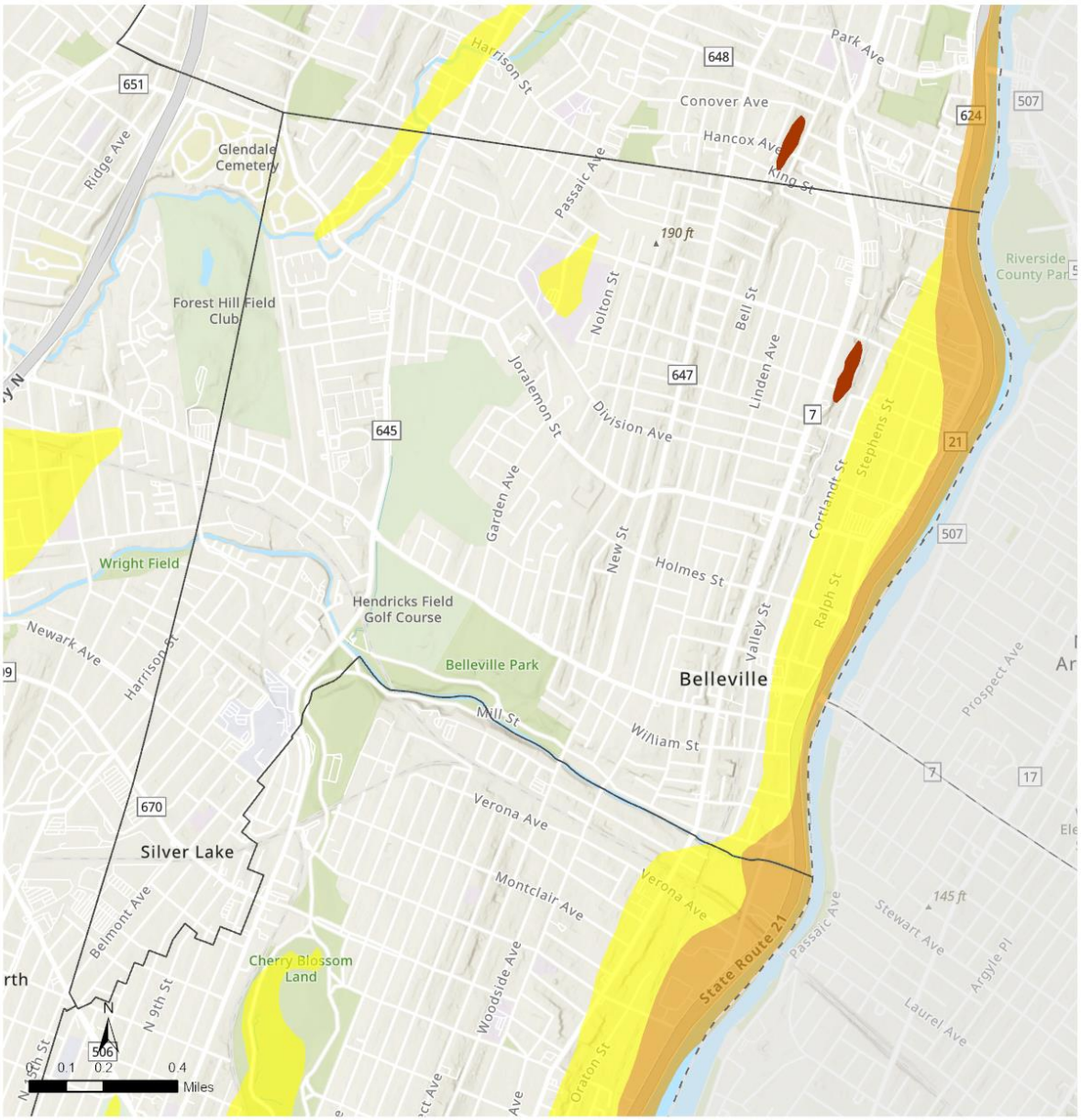
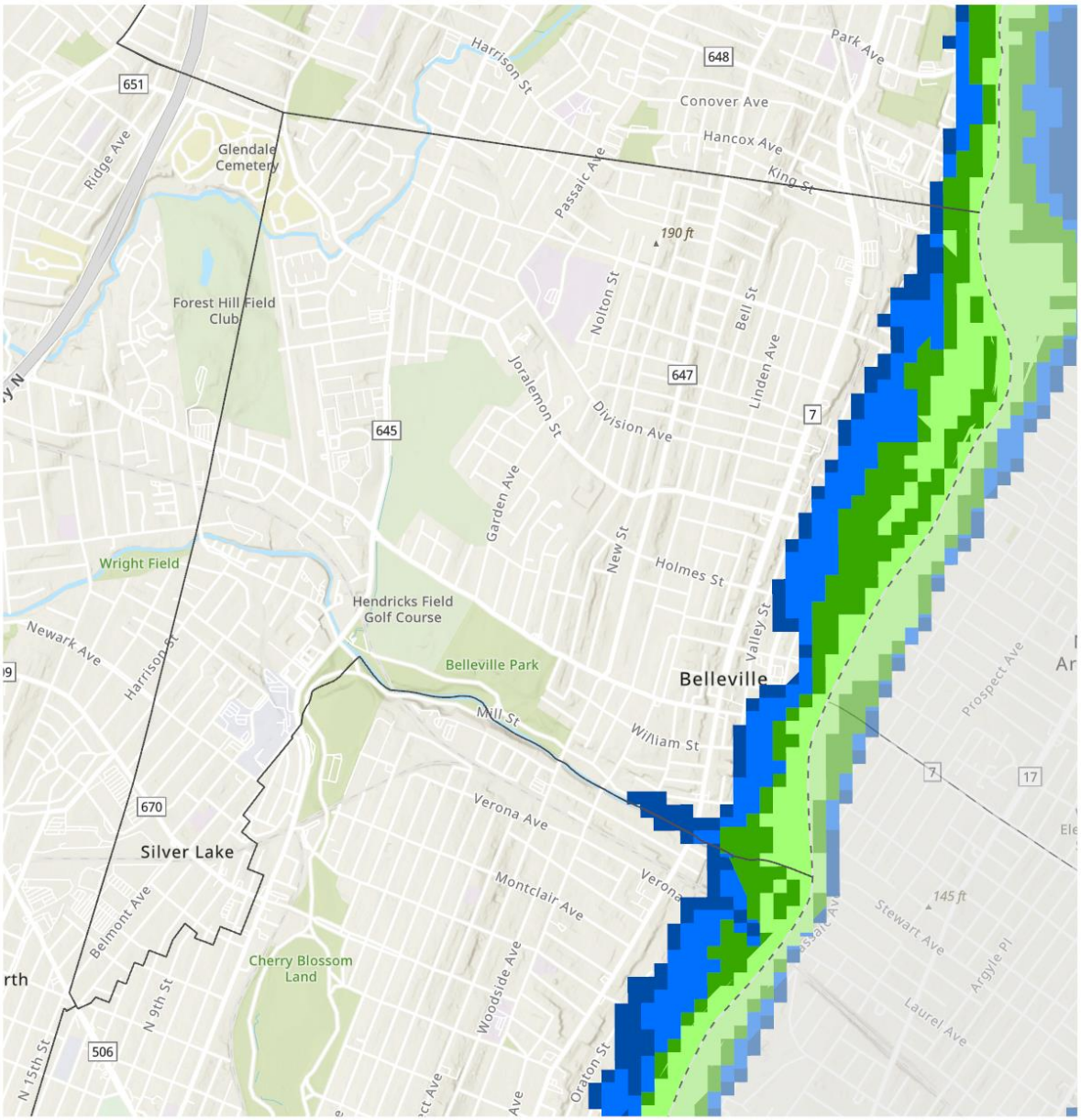


Figure 2-4. Township of Belleville Storm Surge Hazard



Belleville Township: Storm Surge

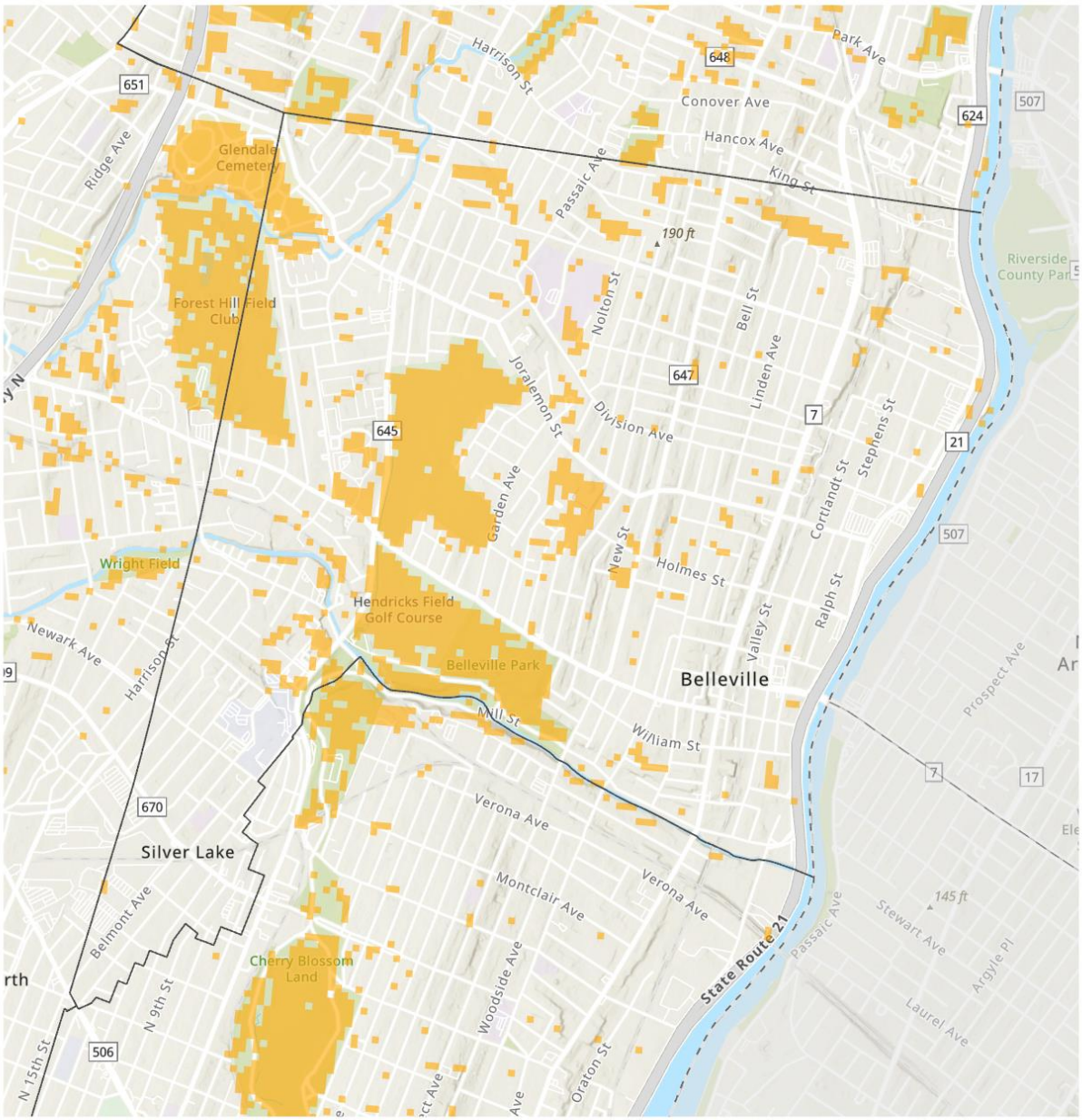
N

0 0.1 0.2 0.4 Miles

- Category 1 Hurricane
- Category 2 Hurricane
- Category 3 Hurricane
- Category 4 Hurricane
- Essex County
- Municipality

Sources: NJ Office of GIS, Rutgers University/NOAA
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 2-5. Township of Belleville Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

2.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of Belleville, climate change is likely to have the following impacts:

- Increase in precipitation is leading to impacts on the Township's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Township.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Township and will require new construction and redevelopment to elevate to the New Jersey Design Flood Elevation (DFE) (Rutgers University 2025).
- Belleville Township is also susceptible to tidal flooding and it is projected that the Township will experience impacts from flooding related to sea level rise (Rutgers University 2025).

2.2.5 Risk Assessment Summary

The Township's risk assessment identifies flooding and severe weather as the primary natural hazards, with stormwater flooding being a major source of damage. To mitigate these risks, the Township identified several mitigation strategies to address these concerns, including improvements to pump stations, installation of automatic flood gates, installing check valves at manholes, and conducting feasibility and implementation studies to make future improvements.

2.3 Jurisdictional Capability Assessment

The Township of Belleville performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

2.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of Belleville.

Table 2-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Township of Belleville Master Plan Reexamination Report, March 8, 2021	Planning Board
Impact on Risk Reduction: The 2009 Master Plan was reexamined in 2021. The Master Plan included the following goals related to hazard mitigation: • To encourage the preservation of open space where possible and to develop zoning controls which will require developers to provide open space for new buildings. • To continue to provide for adequate sanitary and storm sewers to serve Belleville's residential and non-residential neighborhoods. • To encourage stormwater management controls for all new developments.			
Capital Improvement Plan	Yes	Township Budget	Administration
Impact on Risk Reduction: The Township budget includes funds for capital improvements. Projects included in this portion of the budget include refurbishment/replacement of sewers, improvements to roads, and improvements and/or acquisitions of properties. These types of projects will make the Township more resilient to future hazard events such as flooding and severe weather.			
Stormwater Management Plan	Yes	August 2024	Engineering
Impact on Risk Reduction: Stresses flood control, groundwater recharge, and pollutant reduction			
Stormwater Pollution Prevention Plan	Yes	April 2024	Engineering
Impact on Risk Reduction: Reduce pollution to waterways; improves water quality			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Community Forest Management Plan	Yes	In Progress	Engineering
Impact on Risk Reduction: Reduce erosion, stabilize streambanks and areas subject to stormwater runoff			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	Sustainability Plan	Green Team
Impact on Risk Reduction: The overall goal of the Green Team's Sustainability Plan is to identify and implement projects that will benefit the community and encourage the town, home, and business owners to invest in sustainable practices. This is accomplished through outreach and education, and recommending and initiating practices and programs.			
Transportation Plan	Yes	2023 Valley Traffic Study	Engineering
Impact on Risk Reduction: Prepare draft study for creating traffic improvements			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	Various plans along main roadways into Township	Engineering
Impact on Risk Reduction: Plans include stormwater management and environmental cleanup			

The table below summarizes the emergency response and recovery plans that guide the Township of Belleville to prepare for, respond to, and recover from hazard events.

Table 2-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan is updated every two years. It guides emergency response to natural and non-natural disaster events.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of Belleville.

Table 2-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 12 Building and Housing; Chapter 13 Fire Prevention, Emergency Services	Building & Construction Code; Bureau of Fire Prevention
Impact on Risk Reduction: The Township has adopted the State Uniform Construction Code. The code ensures that new construction and redevelopment meets modern requirements and is reasonably protected from natural hazards. Chapter 13 adopts the Fire Prevention Code, under the supervision of the Chief of the Fire Department.			
Zoning or Land Use Regulations	Yes	Chapter 19 Land Use Procedures; Chapter 23 Zoning	Planning Board
Impact on Risk Reduction: Chapter 19 establishes the Planning Board and grants the powers for review and approvals. Chapter 23 was adopted to accomplish the following purposes: a. To limit and restrict to specific Districts and to regulate therein buildings and structures according to the nature and extent of their use and the nature and extent of the uses of land.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
b. To regulate and restrict the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population and location and use and extent of use of buildings and structures and land for trade, industry, residence or other purposes. c. To divide the municipality in to districts of such number, shape and use as may be deemed best suited to carry out any of the purposed herein mentioned. d. To regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings or other structures and the nature and extent of the uses of land within such districts. e. To regulate and restrict buildings and structures according to the construction and the nature and extent of their use and the nature and extent of the uses of land by the adoption of a comprehensive plan designed for one or more of the following purposes: 1. To lessen congestion in the streets. 2. To secure safety from fire, panic and other dangers. 3. To promote health, morals and the general welfare. 4. To provide adequate light and air. 5. To prevent overcrowding of lands and buildings. 6. To avoid undue concentration of population. 7. To conserve the value of property and encourage the most appropriate use of land throughout the municipality.			
Subdivision Regulations	Yes	Chapter 18 Land Subdivision	Planning Board
Impact on Risk Reduction: The purpose of Chapter 18 is to provide rules, regulations, and standards to guide land subdivision in the Township of Belleville in order to provide for the orderly growth and development of the Township and to assure and promote the comfort, health, safety, convenience, and general welfare of the Township in conformance with the Town's master plan, zoning ordinance, and official map.			
Site Plan Regulations	Yes	Chapter 20 Site Plan	Planning Board
Impact on Risk Reduction: Site plan review and approval shall be required from the Planning Board for all land development, improvement, rehabilitation, alteration or change in use for any residential, institutional, commercial, industrial development involving one or more of the following: 1. An enlargement of a building area 750 square feet or more; 2. The rehabilitation of 2,500 square feet or more of building area; 3. Any vehicular parking or storage lot development in excess of 10 or more vehicles; 4. Disturbance of any surface area of greater than 3,500 square feet. Approval of the site plan shall be obtained prior to the commencement of any excavations, compactions, removal of soil, clearing of a site, construction or demolition or placing of any fill material on lands contemplated for development. Site plan approval is a prerequisite to the issuance of a building permit. No Certificate of Occupancy shall be issued unless all construction and development conforms to the plans as approved by the reviewing board. In circumstances where the areas are less than the above and where there might involve substantial changes in such matters as traffic, access and parking, lighting, safety and buffer requirements, the Zoning Official shall review the proposed development to determine if application to the Planning Board is required, regardless of whether a proposed use is permitted.			
Stormwater Regulations	Yes	Chapter 29 Stormwater Pollution Prevention Plan; Chapter 30 Stormwater Control	Building & Construction Code
Impact on Risk Reduction: Chapter 29 was adopted to establish requirements to prevent stormwater pollution including litter control, improper disposal of waste, controlling yard/pet waste, and prohibiting illicit connections.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Chapter 30 establishes minimum stormwater management requirements and controls for "major development."			
Floodplain Regulations	Yes	Chapter 22 Flood Damage Prevention, 2023	Township Engineer
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: 1) Protect human life and health. 2) Prevent unnecessary disruption of commerce, access, and public service during times of flooding. 3) Manage the alteration of natural floodplains, stream channels and shorelines; 4) Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. 5) Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. 6) Contribute to improved construction techniques in the floodplain. 7) Minimize damage to public and private facilities and utilities. 8) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. 9) Minimize the need for rescue and relief efforts associated with flooding. 10) Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. 11) Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. 12) Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 14 Soil Removal; Chapter 34 Tree Removal and Protection	Township Council
Impact on Risk Reduction: Chapter 14 requires soil permits for the movement or removal of soil in the Township. Chapter 34 requires the removal of dead or dying trees, protects shade trees, and preserves trees to aid in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in the removal of pollutants from the air and assists in the generation of oxygen; provides a buffer and screen against noise and pollution; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil subsequent to construction or grading; provides a haven for birds and other wildlife and otherwise enhances the environment; protects and increases property values; conserves and enhances the Township's physical and aesthetic appearance; and generally protects the public health and safety, as well as the general welfare.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

2.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Belleville's departments, boards, and committees that contribute to risk reduction.

Table 2-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board is comprised of 9 members and is responsible for the Master Plan. The Planning Board is responsible for the Master Plan; administering zoning, land subdivision, and site plan review; prepare a program of municipal capital improvement projects projected over a term of six years The Belleville Zoning Board of Adjustment consists of 7 regular members and two alternate members. These members are residents of Belleville who voluntarily serve on the Board after being appointed by the Town Council in this capacity.
Planning Department	Planning is covered by the Planning Board and Engineering Department.
Public Works / Highway Department	The Department of Public Works oversees the towns recycling and solid waste pickup and daily maintenance of the roadways. The Daily maintenance of the parks and town properties are also handled by the Public Works. Public works is responsible for the Water and Sewer projects of the town including maintenance of the water lines, water mains, sewer mains in town. The Public Works also handles the planting and maintenance of the trees in town. In the winter the Public Works keeps the roads and town properties safe by salting the roadways and sidewalks and plowing the roadways during the winter months.
Construction / Building / Code Enforcement Department	Building & Construction Code is responsible for inspection and enforcement of the Township's codes.
Engineering Department	The Township Engineer is responsible for the design, planning and implementation of town construction projects.
Parks and Recreation Department	The Department of Recreation & Cultural Affairs is responsible for providing a variety of youth and adult sports, activities, events, and services to the residents of Belleville.
Open Space Board / Committee	The Township has exceptional parks and open space within its borders including Belleville Park, Branch Brook Park, and Hendricks Field Golf Course, all of which are owned and operated by Essex County.
Environmental Board / Commission	The Green Team was established in 2019 for the purpose of pursuing Sustainable Jersey certification, funding, and furthering sustainability in the Township of Belleville. The Green Team is facilitating a number of projects that align with Sustainable Jersey's mission. The overall goal of the Green Team's Sustainability Plan is to identify and implement projects that will benefit the community and encourage the town, home, and business owners to invest in sustainable practices. This is accomplished through outreach and education, and recommending and initiating practices and programs.
Emergency Management / Public Safety Department	The Office of Emergency Management is responsible for maintaining and enforcing the New Jersey State Disaster Laws. State law requires every municipality to have a state approved Emergency Operations Plan (EOP). The Local Emergency Management Coordinator and Deputy Coordinators, along with members of public safety organizations, volunteer, and private entities, such as the Red Cross, know their responsibilities and how they are expected to conduct their job. The Office of Emergency Management is charged with coordinating the efforts of these agencies and organizations during a disaster or natural emergency.

Department / Board / Committee	Description and Role in Risk Reduction
Fire Department	The Belleville Fire Department is the sole enforcing agent of the New Jersey Uniform Fire Code for the Township. The firefighters inspect more than 1400 occupancies each year, including all public buildings effectively identifying those things that hold potential to cause a fire and providing a plan for improving the buildings fire safety profile. The proactive approach rooted in prevention and education is designed to assist business and property owners to protect their occupancies from the dangers and destruction of fire.
Additional departments, boards, and committees	The Belleville Health Department consists of the Environmental Division, Vital Statistics Office, Nursing Division, Senior Citizen Transportation Service, Health Education, and Animal licensing. The Belleville Historic Commission oversees the preservation and protection of historic structures.

The table below summarizes the Township of Belleville's staff with skills and expertise that contribute to risk reduction.

Table 2-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Engineering Department
Engineer	Engineering Department
Stormwater Officer	Department of Public Works
Resilience / Sustainability Officer	N/A
Grant Writer	Township Manager's Office
Staff with benefit / cost analysis expertise	N/A
Staff trained in conducting substantial damage determinations	Construction Code and Engineering
Staff trained in GIS	Engineering Department
Staff that provide support to socially vulnerable populations	N/A
Additional staff with skills and expertise that contribute to risk reduction	N/A

The table below summarizes development and permitting capabilities of the Township of Belleville.

Table 2-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Construction Department after Planning/Zoning Board approvals
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	N/A
What percentage of your jurisdiction is available for new development?	0-5%

2.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Belleville.

Table 2-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	The Township has access to applying for and receiving FEMA BRIC, FMA, and PDM funding.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has applied for and received HMGP funding for floodwater storage and diversion projects and generators.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Used by Engineering Department
Capital improvements funding	Yes	Used by Engineering Department
Open space acquisition programs	Yes	-
Impact fees for developers of new homes	Yes	Building Department & Redevelopment Committee
User fees for water, sewer, gas, or electric	Yes	Used by Engineering Department
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Used by Tax Assessor
Ability to incur debt through bonds	Yes	Used by Mayor/Council
Other financial resources available for hazard mitigation	Yes	EPA – used by engineering department

2.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Belleville.

Table 2-12. Development and Permitting Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	SwiftReach and reverse 911
Public Information Officer	The Township of Belleville utilizes an integrated communication strategy and plan. The coordination of this is done by the Township Manager, Assistant Township Manager, and the Township Clerk through monthly meetings with all Department Directors. The Township utilizes various forms of media outlets to ensure members of the community receive and understand all notifications for the Town.
Website	https://www.bellevillenj.org/ includes information on Register Ready.
Social media	Facebook, X (formerly known as Twitter)
Public safety campaigns	-
Newsletters	-
Hazard education programs for schools	Firefighters provide fire prevention and fire safety education at schools. The Township of Belleville Municipal Green Team and the School District Green Team continue to collaborate for the annual “GREEN FAIR”.

Outreach Capability	Description and Role in Risk Reduction
Outreach to socially vulnerable populations	-
Other outreach capabilities	The Fire Department hosts and annual fire safety open house each October.

Source(s):

2.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Belleville.

Table 2-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit review, maintaining records, and administration services related to floodplain management
What local department is responsible for floodplain management?	Construction Department
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	None at this time
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	Chapter 22, Section 4.3.5 - After an event resulting in building damages, assess the damage to structures due to flood and non-flood causes. Record and maintain the flood and non-flood damage of substantial damage structures and provide a letter of Substantial Damage Determination to the owner and the New Jersey Department of Environmental Protection, Bureau of Flood Engineering.
Summarize the jurisdiction's Substantial Improvement procedures.	Not available
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	The most recent CAC was conducted on 6/11/2018.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Meets the minimum

2.3.6 Community Classifications

Table 2-14 summarizes the Township of Belleville's participation in community classification programs.

Table 2-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	-	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Bronze	September 16, 2024
Other Programs	-	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): FEMA 2024a; NWS n.d.; NFPA 2024; Sustainable Jersey 2024

2.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Belleville has in place and will use to prepare for changes in risk due to climate change.

Table 2-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	More frequent intense precipitation events which result in riverine and stormwater flooding
What information does the jurisdiction use to understand potential climate change impacts?	State and county data and reports
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Master Plan analyzes climate change, established a Green Team
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	OEM, Engineering, Construction, Department of Public Works, Green Team
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Incorporating projects into annual and capital improvement budgets; apply for grant funding through federal and state programs
How does the jurisdiction educate the public on potential climate change impacts?	Municipal website and social media

2.3.8 Capability Assessment Summary

The Township of Belleville's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.

- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Belleville determined the following hazard capability effectiveness ratings.

Table 2-16. Township of Belleville Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

2.3.9 Opportunities to Improve Capabilities and Integration

The following have been identified as opportunities to improve capabilities and integration in the Township of Belleville:

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
- The Township does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Township will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.

2.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Belleville were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Belleville reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the remainder of the calculated hazard rankings.

Table 2-17. Township of Belleville Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

2.5 Jurisdictional Mitigation Strategy

2.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 2-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-BELLEVILLE-001	**Critical facility – Food Basics:** While the Township does not own this facility, it is identified as essential during a hazard event. The Township will notify the property owner/operator that their facility is located in the floodplain and provide mitigation options to protect the structure from future flood events and damages.	Emergency Management	In Progress – the business is now known as Lidol and it is floodprone. DPW (Bob) has reached out to the store manager to discuss mitigation options.	Yes	The Township will continue outreach to critical facilities located in the floodplain to discuss potential mitigation options.
2020-BELLEVILLE-002	**Critical facility – Sahay Getty Station:** While the Township does not own this facility, it is identified as essential during a hazard event. The Township will notify the property owner/operator that their facility is located in the floodplain and provide mitigation options to protect the structure from future flood events and damages.	Emergency Management	No Progress – this facility does not flood and has not experienced flood damages.	No – the facility does not flood and has not experienced flood damages in the past	-
2020-BELLEVILLE-003	**Fairway Avenue Study and Implementation:** This will be a phased damage approach: Conduct a study of the area to determine why this area	Emergency Management, Floodplain Administrator	In Progress – flood mitigation was done in this area (about a year ago); joint plan with Passaic Valley related to Third River	Yes	Review the plan to identify mitigation projects the Township can complete; once identified, identify funding and apply for

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	continues to flood. Educate residents that their property is identified as RL or SRL and provide them mitigation options Investigate pump station to determine if needs to be repaired for replaced.				funding where appropriate to implement the projects.
2020-BELLEVILLE-004	**Main Street flooding, entire length, Newark to Nutley borders:** Installation of check valves on the Route 21 drainage outfalls.	Engineering	In Progress – There are a total of 25 outfalls. Ten have been installed between Little St. and Nutley.	Yes	Installation of check valves on the Route 21 drainage outfalls to alleviate flooding along Main Street, from Newark to Nutley.
2020-BELLEVILLE-005	**Flood Study of Third River:** Conduct a study of Third River to determine the cause of flooding and identify actions to reduce or alleviate flooding associated with Third River in the Township.	Engineering	Complete – performed together with Passaic Valley	Yes	Review the plan to identify mitigation projects the Township can complete; once identified, identify funding and apply for funding where appropriate to implement the projects.
2020-BELLEVILLE-006	**RL/SRL Properties in the Valley Section of Belleville Township:** Conduct outreach to 24 floodprone property owners, including RL/SRL properties, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant	Emergency Management, Floodplain Administrator	Ongoing Capability – continued outreach to residents prior to and after storms; Fairway residents asked about mitigation options; no interest from residents along Main St.	Yes	Coordinate with the residents along Fairway Ave. of mitigation options they are interested. If related to elevations, the Township will prepare the grant application on behalf of the homeowners.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	application and BCA to obtain funding to implement mitigation of residential homes in the Valley section of the Township.				
2020-BELLEVILLE-007	**Public Education and Outreach:** Develop materials related to hazard mitigation and preparedness for residents. The information will include what to do during a power outage, driving in winter weather, floodprone areas in the Township, etc. The materials will be available on the municipal website and social media accounts and will be provided in other languages.	Emergency Management	Ongoing Capability – website, mass notification systems, social media platforms	No – ongoing capability	-

2.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Belleville identified the following mitigation efforts completed since the last HMP:

- The Township become bronze certified with Sustainable Jersey on September 16, 2024.
- Belleville purchases treated surface water from the Newark Water Department through four (4) interconnections located on Passaic Av, Hilton St, Joralemon St, and Belleville Av. Newark withdraws water from the Pequannock Watershed in West Milford, NJ, and treats if at the Pequannock Water Plant (WTP). Water quality monitoring stations are operated by the US Geological Survey upstream of the Pequannock WTP intake at the Charlotteburg Reservoir and Oak Ridge Reservoir. These monitoring stations provide continuous data for important water quality parameters, and help provide advanced warning of adverse changes in water quality.
- All of Belleville's drainage runoff is ultimately received by the Passaic River, downstream of the Dundee Dam. The Passaic River is tidal where it receives said Belleville's drainage runoff. Belleville through its MS4 permit is addressing water quality and quantity problems in its storm sewer system. Belleville will be mapping and creating an inventory of its entire storm sewer system with GIS. From this information Belleville will be able to develop strategies to improve the water quality of its discharges to the Passaic River, and address quantity problems which will prevent local flooding issues.

2.5.3 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Belleville identified the following issues that require mitigation.

- During heavy rain events, stormwater flooding becomes an issue along Main Street in the Township. This leads to road closures and damaged infrastructure. Improvements and emergency mitigation measures are needed.
- Areas along Fairway Avenue are prone to flooding during heavy rain events. The river and golf course water flow to this area and flood homes. There is also a pump station that becomes inundated and cannot function properly. The Township completed a study and the next step is to implement actions identified in the study.
- The Silver Lakes Section (Heckle and Lake Streets) in the Township are experiencing flooding and flood damage. This area has never flooded; however, with the increase in frequency and severity of storms, along with impervious surfaces and new development, this area of the Township is now flooding.
- Earthquakes, floods, severe weather events, and wildfires can cause damage to buildings, infrastructure, and property in the Township. The Township does not have an effective way of completing damage assessments immediately after an event happens.
- The Township is unable to access roads quickly when flooding (experienced loss of life during a recent event due to not being able to access quickly).

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
- The Township does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Township will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.

2.5.4 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Belleville's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 2-19. Township of Belleville 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Belleville Twp-01	Installation of Check Valves at Manholes Along Main St.					X		X		
2025-Belleville Twp-02	Automatic Gates Along Main St.					X	X	X	X	X
2025-Belleville Twp-03	Pump Station at Fairway Ave.					X		X		
2025-Belleville Twp-04	Fairway Avenue Study Implementation					X		X		
2025-Belleville Twp-05	Feasibility Study of the Silver Lakes Section of the Township					X		X		
2025-Belleville Twp-06	Drones for damage assessments			X		X	X	X	X	X

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Belleville Twp-07	High water vehicle for water rescues					X		X		
2025-Belleville Twp-08	Watershed Improvement Plan	X	X		X	X		X		
2025-Belleville Twp-09	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-Belleville Twp-10	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Belleville Twp-11	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Belleville Twp-12	Third River Study Implementation					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 2-20. Township of Belleville 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Belleville Twp-01	Installation of Check Valves at Manholes Along Main St.	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Belleville Twp-02	Automatic Gates Along Main St.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	Medium
2025-Belleville Twp-03	Pump Station at Fairway Ave.	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Belleville Twp-04	Fairway Avenue Study Implementation	1	1	1	1	1	0	1	0	1	1	1	1	0	0	10	Medium
2025-Belleville Twp-05	Feasibility Study of the Silver Lakes Section of the Township	1	1	1	1	1	0	1	0	1	1	1	1	0	0	10	Medium
2025-Belleville Twp-06	Drones for damage assessments	1	1	1	1	1	0	0	0	1	1	0	1	0	1	9	Medium
2025-Belleville Twp-07	High water vehicle for water rescues	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	Medium
2025-Belleville Twp-08	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	1	13	High
2025-Belleville Twp-09	Disaster Debris Management Plan	1	1	1	1	1	0	1	0	1	1	1	1	0	1	11	High
2025-Belleville Twp-10	Substantial Damage Response Plan	1	1	1	1	1	0	0	0	1	1	1	1	1	1	11	High
2025-Belleville Twp-11	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High
2025-Belleville Twp-12	Third River Study Implementation	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Belleville Twp-01: Installation of Check Valves at Manholes Along Main St.

Lead Agency:	Public Works, Engineering	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	During heavy rain events, stormwater flooding becomes an issue along Main Street in the Township. This leads to road closures and damaged infrastructure.	
Description of the Solution:	The Township will install check valves to prevent backflow of stormwater into the drainage system, reducing overall flood risk in the Township. The valves will be installed at manholes in the Township, focusing on low-lying areas and locations prone to backflow.	
Estimated Cost:	$400,000+	
Potential Funding Sources:	FEMA HMGP, NJEDA	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6, 7	
Benefits:	Reduces flooding along Main St.	
Impact on Socially Vulnerable Populations:	This project will not have negative impacts on socially vulnerable populations. For those populations living within the area of the project may benefit from the improvements as it will prevent/reduce frequency of road closures during flooding events.	
Impact on Future Development:	Any new development or redevelopment occurring in the area of the project will benefit from the project as it will reduce stormwater flooding and road closures.	
Impact on Critical Facilities/Lifelines:	Any critical facilities/community lifelines located in the area of the project will benefit from the project as it will reduce stormwater flooding and road closures. Additionally, the stormwater systems are community lifelines for the Township.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change will lead to more frequent and intense rain events that will cause stormwater flooding.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Preventive, Property Protection, Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Maintenance and monitoring of existing systems	Not a permanent fix; problem will continue during periods of heavy rain
	Educating public about stormwater management and best practices	Township has an education program in place; however, the current problem will continue

2025-Belleville Twp-02: Automatic Gates Along Main St.

Lead Agency:	Public Works, Engineering	
Supporting Agencies:	Emergency Management	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	During heavy rain events, stormwater flooding becomes an issue along Main Street in the Township. This leads to road closures and damaged infrastructure.	
Description of the Solution:	The Township will purchase and install automatic flood gates along Main Street in areas that experience frequent flooding. The Township will deploy the gates when severe weather events are predicted. A maintenance and monitoring program will be implemented to inspect and maintain the gates. Once installed, the Township will provide outreach to the public to educate about the flood gates, what they will be used for, where they will be located, and how they will work.	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA HMGP, Capital Improvement, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 3, 6, 7	
Benefits:	Manages risk from floods and other hazards; prevents vehicles from entering roads that are flooded or have downed trees/power lines	
Impact on Socially Vulnerable Populations:	This project will not have negative impacts on socially vulnerable populations. It will provide a sense of safety to prevent the use of roadways impacted by a hazard event.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change will lead to more frequent hazard events and the gates will help the Township during those events to prevent use of the road	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Emergency Services, Property Protection, Structural Projects	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Portable flood gates	Require staff to deploy and storage for when not in use
	Green infrastructure along Main St.	The Township is fully built out and there is limited land available for green infrastructure (e.g., rain gardens and bioswales)

2025-Belleville Twp-03: Pump Station at Fairway Ave.

Lead Agency:	Public Works, Engineering
Supporting Agencies:	N/A
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The pump station located on Fairway Avenue is at a lower elevation and is susceptible to flood damage during heavy rain events. Water enters the pump station which leads to damage and disruption in service.
Description of the Solution:	The Township will complete a study to understand the improvements needed to protect the pump station from future flood events. Once completed, the Township will make improvements to the Fairway Avenue pump station to reduce or eliminate water from entering the facility. Where feasible, equipment will be elevated above the base flood elevation. Additionally, the Township will install a backup power source to allow the pump station to function during power outages.
Estimated Cost:	$500,000+
Potential Funding Sources:	FEMA FMA (if structure is NFIP-insured) and BRIC; NJDEP Clean Water State Revolving Fund (CWSRF) Program; Capital Improvement Budget; Township Budget
Implementation Timeline:	3 to 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	Reduces flood damage and provides continuity of operations for pump station
Impact on Socially Vulnerable Populations:	Vulnerable areas that may otherwise experience a loss of water during heavy rain or flooding will be more likely to retain services.
Impact on Future Development:	Communities with sound and resilient infrastructure encourage commercial and residential development.
Impact on Critical Facilities/Lifelines:	Hydration lifeline is more likely to remain intact.
Impact on Capabilities:	Maintaining operational water services reduces recovery time and costs.
Climate Change Considerations:	Consideration should be taken regarding the increase in heavy rain and flood events as a result of climate change.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Structural Projects, Preventative
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Acquire all properties in this section of the Township	Too costly; Township will lose tax base; homeowners and business owners might not want to move
Green infrastructure within the area of the pump station	The Township is fully built out and there is limited land available for green infrastructure (e.g., rain gardens and bioswales)

2025-Belleville Twp-04: Fairway Avenue Study Implementation

Lead Agency:	Public Works, Emergency Management, Engineering, Passaic Valley Sewage Commission
Supporting Agencies:	N/A
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Areas along Fairway Avenue are prone to flooding during heavy rain events. The river and golf course water flow to this area and flood homes. There is also a pump station that becomes inundated and cannot function properly. The Township completed a study and the next step is to implement actions identified in the study.
Description of the Solution:	Review the plan to identify mitigation projects the Township can complete; once identified, identify funding and apply for funding where appropriate to implement the projects.
Estimated Cost:	$500,000+
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures) or BRIC, FEMA HMGP
Implementation Timeline:	3 to 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	Reduces flood damage and provides continuity of operations for pump station and other lifelines
Impact on Socially Vulnerable Populations:	Vulnerable areas that may otherwise experience a loss of water or flood damaged homes during heavy rain or flooding will be more protected from such events
Impact on Future Development:	Communities with sound and resilient infrastructure encourage commercial and residential development.
Impact on Critical Facilities/Lifelines:	Hydration lifeline is more likely to remain intact.
Impact on Capabilities:	Maintaining operational water services reduces recovery time and costs.
Climate Change Considerations:	Consideration should be taken regarding the increase in heavy rain and flood events as a result of climate change.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Structural Projects, Preventative
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	Current problem continues
Acquire all properties in this section of the Township	Too costly; Township will lose tax base; homeowners and business owners might not want to move
Regrade golf course	While the golf course is one of the main causes of flooding, it is too costly and not a permanent solution

2025-Belleville Twp-05: Feasibility Study of the Silver Lakes Section of the Township

Lead Agency:	Public Works, Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Silver Lakes Section (Heckle and Lake Streets) in the Township are experiencing flooding and flood damage. This area has never flooded; however, with the increase in frequency and severity of storms, along with impervious surfaces and new development, this area of the Township is now flooding. A study is needed to determine to the cause of flooding and what steps need to be done to reduce flooding in this area of Belleville.
Description of the Solution:	The Township will complete a feasibility study to determine the causes of flooding and to identify potential mitigation actions to reduce flooding and flood risk. Once identified, cost-effective actions will be carried out.
Estimated Cost:	Low for the study; $500,000+ for implementation
Potential Funding Sources:	Study - annual budget for study Improvements – FEMA BRIC and FMA (for activities benefiting NFIP-insured structures), NJDEP Clean Water State Revolving Fund (CWSRF) Program, Capital Improvement Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	• Flood risk will be reduced in hazard prone areas. • Vulnerable communities will be identified ahead of a flood event, which will allow first responders to plan and stage resources in those areas. • Future mitigation projects may be identified that will further increase overall community resiliency to flooding and other hazard events.
Impact on Socially Vulnerable Populations:	• Areas vulnerable to flooding will be made aware to JURISDICTION TYPE leadership and first responders which can place an emphasis on controlled future development. • If cost-effective mitigation actions are identified, they may be implemented in flood prone areas that could reduce their overall risk to loss of life and property.
Impact on Future Development:	Flood insurance costs may decrease.
Impact on Critical Facilities/Lifelines:	• Transportation routes will be more likely to remain open if flooding is mitigated along them. • Hydration systems may remain potable for community usage if projects are identified to protect the existing infrastructure from flooding.
Impact on Capabilities:	This study will identify opportunities for mitigation funding to be spent in the areas in which it is most needed to increase resiliency and decrease damage from flood events.
Climate Change Considerations:	Consideration should be taken to ensure any projects conducted have accounted for increased extreme rainfall events.
Mitigation Category:	Natural Systems Protection, Structure and Infrastructure Projects
CRS Category:	Preventive, Property Protection, Natural Resource Protection, Structural Projects
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues Acquire all properties in this section of the Township / Too costly; Township will lose tax base; homeowners and business owners might not want to move Green infrastructure / The Township is fully built out and there is limited land available for green infrastructure (e.g., rain gardens and bioswales)

2025-Belleville Twp-06: Drones for damage assessments

Lead Agency:	Office of Emergency Management
Supporting Agencies:	Police and Fire
Hazard(s) of Concern:	Earthquake, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	Earthquakes, floods, severe weather events, and wildfires can cause damage to buildings, infrastructure, and property in the Township. The Township does not have an effective way of completing damage assessments immediately after an event happens.
Description of the Solution:	The Township will purchase a drone to use in conducting damage assessments have a natural disaster. Staff will be trained and certified in drone operation. Being able to quickly identify damages is essential for effective response, rescue work, public safety, and reconstruction planning.
Estimated Cost:	Low to medium
Potential Funding Sources:	Municipal budget
Implementation Timeline:	1 to 3 years
Goals Met:	1, 2, 5, 6
Benefits:	• Quickly survey large areas after a disaster • Access hazardous or difficult to access areas • Real time data
Impact on Socially Vulnerable Populations:	Benefits residents of Belleville and allows the Township to respond more quickly after a hazard event
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	Benefits critical facilities and community lifelines in Belleville and allows the Township to respond more quickly after a hazard event
Impact on Capabilities:	Part of the Township's emergency response protocols
Climate Change Considerations:	Climate change will lead to more frequent and intense events that may require more assessments
Mitigation Category:	Local Planning and Regulations, Structure and Infrastructure Projects
CRS Category:	Emergency Services, Public Information
Priority:	Medium

Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	On-ground damage assessments	Time consuming; uses resources that could be used for response and recovery
	Rely on state or county resources	Not always available or accessible especially during large events

2025-Belleville Twp-07: High water vehicle for water rescues

Lead Agency:	Office of Emergency Management	
Supporting Agencies:	Police and Fire	
Hazard(s) of Concern:	Flood and Severe Weather	
Description of the Problem:	The Township is unable to access roads quickly when flooding (experienced loss of life during a recent event due to not being able to access quickly).	
Description of the Solution:	The Township will purchase two high water vehicles – one for the police department and one for public works – to use during flooding events. This will allow the Township to respond to emergencies during heavy rain and flooding events.	
Estimated Cost:	$600,000	
Potential Funding Sources:	FEMA Homeland Security, CDBG	
Implementation Timeline:	Within 5 years	
Goals Met:		
Benefits:	Allow the Township to effectively respond to emergencies during heavy rain and flood events	
Impact on Socially Vulnerable Populations:	Assistance to vulnerable populations during rain and flood events	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Part of the safety and security lifeline and services provided under this lifeline	
Impact on Capabilities:	Part of the Township's emergency response protocols	
Climate Change Considerations:	More frequent and intense events will continue impacting the Township and there will be a need for a high water vehicle	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Inflatable boats	Require inflation and not quick to deploy and use; cannot hold all equipment necessary for emergency response
	Rescue rafts	Easy to deploy but cannot hold all equipment necessary for emergency response

2025-Belleville Twp-08: Watershed Improvement Plan

Lead Agency:	Township Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Belleville Twp-09: Disaster Debris Management Plan

Lead Agency:	Township OEM and DPW
Supporting Agencies:	Township Council
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	2, 3, 5, 6
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	The action will result in increased post disaster capabilities.
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Rely on federal cleanup	These services may or may not be available
Rely on state cleanup	These services may or may not be available

2025-Belleville Twp-10: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.	
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan	
Goals Met:	2, 5	
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.	
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.	
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.	
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.	
Impact on Capabilities:	This action improves disaster recovery capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**

	No Action	Current problem continues
	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Belleville Twp-11: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Emergency Management, Floodplain Administrator
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages in the Township. Homes along Little Street, Main Street, Roosevelt Ave., Mill Street, Cortlandt Street, and Davidson Street have been repetitively damaged, as documented by paid NFIP claims, from flooding. If not mitigated, these structures will continue to experience flood-related damages.
Description of the Solution:	Conduct outreach to floodprone properties, including the 47 RL/SRL properties, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation of residential homes in the Township.
Estimated Cost:	Staff time for outreach; >$5 million for mitigation
Potential Funding Sources:	Outreach - municipal budget; Mitigation - FEMA FMA or HMGP, NJDEP Blue Acres
Implementation Timeline:	3 to 5 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Levee around floodplain	Costly, not enough room
Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Belleville Twp-12: Third River Study Implementation

Lead Agency:	Public Works, Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Third River flows through the Township and floods the sanitary sewer system. While the Township maintains the system by clearing snags and debris, it has not alleviated the problem. The Township completed a study that identified potential projects to reduce/eliminate flooding in the Township.
Description of the Solution:	Review the plan to identify mitigation projects the Township can complete; once identified, identify funding and apply for funding where appropriate to implement the projects.
Estimated Cost:	$500,000+
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures) or BRIC, FEMA HMGP
Implementation Timeline:	3 to 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	Reduces flood damage and provides continuity of operations for pump station and other lifelines
Impact on Socially Vulnerable Populations:	Vulnerable areas that may otherwise experience a loss of water or flood damaged homes during heavy rain or flooding will be more protected from such events
Impact on Future Development:	Communities with sound and resilient infrastructure encourage commercial and residential development.
Impact on Critical Facilities/Lifelines:	Hydration lifeline is more likely to remain intact.
Impact on Capabilities:	Maintaining operational water services reduces recovery time and costs.
Climate Change Considerations:	Consideration should be taken regarding the increase in heavy rain and flood events as a result of climate change.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Structural Projects, Preventative
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Acquire all properties in this section of the Township	Too costly; Township will lose tax base; homeowners and business owners might not want to move
Green infrastructure along Third River	The Township is fully built out and there is limited land available for green infrastructure (e.g., rain gardens and bioswales)

2.6 JURISDICTIONAL HAZARD MITIGATION TEAM

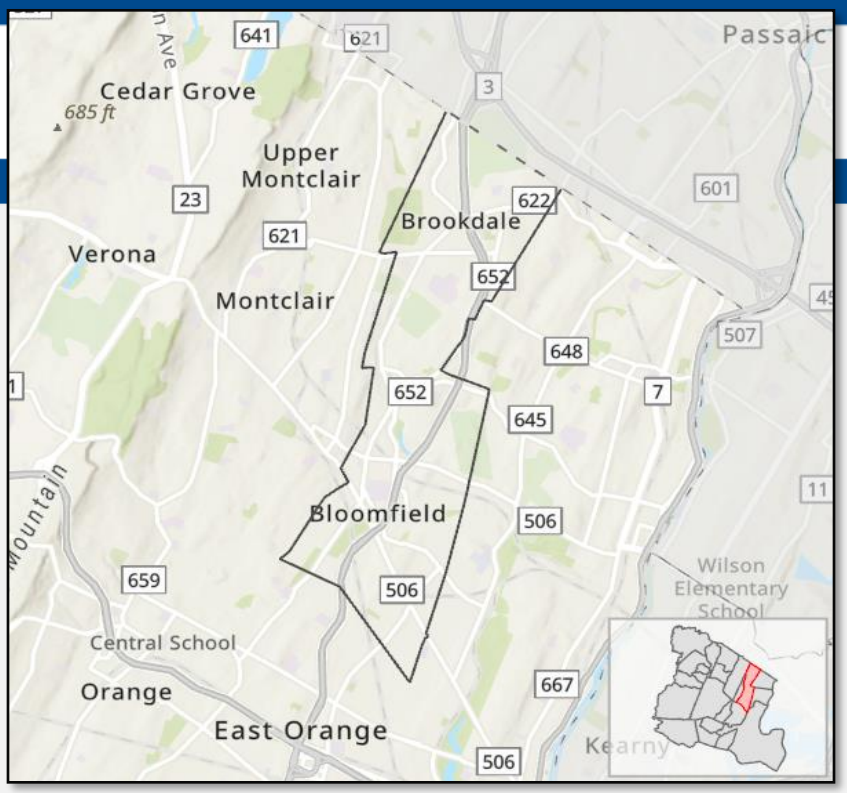
Table 2-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Gerard Corbo, OEM Coordinator/ Deputy Chief of Police	Name and Title:	John McAloon, Deputy OEM Coordinator/Detective Lt.
Address:	152 Washington Avenue, Belleville, NJ 07109	Address:	152 Washington Avenue, Belleville, NJ 07109
Phone Number:	(973) 450-3588	Phone Number:	
Email:	gcorbo@bellevillenj.org	Email:	jmcaloon@bellevillenj.org
NFIP Floodplain Administrator			
Name and Title:	Frank DeLorenzo, Construction Official		
Address:	152 Washington Avenue, Belleville, NJ 07109		
Phone Number:	973-450-3410		
Email:	fdelorenzo@bellevillenj.org		

Table 2-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Gerard Corbo, OEM Coordinator/ Deputy Chief of Police	Served as the primary point of contact for the Township's annex, part of the County's HMP Planning Partnership, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
John McAloon, Deputy OEM Coordinator/Detective Lt.	Served as the alternate point of contact for the Township's annex, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Robert Welter, DPW Superintendent	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP

Township of Bloomfield



POPULATION STATISTICS

52,974
TOTAL POPULATION (2023 ACS)

0.11%
Change in population since 2010 Census

21,096
TOTAL HOUSEHOLDS

AT RISK POPULATION

7,749
Population Over 65

3,381
Population Under 5

5,125
Living With Disability

392
Households Without Vehicle

9,990
People Renting Homes

POVERTY AND LANGUAGE

2,917
Households Below Poverty Level

5,566
Population With English as 2nd Language

POPULATION AND BUSINESSES

40,196
Daytime Population

1,398
Total Businesses

28,283
Total Employees

FLOOD VULNERABILITY

2,341
Number of People in 1% SFHA

494
Number of Buildings in 1% SFHA

4
Community Lifelines in 1% SFHA

3 TOWNSHIP OF BLOOMFIELD

3.1 JURISDICTIONAL PROFILE

The Township of Bloomfield is located in northeastern Essex County, bordered by Belleville, Newark, and Nutley to the east; Glen Ridge and Montclair to the west; Clifton to the north; and East Orange to the south (Township of Bloomfield 2002). The Township is densely populated, fully developed community. It covers a total area of approximately 5.36 square miles (Bloomfield Environmental Commission 2023).

Branches and tributaries of the Third River run through the Township in a general north to south direction through both the Upper Montclair Country Club and the Forest Hill Field Club, Clarks Pond Park, Brookside Park, and Foley Field. Sections of the historic Morris Canal parallel the Garden State Parkway within Bloomfield in areas such as Morris Canal Park. The Second River runs through the southern part of the Township, including Watsessing Park and Wrights Field (Bloomfield Environmental Commission 2023).

Bloomfield was originally settled by English Puritans from Newark in the late 1600's. The land was incorporated from outlying areas of Newark in 1812 by act of the New Jersey Legislature. Bloomfield was named in honor of the sitting Governor of New Jersey, Brigadier General Joseph Bloomfield. While Bloomfield was initially incorporated with over 20 square miles of area, portions of the Township were sectioned away to form other municipalities including Belleville, Montclair, Woodside, and Glen Ridge. These reductions in land area created Bloomfield at its current area of 5.36 square miles (Bloomfield Environmental Commission 2023).

Bloomfield operates under a Special Charter granted under an Act of the New Jersey Legislature. The township is governed by a mayor and a six member Township Council (Bloomfield Township 2025).

The Township has implemented and continues to implement a number of mitigation plans and measures to decrease the potential for flooding, particularly localized urban flooding in a number of areas. The measures include the flowing:

- Implementation of a township-wide stormwater management study, including detailed mapping of the storm sewer system and outfalls to determine their capacity, hydraulic conditions as well as potential damages and future improvement programs.
- Implementation of a utility and stormwater utility survey in areas targeted by the stormwater management study to focus on methods to improve the capacity, including increasing pipe size capacity and adding additional drainage structures.
- Implementation of a contract with a vendor to provide video inspection and cleaning services to investigate areas of flooding to determine the existence of blockages or collapses within the storm drainage system.
- Implementing extensive drainage improvements along certain roadways scheduled for resurfacing including extending or creating new drainage systems and structures to better capture and convey stormier run-off.

- Advanced training for Department of Public Works Employees related to stormwater runoff and methods for their reduction through continued maintenance of existing outfalls and structures.
- Revising the Stormwater Pollution Protection Plan (SPPP) to include current NJDEP requirements as well as Best Management Practices (BMPs) for stormwater control and runoff.
- Updated the township's Stormwater Control Ordinance to the current NJDEP standards for future development.
- Clearing and cleaning of existing catch basins prior to an anticipated major storm by DPW personnel in an effort to alleviate potential flooding.

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

3.2 Jurisdictional Risk Assessment

The following sections assess the Township of Bloomfield's risk to the hazards of concern identified for the 2025 HMP update.

3.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Bloomfield's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 3-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	• Over 260,000 identified cases in Essex County. • 3,580 deaths during the public health emergency. • Strain on local healthcare systems, including hospital overcrowding. • Economic disruptions, including business closures and job losses. • Shift to remote work and education. • Increased demand for social services, such as food banks and housing assistance.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed	• Disruption of transportation networks due to downed trees and power lines. • Increased emergency response efforts for debris cleanup and infrastructure repairs.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	• Extensive river flooding impacted homes and businesses. • Damage to critical infrastructure, including roads and bridges. • Displacement of residents due to flooding and property damage. • Increased demand for emergency services and long-term recovery assistance.

Source: FEMA 2024; NOAA NCEI 2025

3.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. The Township reports that a majority of their soils are not prone to flooding; however, the Township has major flooding problems after significant rain events. The impervious cover within Bloomfield does not allow for the soils to drain stormwater, resulting in flooding (Bloomfield Environmental Commission 2023).

All areas within the FEMA mapped floodplain are prone to flooding. These areas can flood during storms of less than a 1 percent chance. The FEMA flood maps do not adequately address flood risk in the Township, and areas not mapped along the fringes of these floodplains are also subject to flooding. The Township additionally receives runoff from areas upstream of Bloomfield, particularly Glen Ridge and Montclair. These locations will require cross-jurisdictional involvement to mitigate runoff. Majority of flooding in the Township is related to the inadequate number of catch basins, as well as undersized storm piping.

There are 17 documented outfalls within the Township that require maintenance, upgrades, or replacement due to substantial damage from a flood event. The majority of these ae located in highly inaccessible locations and/or require crossing private properties thereby requiring temporary easements to perform the work.

Substantial damage due to flooding is an OEM, code enforcement, as well as a Health Department issue as it relates to the habitability of a structure after a substantial flood.

The Township currently participates in the National Flood Insurance Program (NFIP). The following table summarizes the NFIP statistics for Township of Bloomfield.

Table 3-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
410	$743,046	$110,323,000	640	$10,339,917	33	4

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent and 0.2-percent floodplains.

Table 3-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood	0.2% Flood
Felicity Tower	Other	X	X
New Jersey State Police Troop D - Bloomfield Station	Safety and Security	X	X
Child Development Center	Safety and Security	X	X
Watsessing Elementary School	Safety and Security	X	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

3.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Bloomfield, including major residential/commercial/industrial development and major infrastructure development.

Table 3-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
20 MacArthur Avenue (Westinghouse - Sub Area B)	Residential	25 units (converted), 1 structure	20 MacArthur Ave., Block 96, Lot 1	None.	Completed
The Grove at Watsessing (Westinghouse – Sub Area A)	Residential	344 units, 5 structures	55-95 Arlington Ave., Block 97, Lots 1 & 55; Block 62, Lot 1	None. Adjacent to NJ Inland Design Flood Elevation (DFE) (1% plus 3 ft.) on rail line.	Completed
Avalon – Bloomfield Station	Residential	224 units, 1 structure	300 Glenwood Ave., Block 228, Lot 1	FEMA 1% Annual Chance; NJ	Completed ±2013

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
				Inland DFE (1% plus 3 ft.)	
Bloomfield Parking Deck	Parking	1 structure	1 Municipal Plaza, Block 228, Lot 1.01	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed ±2013
Bloomfield College Franklin Street Residence Hall	Institutional (dormitory) and Commercial	36 dorm rooms, 7,000 sf commercial, 1 structure	37-59 Broad St./ 460 Franklin St., Block 241, Lots 32, 33, & 35	NJ Inland DFE (1% plus 3 ft.)	Completed 2014
Bloomfield Center	Residential and Commercial	50 units, 1,850 sf retail, 1 structure	44 Park St., Block 244, Lot 19	NJ Inland DFE (1% plus 3 ft.)	Completed
110 Washington	Residential	170 units, 2 structures	110 Washington St., Block 220, Lot 26	Regulatory Floodway; FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2023
34 Cross Street	Residential	14 units (converted), 1 structure	34 Cross St. Block 98, Lot 33	None.	Completed
223 Broad Street	Residential	21 units, 1 structure	223-227 Broad St., Block 516, Lot 1	NJ Inland DFE (1% plus 3 ft.)	Proposed
The Green at Bloomfield	Residential and Commercial	140 units, 11,530 sf retail/restaurant, 1 structure	56 Broad Street, Block 243, Lot 32	NJ Inland DFE (1% plus 3 ft.)	Completed 2016
Heritage Village	Residential	82 units (senior), 1 structure	390 Franklin St., Block 311, Lot 13	None.	Completed 2016
Parkway Lofts, Phase 1	Residential	88 units in Bloomfield (273 units in East Orange), 2 structures	5 Lawrence St., Block 61, Lot 1	None.	Completed 2013
Parkway Lofts, Phase 2	Residential	168 units	13-17 Lawrence St.,	None, but abuts NJ	Proposed

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
			Block 94, Lot 44	Inland DFE (1% plus 3 ft.) (rail tracks)	
Oakes Pond at Bloomfield	Residential	332 units, 4 structures	100-440 Memorial Pkwy, Block 544, Lots 40 & 61	Regulatory Floodway; FEMA 0.2% & 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2016/2017
The Grove at One92	Residential and Commercial	336 units, 22,260 sf non-residential, 38,649 sf shopping center, 10 structures	192-208, 216-244 Bloomfield Avenue, Block 64, Lots 1 & 4	None	Completed through 2022
The Royal Bloomfield	Residential and Commercial	210 units, 15 townhomes, 7,283 sf retail, 1 structure	616 Bloomfield Ave./ 656-662 Washington St./ 6-24 Ward St./ 5-17 Farrand St., Block 226, Lot 15; Block 227, Lot 24	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2022
Six Points at Bloomfield Station	Residential	176 units, 1 structure	2-34 Farrand Street, Block 225, Lot 1	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2021
Bloomfield Manor/Bloomfield Electric	Residential and Commercial	21 units (converted), 1,423 sf retail, 1 structure	656-662 Bloomfield Avenue, Block 226, Lots 15, 30, & 31	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2024
72 at Burroughs	Residential and Commercial	8 units (converted), 3,006 sf office, 1 structure	72 Burroughs Place, Block 302, Lot 38	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed ±2022

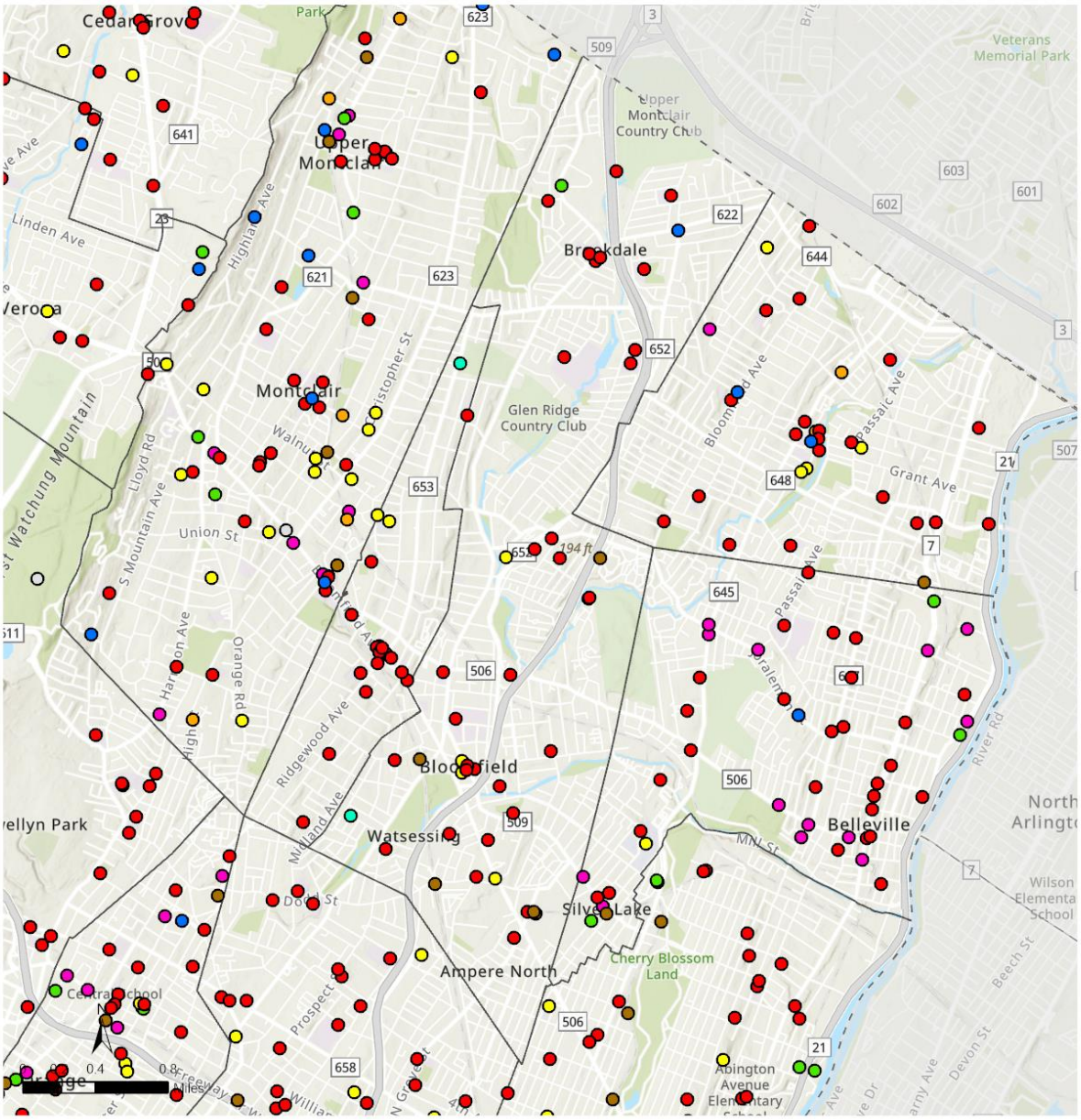
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Court Manor	Residential	17 units, 1 structure	2-4 Bland Court, Block 126, Lot 23	NJ Inland DFE (1% plus 3 ft.)	Completed ±2015
Parkside at Bloomfield	Residential	44 units, 1 structure	78-88 Locust Avenue, Block 129, Lot 70	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Proposed
Silk Mill Lofts	Residential	48 units, 1 structure	110 North Fulton St., Block 197, Lot 8	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2005
Watsessing Manor	Residential	12 units, 1 structure	7 Myrtle Street, Block 134, Lot 63	None.	Completed 2017
Willow Manor	Residential	12 units, 1 structure	92 Willow Manor, Block 126, Lot 108	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed 2015
Sacred Heart Church	Residential	200 units, 4,000 sf church event space, 1 structure	76 Broad St., Block 244, Lots 10, 15, 41, 42, & 46	NJ Inland DFE (1% plus 3 ft.)	Proposed
South Junior High School Redevelopment	Residential	122 units (conversion), 1 structure	177 Franklin St., Block 335, Lots 26 & 30	None.	Proposed
iSmile Dental Care; Freedom Surgical Center	Commercial	Renovation, 7,500 sf plus unspecified sf, 1 structure	1455 Broad St., Block 1233, Lot 44	NJ Inland DFE (1% plus 3 ft.)	Completed
Case Medical	Manufacturing	76,396 sf, 1 structure	50 West St., Block 305, Lot 5.02	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.)	Completed
Parkview Village	Residential	165 units, # structures	71 Locust Ave., Block 152, Lot 10	NJ Inland DFE (1% plus 3 ft.)	Proposed

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
49-55 Lawrence Street & 22-24 Arch Street	Residential and Commercial	36 units, 5,125 sf non-residential, # structures	49-55 Lawrence St. & 22-24 Arch St., Block 94, Lots 1 & 40	None.	Proposed
104-108 Montgomery Street	Residential	34 units, 1 structure	104-108 Montgomery St., Block 481, Lots 16 & 17	FEMA 1% Annual Chance; NJ Inland DFE (1% plus 3 ft.); Regulatory Floodway adjacent to the rear.	Under construction
59 Dodd Street	Residential	17 units (converted), 1 structure	59 Dodd St., Block 94, Lot 27	None.	Proposed
ShopRite	Commercial	Renovation & addition, 1 structure	1409 Broad St., Block 1231, Lot 43	NJ Inland DFE (1% plus 3 ft.)	Proposed
Universal Technical Institute	Institutional (education)	+100,000-sf technical school, 1 structure	1515 Broad St., Block 1231, Lot 52	NJ Inland DFE (1% plus 3 ft.)	Completed 2018

3.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Bloomfield that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 3-1. Township of Bloomfield Community Lifelines

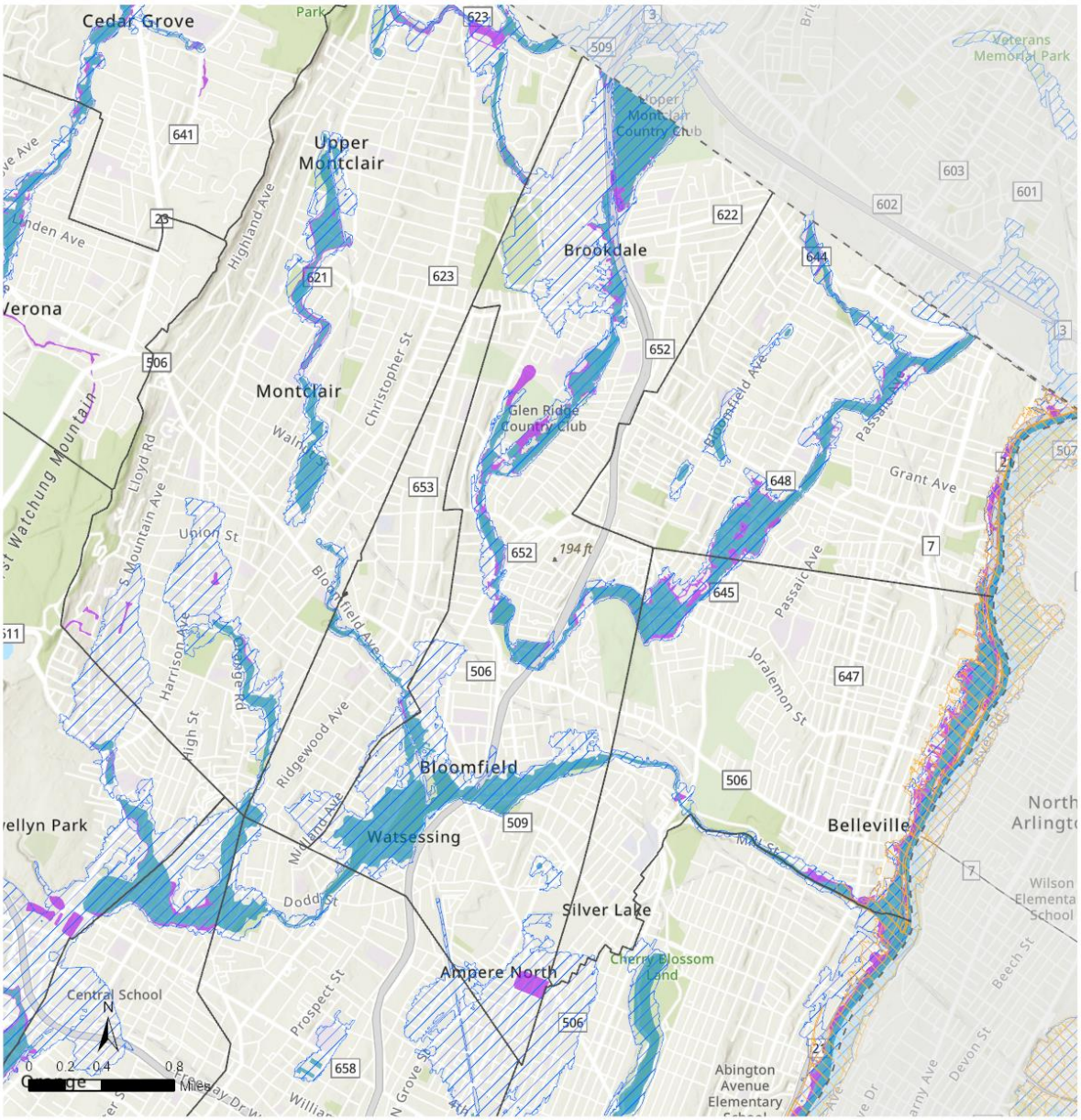


Bloomfield Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 3-2. Township of Bloomfield Flood-Related Hazards

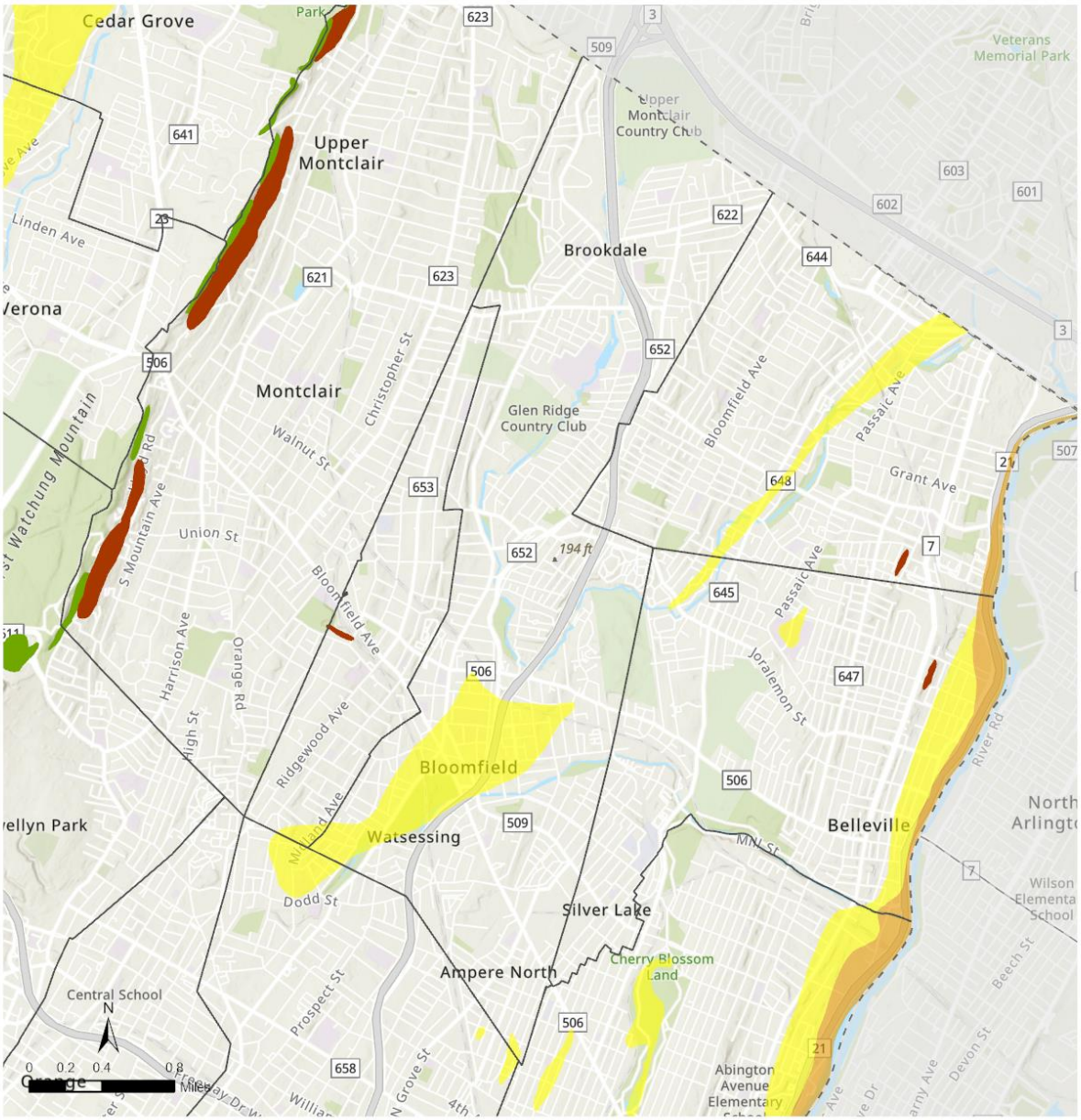


Bloomfield Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 3-3. Township of Bloomfield Geological Hazards



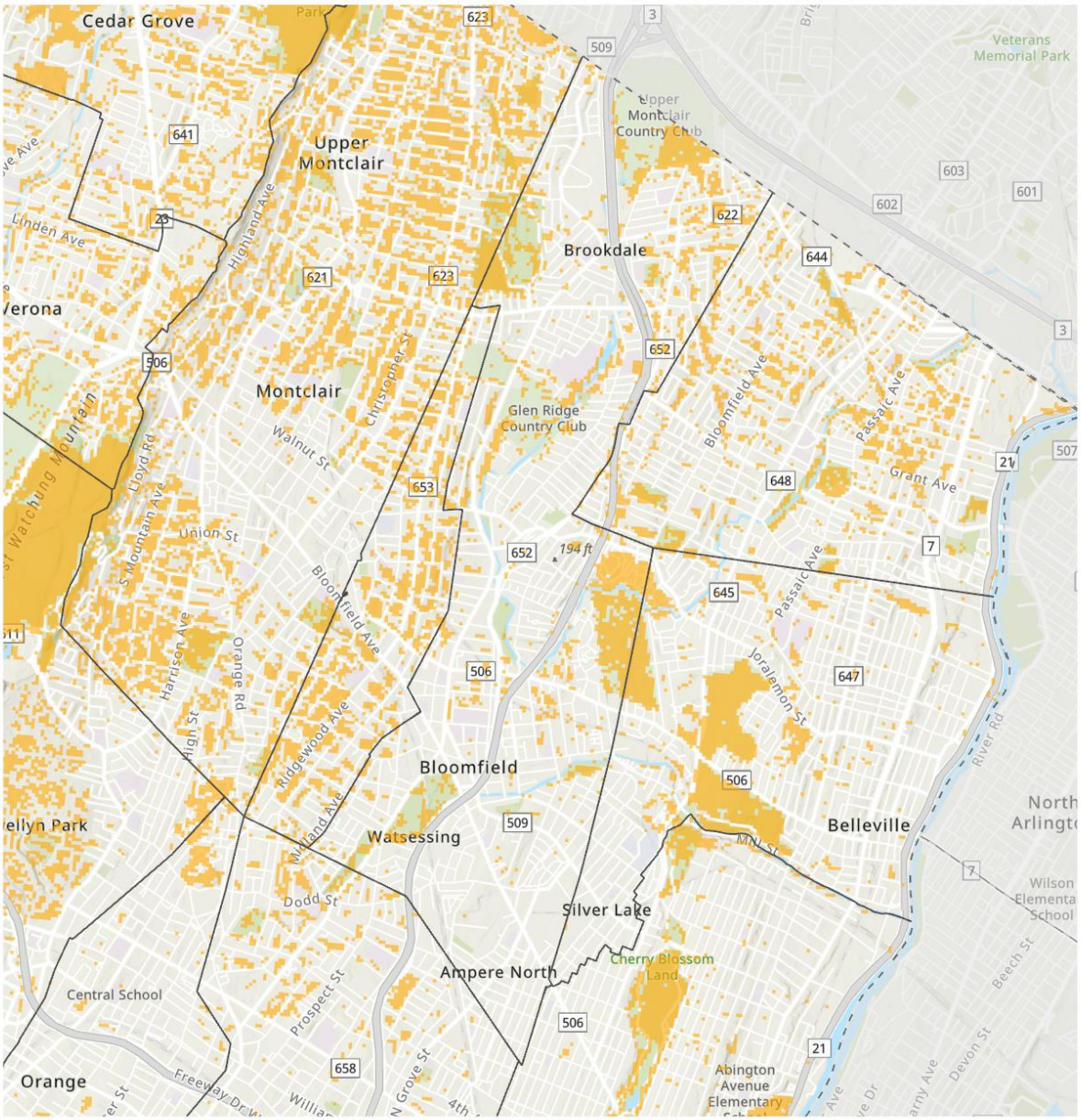
Bloomfield Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 3-4. Township of Bloomfield Wildfire Hazard



3.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of Bloomfield, climate change is likely to have the following impacts:

- Due to the concentration of buildings and paved surfaces, the Township may experience an increase in urban heat island impacts as temperatures rise as a result of climate change.
- Increase in precipitation is leading to impacts on the Township's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Township.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Township and will require new construction and redevelopment to elevate to the New Jersey Design Flood Elevation (DFE) (Rutgers University 2025).

3.2.5 Risk Assessment Summary

The Township's risk assessment identifies flooding and severe weather as the primary natural hazards, with stormwater flooding being a major source of damage. To mitigate these risks, the Township identified several mitigation strategies to address these concerns, including improvements to streambank improvements, feasibility studies, and mitigating floodprone properties.

3.3 Jurisdictional Capability Assessment

The Township of Bloomfield performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

3.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of Bloomfield.

Table 3-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Township of Bloomfield Master Plan, 2002	Planning Board
Impact on Risk Reduction: The purpose of the Conservation Plan element of the Master Plan is to preserve environmentally sensitive features, such as surface water, flood hazard areas, wetlands, steep slopes, and woodlands. This element provides information on where flood hazard areas in the Township are located and what their primary cause of flooding. The element includes information on steep slope areas. The Township compares its master plan to the County's 1998 Cross Acceptance Report and the State's Development and Redevelopment Plan. The Master Plan is currently being rewritten.			
Capital Improvement Plan	Yes	Capital Improvement Plan - Annually	Engineering
Impact on Risk Reduction: Capital Improvements include roadways, water supply, sanitary and storm sewers. These improvements allow for safe roads resilient to damage from flooding. Water supply improvements include watermain lining, valve exercising and replacement; fire hydrant replacement; lead service line replacements; cleaning and lining of watermains. These improvement provide for a more resilient and source of quality potable water. Hydrant and watermain improvement provide for an adequate supply of water for fire safety. In general, having a resilient water supply system will prevent failures during various emergencies including floods and droughts.			
Stormwater Management Plan	Yes	Stormwater Drainage Study - 2024	Engineering
Impact on Risk Reduction: The study provided detailed mapping and inventory of all stormwater assets including catch basins, manholes, outfalls, and piping. The study also identified areas of problematic funding as well as an asset management plan/strategy for future improvements to reduce flooding.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan – Updated 3/31/2023	Engineering
Impact on Risk Reduction: SPPP identifies best management practices for reducing stormwater pollution as well as incorporating techniques to reduce runoff and impervious areas thereby decreasing the amount of runoff during periods of significant rainfall			
Floodplain Management Plan or Watershed Plan	Yes	Stormwater Control Ordinance – Updated September 2024	Engineering/Planning & Zoning Board/Inspections Dept.
Impact on Risk Reduction: Specifies regulations for Stormwater Development of new Developments. Ordinance is based upon the most recent NJDEP template.			
Open Space Plan	Yes	Township of Bloomfield Master Plan, 2002	Planning Board
Impact on Risk Reduction: Open space is discussed in the land use and parks/recreation/open space elements of the Township's master plan. The Township is dedicated to preserving and maintaining open space throughout the community. They have established			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
goals to increase the quality and quantity of parks, recreation, and open space networks. The Township has proposed a greenway corridor to create a linear park with a semi-pervious pedestrian/bicycle path, sitting areas and educational trail markers. It is anticipated that portions of the Greenway would be constructed in conjunction with flood control projects such as stream bank stabilization, stream desnagging/desilting, water quality basins and wetlands restoration.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	Based upon Redevelopment Plans	Planning & Zoning Board/Engineering
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Bloomfield to prepare for, respond to, and recover from hazard events.

Table 3-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
The Emergency Operations Plan guides the emergency response to natural and non-natural emergency events. The Emergency Operations Plan is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Continuity of operations is addressed in the Emergency Operations Plan.			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			
Additional Emergency Response and Recovery Planning Capabilities			
List any additional emergency response or recovery plans that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • On September 8, 2009, the Bloomfield Township Council unanimously adopted a new Water Conservation Ordinance, amending Chapter 556 of the township code. The ordinance was substantially based on the NJDEP model ordinance, and sets non-emergency conservation measures, penalties, and enforcement procedures. The ordinance essentially asks residents and businesses to do these things: - Conserve water used indoors - Water lawns no more than 2 days per week (any 2 days) - Water lawns only between 5:00 p.m. and 9:00 a.m. - Don't water any lawn area longer than 30 minutes - Don't water your lawn when it's raining, or when it's already rained longer than 30 minutes - Make sure your installed sprinkler/irrigation systems has a rain sensor shut-off, per state law The following are exempt from these restrictions: - Flowers and shrubs can be watered as needed with a hose that has an automatic shut-off nozzle - Cars can be washed any day when done with a hose that has an automatic shut-off nozzle - Commercial crops, sod farms, nurseries, retail nurseries, golf courses can be			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
watered as necessary - Lawn treated with chemicals that need watering to preserve landscaping or establish new landscaping can be watered for 1 extra day only - New lawns or landscaping can be watered as needed within the first 21 days - When a licensed irrigation contractor is checking an irrigation system - When using reclaimed water (from rainwater harvesting, graywater systems, etc.) The ordinance also spells out what's required during a severe water emergency.			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of Bloomfield.

Table 3-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 149 Building Construction; Chapter 129 Fire Prevention and Protection	Community Development Department
Impact on Risk Reduction: Chapter 149 adopts the State Uniform Construction Code. All new development and redevelopment meets modern building code requirements designed to prevent damages from hazard events. Chapter 239 adopts the New Jersey Uniform Fire Code to help prevent fire damages.			
Zoning or Land Use Regulations	Yes	Chapter 315 Land Development and Zoning	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Chapter 315 aims to protect the public health, safety, morals, and general welfare. The purposes of this relating to hazard mitigation include: • To plan and guide the appropriate use or development of all land in a manner which will promote the public health, safety, morals, and general welfare by means including the following: ○ By regulating the location of buildings and establishing standards of development; establishing setback lines of buildings designed for residential, commercial, industrial, office or other uses and by fixing reasonable standards to which buildings or structures shall conform. ○ By prohibiting incompatible uses and prohibiting uses, buildings or structures which are incompatible with the character of development of the permitted uses within specified zoning districts and surrounding areas. ○ By regulating alterations of existing buildings and preventing such additions to and alterations or remodeling of existing buildings or structures as would not comply with the restrictions and limitations imposed hereunder. • To secure safety from fire, flood, panic, and other natural and human-made disasters. • To provide adequate light, air, and open space. • To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, maintenance of the character of the neighborhoods, preservation of the environment and quality of life. • To provide sufficient space in appropriate locations for a variety of residential, recreational, commercial, and industrial uses and open space, both public and private, according to their respective environmental requirements. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper land use.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Subdivision Regulations	Yes	Chapter 315 Land Development and Zoning Article III Application Requirements and Development Procedures	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Article III establishes the subdivision procedures.			
Site Plan Regulations	Yes	Chapter 315 Land Development and Zoning Article III Application Requirements and Development Procedures	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Article III establishes the site plan application and review procedures.			
Stormwater Regulations	Yes	Chapter 494 Stormwater Control	
Impact on Risk Reduction: The purpose of Chapter 494 is to establish minimum stormwater management requirements and controls for major development in the Township. Structural stormwater management measures must be designed to take into account existing site conditions including environmentally critical areas, wetlands, floodprone areas, slopes, depth to seasonal high water table, soil type, permeability and texture, drainage area and drainage patterns, and the presence of solution-prone carbonate rocks.			
Floodplain Regulations	Yes	Chapter 250 Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines. D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22.			
Environmental Protection Regulations	Yes	Chapter 484 Soil Removal; Chapter 535 Trees	Administration
Impact on Risk Reduction: Chapter 484 sets standards for soil removal, including requirements for permitting and approval. Chapter 535 establishes the requirements for protection of trees and removal of hazardous or dead trees.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

3.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Bloomfield's departments, boards, and committees that contribute to risk reduction.

Table 3-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	*Description and Role in Risk Reduction*
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board functions under the authority of the Municipal Land Use law of New Jersey and is authorized to exercise power concerning: • Adoption of Master Plan • Conditional use applications • Recommendations as to the official map of the Township • Recommendations as to the zoning ordinance or amendments thereto • Review of Capital Improvement Projects • Subdivision control and site plan review for permitted uses • Variances under certain circumstances in connection with site plans and subdivisions The Zoning Board of Adjustment has exclusive jurisdiction in the following areas: • All applications seeking a Use not permitted in a zone • Requests for interpretation of the Zoning Ordinance or the Zoning Map • Certification of a prior Non-Conforming Use • Appeals from orders of administrative officers in connection with the Zoning Ordinance The Zoning Board also hears the following applications: • Bulk (c) variances, site plan approval, and subdivisions, if associated with a use (d) variance Residential bulk (c) variances
Planning Department	Staff within the Planning & Zoning Department enforce and administer the local Zoning Ordinance. The zoning officer and staff handle issues pertaining to property uses, setbacks, lot coverage, and other local ordinances.
Public Works / Highway Department	The Bloomfield Department of Public Works and Parks provides essential services to its Township's residents promptly, courteously, safely, and cost-effectively. It assists the government in enhancing the quality of life for residents and visitors alike. Public Works and Parks, through its dedicated employees, strives to maintain and operate public infrastructure that respects the environment and preserves its assets for future generations. Responsibilities include pot hole repairs, potable water, recycling/garbage pickup, sanitation, sewer maintenance, shade trees, snow removal, street maintenance, street sweeping, vegetative refuse collection, and water maintenance.
Construction / Building / Code Enforcement Department	The Community Development Department is responsible for various land use and development related activities throughout the Township.

Department / Board / Committee	Description and Role in Risk Reduction
	Construction and zoning permits are issued from this office as well as permits for garage sales, dumpsters, POD-style temporary storage units. Construction and zoning code violations are investigated through the department as well. The Department also provides administrative and technical support for the Planning Board, Zoning Board of Adjustment, Historic Preservation Commission, Rent Leveling Board and administers the Community Development Block Grant (CDBG) Program. Finally, the Department is the main point of contact for the U.S. Census.
Engineering Department	The Bloomfield Engineering Department oversees all municipally owned facilities and infrastructure, such as streets, watermains, sanitary sewers, storm sewers, and public buildings. The Department mission is to oversee and maintain these facilities to provide the best services and quality of life for Bloomfield residents. The Department's goals and objectives are to provide and formulate annual capital improvement programs such as roadway reconstruction and resurfacing of 85 miles of local roadway; water supply improvements to 110 linear miles of water main piping including cleaning and lining; sanitary sewer cleaning and replacement; intersection and pedestrian safety improvements such as upgraded traffic signals and pedestrian crossings; maintaining public buildings to provide the necessary services to our residents. Accomplishing these goals requires the administration of the in-house staff and the services of various professional engineering consulting firms to develop appropriate budgets and plans. The department also provides design support and technical assistance to all departments within the township when the need arises, such as improvements to parks and recreation facilities, improvements to police and fire department facilities, traffic safety analysis, community development projects, and the Planning and Zoning Boards. Planning and Zoning Board applications are obtained at the Engineering Department.
Parks and Recreation Department	The Bloomfield Parks, Recreation & Cultural Affairs Department is to provide its community with diverse, year-round youth, adult, senior, and family-oriented programs utilizing its extraordinary parks and recreation facilities. These affordable activities are to be well-supervised, age-appropriate, and conducted at convenient times and locations while enhancing the physical, social, and cultural growth of all residents. The Department also supports
Open Space Board / Committee	• Recognizing the importance of acquiring and preserving open space, the Bloomfield Township Council has established an Open Space Trust Fund and Open Space Trust Fund Committee to advise the Township Council on administering such funds.
Environmental Board / Commission	The Environmental Commission studies and makes recommendations to the Township Council, boards, and agencies on issues that affect the natural and built environment, including open space preservation, smart growth, wetlands and water resource protection, green infrastructure, recycling and litter, environmental cleanups, wildlife habitat, energy

Department / Board / Committee	Description and Role in Risk Reduction
	efficiency, conservation, and transportation. The Commission will actively: • Review and comment on development proposals, Township ordinances, and State mandates. • Identify important environmental goals for the Township. • Support education of the public and the local government regarding environmental issues and pertinent regulations. • Encourage development to include maintenance and conservation of green space, open space, and wetlands throughout the township.
Emergency Management / Public Safety Department	The Office of Emergency Management is responsible for emergency response
Fire Department	The Fire Prevention Bureau functions in many ways to bring about a fire safe community. The Bureau administers our highly successful in-service inspection program. It is also the local enforcing agency, which administers the New Jersey Fire Code within the Township, and Fire Protection Subcode Officials of the Uniform Construction Code. Finally, the Bureau is the Fire Safety Education Unit of the department. In 2009, the Bloomfield Fire Department received International Accreditation with the Center for Public Safety Excellence.
Additional departments, boards, and committees	The Bloomfield Commission on Civil Rights is an organization designed to foster goodwill and cooperation within the community by holding events, educational programs, education campaigns, recommending policy initiatives to the mayor and town council, and like-minded activities. • Cultural Preservation • Historic Preservation Commission • Morris Canal Greenway Commission The Municipal Forester protects city trees by possessing a general understanding of the ecology of their region and working as an advocate for the importance of trees in the community.

The table below summarizes the Township of Bloomfield's staff with skills and expertise that contribute to risk reduction.

Table 3-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Planning and Zoning Board
Engineer	Bloomfield Engineering Department
Stormwater Officer	-
Resilience / Sustainability Officer	-
Grant Writer	Through a contracted consultant.
Staff with benefit / cost analysis expertise	Financial officer
Staff trained in conducting substantial damage determinations	-
Staff trained in GIS	-
Staff that provide support to socially vulnerable populations	The Bloomfield Parks, Recreation & Cultural Affairs Department provides senior citizen bus service to enable our senior population to

Staff	Description and Role in Risk Reduction
	purchase groceries and personal items. The Department also provides Dial-A-Ride service for senior citizens and special needs population. This curb-to-curb service offers free transportation to Bloomfield residents anywhere in Essex County. While rides are primarily for medical purposes, the Department tries to accommodate other requests. The mission of the Township of Bloomfield of Senior Services is to serve as advocates on behalf of Bloomfield residents 60 years of age and older and disabled adults by providing love, quality resources, events, activities, information, and outreach that fulfill the needs of our clientele. Bloomfield Municipal Youth Guidance Council Human Services is the township's outpatient mental health and social services center. Public health social workers provide counseling, crisis intervention, home visits and assessments as required by state-mandated practice standards. A licensed APN provides medication consultation and prescribes medication as needed. Public health social workers screen patients to determine if they are receiving all applicable services from government programs and nonprofit agencies. Referrals and linkage to programs that provide utility, food, prescription, housing, etc., are also provided. Social work scope of practice and practice standards can be accessed through the NASW– National Association of Social Workers. The Youth Aid Bureau is responsible for handling all criminal offenses that involve juveniles, as well as the investigation of child abuse and neglect allegations working in concert with the Division of Youth and Family Services (DYFS).
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the Township of Bloomfield.

Table 3-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	• Planning and Zoning Board – review/approve applications • Inspections Department – issue permits • NJDEP – permits if in the floodplain • Engineer Department – not directly involved in permitting but they do advise accordingly
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	• Any development coming in is required to get a NJDEP permit – flooding • Township must follow the stormwater management plans when it comes to permitting, development, inspections, etc.
How does your jurisdiction inventory land available for new development?	The Township is fully developed and most of the development occurring is redevelopment.

Development and Permitting Procedure	Comment
What percentage of your jurisdiction is available for new development?	New Development – less than 1%; the Township is fully developed

3.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Bloomfield.

Table 3-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	The Township has access to applying for and receiving FEMA BRIC, FMA, and PDM funding.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has utilized HMGP funding for structural projects, feasibility studies, and generators.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	-
Capital improvements funding	Yes	-
Open space acquisition programs		Essex County Recreation and Open Space Trust Fund: The Trust Fund can be used for: • Acquisition of lands for recreation and conservation purposes. Development of lands acquired for recreation and conservation purposes. • Maintenance of lands acquired for recreation and conservation purposes. • Acquisition of farmland for farmland preservation purposes. • Historic preservation of historic properties, structures, facilities, sites, areas or objects, and the acquisition of such properties, structures, facilities, sites, areas, or objects for historic preservation purposes.
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Water and Sewer (combined in tax bill)
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	-
Ability to incur debt through bonds	Yes	Through general obligation bonds.
Other financial resources available for hazard mitigation	Yes	Emergency Response Cost Recovery: The County may recover all costs reasonably incurred by the County, its employees, agents and contractors in connection with an emergency response action, including the overtime costs of appropriately deployed emergency response personnel, costs incurred by the County in the recovery of these costs, and the costs of expendable items.

3.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Bloomfield.

Table 3-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	Smart911 is the emergency alert system for the Township.
Public Information Officer	Bloomfield Township utilizes various communication channels and platforms to keep the community informed. Announcements are regularly sent out with information on municipal operations, alerts of road closures, and severe weather conditions. In addition, news of equity and sustainability initiatives and a community calendar include dates and info for upcoming community programs, cultural and holiday celebrations, and all organizational meetings. The Township's Information Technology Department ensures that information is simultaneously posted on the Township's website, Facebook page, and Twitter account with the help of their public relations and media consulting firm. The information is packaged and distributed promptly through local print and online newspapers, as well as in the Township's monthly eBuzz email newsletter.
Website	The Township uses their website (https://www.bloomfieldtwpnj.com/) to provide information on how to prepare for upcoming weather events and issue weather warnings. . In 2024, after collecting back-end data based on user experience, the Township's official website was refreshed with a modern, responsive design showcasing relevant information and helpful tools, including up-to-the-minute traffic and road closure alerts and weather advisories. On the website, residents can also opt-in to receive text notices via Notify Me about dozens of topics, including water advisories, notifications from the Department of Parks, Recreation and Cultural Affairs, community alerts, and more. The Township's official website and Facebook page are currently synced to post public information about important events on social media, where they are organically shared with community group pages. In addition, the Township's new website is entirely "mobile compatible," where residents who may not have frequent access to computers can look up information and sign up to receive push notifications about the above events and alerts via their mobile phones or any mobile devices
Social media	Facebook and X (formerly known as Twitter).
Public safety campaigns	The Fire Prevention Bureau is responsible for the Fire Safety Education of the Township. Some of the programs include: • The annual Fire Department Open House • The annual Fire Prevention Poster Contest in the elementary schools • Displays at the Bloomfield Harvest Fest • The Fire Safety House display throughout the Township Speaking to organizations regarding fire safety
Newsletters	Bloomfield Buzz is the Township's newsletter. Print editions are published in January and July and mailed to all households at no cost. Electronic versions are also available.
Hazard education programs for schools	The Fire Prevention Bureau is responsible for the annual Fire Prevention Poster Contest in the elementary schools

Outreach Capability	Description and Role in Risk Reduction
Outreach to socially vulnerable populations	-
Other outreach capabilities	The Township runs WBMA-TV (a local public television channel), a Notify Me® subscription service, press releases, emergency/traffic advisories, and a farmer's market that can be used to conduct outreach. Bloomfield Township's Green Fair coincides each year with Earth Day. Our local celebration has grown in recent years due to more community groups and Township departments joining the event. Members & volunteers from Greener Bloomfield, the Environmental Commission, the Public Library along with the council liaison hold several meetings planning the Green Fair.

3.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Bloomfield.

Table 3-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The engineering Department is responsible for the maintenance and improvement to township-owned facilities such as storm drains and storm piping. Private properties and developments are handled through the inspections department with input from the Engineering Department when requested.
What local department is responsible for floodplain management?	Engineering
Are any staff certified floodplain managers (CFMs)?	Yes
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Yes
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	N/A
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	To date, no residents have expressed interest in mitigation
How many properties have been mitigated (elevation or acquisition)?	0
Summarize the jurisdiction's Substantial Damage determination procedures.	Assessed through OEM, as well as Code Enforcement and the Health Department
Summarize the jurisdiction's Substantial Improvement procedures.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations	No

Floodplain Administration	Comments
that need to be addressed? If so, state the violations.	
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

3.3.6 Community Classifications

Table 3-14 summarizes the Township of Bloomfield's participation in community classification programs.

Table 3-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Yes – Bronze	September 16, 2024
Other Programs	Yes – Fire ISO Protection (2B)	November 2010
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): FEMA 2024a; NWS n.d.; NFPA 2024; Sustainable Jersey 2024

3.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Bloomfield has in place and will use to prepare for changes in risk due to climate change.

Table 3-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Increased flooding
What information does the jurisdiction use to understand potential climate change impacts?	Past history of flooding
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	The Township Stormwater Control Ordinance.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	The Township will utilize In-house Engineering Staff as well as consultants with an expertise in stormwater management and control. We also utilize those consultants with expertise in installation of solar energy generation and electric vehicle charging stations.

Adaptive Capacities	Comments
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	The township utilizes a Grants consultant to seek out eligible funding for the Township.
How does the jurisdiction educate the public on potential climate change impacts?	The township council from time to time holds presentations during council meetings as well as Ward Community Meetings.

3.3.8 Capability Assessment Summary

The Township of Bloomfield's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Bloomfield determined the following hazard capability effectiveness ratings.

Table 3-16. Township of Bloomfield Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

3.3.9 Opportunities to Improve Capabilities and Integration

The following have been identified as opportunities to improve capabilities and integration in the Township of West Orange:

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.

- The Township does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Township will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.

3.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Bloomfield were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Bloomfield reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the remainder of the calculated hazard rankings.

Table 3-17. Township of Bloomfield Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	Medium
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

3.5 Jurisdictional Mitigation Strategy

3.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 3-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-BLOOMFIELD-001	**Third River Bank Erosion—Construct a manmade structure to alleviate flooding:** Install gabion walls in other areas in Bloomfield along Third River.	Township DPW / Engineer	No Progress – limited jurisdiction with Third River but would like to keep in – would need NJDEP approval to complete any work	Yes – include in the 2025 HMP	The Township has limited jurisdiction of the Third River and will need the assistance of NJDEP to address flood-related issues of the River. Working with NJDEP, the Township will install gabion walls and perform routine maintenance to alleviate flooding associated with Third River in the Township.
2020-BLOOMFIELD-002	**Bank stabilization of the Second and Third Rivers and WigWam Brook (Toney's Brook):** Stabilize the stream bank long the Second and Third Rivers and WigWam Brook.	Township DPW / Engineer	In Progress – had preliminary meetings Glen Ridge and Montclair to discuss addressing this issue. It would be a joint effort. Limited jurisdiction/NJDEP approval	Yes – include in the 2025 HMP	The Township is coordinating with Glen Ridge and Montclair to address the stabilization of Toney's Brook. A stream study is needed to identify projects and maintenance plan. The projects will include increasing stormwater capacity in the area and implement additional projects identified with the assistance of NJDEP due to the Township's limited jurisdiction of the Brook.
2020-BLOOMFIELD-003	**Feasibility Study on storm sewer system in Ampere Parkway east to Newark**	Township DPW / Engineer	In Progress – An initial stream study was completed in 2019; and a study of the whole	Yes - include in the 2025 HMP	An initial stream study was completed in 2019; and a study of the whole storm

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	border: Perform a feasibility study on storm sewer system to determine the best solution to reduce or alleviate flooding in this area of the Township.		storm system (asset management plan) completed this year, which identified problematic areas in the Township. Additionally, a utility survey is being done to see what additional improvements can be installed. Lastly, the Township will take the study findings and implement projects and make improvements.		system (asset management plan) completed this year, which identified problematic areas in the Township. Additionally, a utility survey is being done to see what additional improvements can be installed. Lastly, the Township will take the study findings and implement projects and make improvements.
2020-BLOOMFIELD-004	**NFIP FPA Education and Certification:** The current FPA will become a CFM and pursue relevant continuing education training.	Township Administration / Engineer	Ongoing Capability – the Engineer is the FPA and has taken classes regarding flooding and floodplain administration.	Do not include in the 2025 HMP – an ongoing capability in which the engineer and FPA take courses as needed regarding floodplain management, administration, and flooding. They will consider taking the CFM course.	-
2020-BLOOMFIELD-005	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to 27 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred	Township FPA, Township Administration / Engineer	Ongoing Capability – the Township notified the homeowners about the Blue Acres program (NJDEP). There is information on flooding and mitigation measures on the Township website.	Include in the 2025 HMP	The Township is discussing changing the zoning ordinance to prevent new buildings located within certain hazard areas not but built with basements.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation residential homes that experience frequent flooding (high risk areas).		At the time of the 2025 HMP update, there is no interest in home elevations. The Township is discussing changing the zoning ordinance to prevent new buildings located within certain hazard areas not but built with basements. The Township, Glen Ridge, Montclair, and Nutley met with a congressman for initial discussions on developing a regional plan to address flooding along Second and Third Rivers and Toney's Brook.		The Township, Glen Ridge, Montclair, and Nutley met with a congressman for initial discussions on developing a regional plan to address flooding along Second and Third Rivers and Toney's Brook.
2020-BLOOMFIELD-006	**Critical Facilities in the Floodplain:** The Township will work with the facility owners/operators to inform them their facilities are located in the floodplain and provide different mitigation options to protect the facilities from flood damages.	Township FPA, Township Administration	Ongoing Capability – no formal mechanism in place, but this is part of the zoning/planning board applications to identify if they are in the floodplain	Include in 2025 HMP	
2020-BLOOMFIELD-007	**Debris Management Plan:** The Township will develop a debris management plan. The plan will include, but not limited to, staff	Township OEM, Township DPW	Ongoing Capability – the DPW follows NJDEP rules and regulations for debris	Do not include in the 2025 HMP – an ongoing capability the DPW follows NJDEP rules and regulations	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	roles and responsibilities, different situations, information on debris clearing and collection, where material will be stored, and a health and safety plan.		management/storage; no formal plan in place	for debris management/storage	

3.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Bloomfield identified the following mitigation efforts completed since the last HMP:

- The Township is discussing changing the zoning ordinance to prevent new buildings located within certain hazard areas not but built with basements.
- The Township is a bronze certified Sustainable Jersey community (September 16, 2024).
- In 2021, the Township prepared an Environmental Resource Inventory (ERI) that focuses on pollution and stormwater issues. The ERI is an appendix of the Master Plan.

3.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Bloomfield identified the following issues that require mitigation.

- Erosion along the Third River is an ongoing issue and puts private properties at risk.
- Streambank along Toney's Brook is in need to stabilization.
- Stormwater system along Ampere Parkway is in need of improvements and upgrades.
- Floodprone properties in the Township (33 RL and 4 SRL)
- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
- The Township does not have a disaster debris management plan at this time.

3.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Bloomfield's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 3-19. Township of Bloomfield 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Bloomfield Twp-01	Third River Bank Erosion					X		X		
2025-Bloomfield Twp-02	Bank stabilization of the Second and Third Rivers and WigWam Brook (Toney's Brook)					X		X		
2025-Bloomfield Twp-03	Feasibility Study on storm sewer system in Ampere Parkway east to Newark border					X		X		
2025-Bloomfield Twp-04	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Bloomfield Twp-05	Watershed Improvement Plan	X	X		X	X		X		
2025-Bloomfield Twp-06	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Bloomfield Twp-07	Disaster Debris Management Plan		X	X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 3-20. Township of Bloomfield 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Bloomfield Twp-01	Third River Bank Erosion	1	1	1	1	0	0	1	1	1	1	1	1	1	0	11	High
2025-Bloomfield Twp-02	Bank stabilization of the Second and Third Rivers and WigWam Brook (Toney's Brook)	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-Bloomfield Twp-03	Feasibility Study on storm sewer system in Ampere Parkway east to Newark border	1	1	1	1	0	0	1	1	1	1	1	0	1	1	11	High
2025-Bloomfield Twp-04	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High
2025-Bloomfield Twp-05	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High
2025-Bloomfield Twp-06	Substantial Damage Response Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Bloomfield Twp-07	Disaster Debris Management Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Bloomfield Twp-01: Third River Bank Erosion

Lead Agency:	Township DPW / Engineer	
Supporting Agencies:	NJDEP	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Gabion walls installed between Baldwin Street and Hoover Avenue to prevent continuous erosion along the private properties that face Broad Street. However, erosion still occurs along other areas of the Third River in Bloomfield. The Township has limited jurisdiction of the Third River and will need the assistance of NJDEP to address flood-related issues of the River.	
Description of the Solution:	The Township will work with NJDEP to construct a manmade structure to alleviate flooding and reduce erosion along Third River. This includes the installation of gabion walls and perform routine maintenance to alleviate flooding associated with Third River in the Township.	
Estimated Cost:	Medium to High	
Potential Funding Sources:	NJDEP, FEMA HMGP and BRIC	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Cliamte change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Aquire properties and restore to open space	Not feasible; loss tax base

2025-Bloomfield Twp-02: Bank stabilization of the Second and Third Rivers and WigWam Brook (Toney's Brook)

Lead Agency:	Township DPW / Engineer	
Supporting Agencies:	Glen Ridge and Montclair	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Cleanup has occurred along the waterways to help; Second River has concrete walls along it; however, no progress has been made to help with bank stabilization. The Township has had preliminary meetings Glen Ridge and Montclair to discuss addressing this issue.	
Description of the Solution:	The Township is coordinating with Glen Ridge and Montclair to address the stabilization of Toney's Brook. A stream study is needed to identify projects and maintenance plan. The projects will include increasing stormwater capacity in the area and implement additional projects identified with the assistance of NJDEP due to the Township's limited jurisdiction of the Brook.	
Estimated Cost:	Low for study; medium to high for implementation	
Potential Funding Sources:	NJDEP, FEMA HMGP and BRIC	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Cliamte change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Bloomfield Twp-03: Feasibility Study on storm sewer system in Ampere Parkway east to Newark border

Lead Agency:	Township DPW / Engineer	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	An initial stream study was completed in 2019; and a study of the whole storm system (asset management plan) completed this year, which identified problematic areas in the Township. Additionally, a utility survey is being done to see what additional improvements can be installed. Lastly, the Township will take the study findings and implement projects and make improvements.	
Description of the Solution:	Once all studies are completed, the Township will begin implementing and incorporating the findings to improve the storm sewer systems in Ampere Parkway east to Newark border.	
Estimated Cost:	$250,000+	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA; Capital Improvement; Township Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will result in a decrease in stormwater and sewer system flooding and an increase in capacity in the stormwater and sewer systems.	
Impact on Socially Vulnerable Populations:	Stormwater upgrades will reduce flood damage throughout the Borough and all residents, including socially vulnerable populations	
Impact on Future Development:	Provides protection from stormwater and sewer system flooding on future development	
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater and sewer systems.	
Impact on Capabilities:	This action will increase the Township's stormwater and sewer capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Implement green infrastructure throughout the Township	This can reduce stormwater and sewer flooding but does not address infrastructure and necessary improvements
	Elevate all homes and roads	Costly; not feasible; stormwater and sewer flooding will occur and cause damage

2025-Bloomfield Twp-04: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Township FPA, Township Administration / Engineer
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 33 repetitive loss properties and 4 severe repetitive loss property, but other properties may be impacted by flooding as well.
Description of the Solution:	Conduct outreach to 37 floodprone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	Staff time for outreach; $1 million+ for mitigation measures
Potential Funding Sources:	Outreach - municipal budget; Mitigation - FEMA FMA or HMGP, NJDEP Blue Acres
Implementation Timeline:	3 to 5 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Bloomfield Twp-05: Watershed Improvement Plan

Lead Agency:	Township Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent. Remove MS4 permit to bypass WIP requirement / Not allowable

2025-Bloomfield Twp-06: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Bloomfield Twp-07: Disaster Debris Management Plan

Lead Agency:	Township OEM and DPW
Supporting Agencies:	Township Council
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	2, 3, 5, 6
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	The action will result in increased post disaster capabilities.
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Rely on federal cleanup	These services may or may not be available
Rely on state cleanup	These services may or may not be available

3.6 JURISDICTIONAL HAZARD MITIGATION TEAM

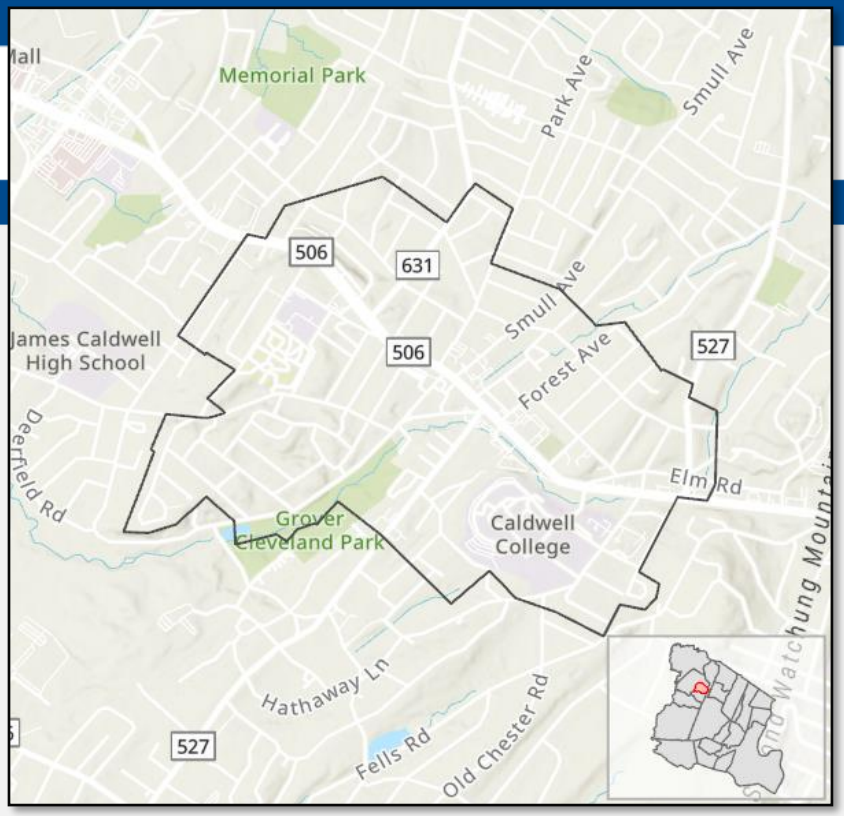
Table 3-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Anthony G. DeZenzo, Township Administrator	Name and Title:	Thomas Icolari, OEM Coordinator
Address:	1 Municipal Plaza, Bloomfield, NJ	Address:	1 Municipal Plaza, Bloomfield, NJ
Phone Number:	973-680-4000	Phone Number:	973-680-4000
Email:	adezenzo@bloomfieldtwpnj.com	Email:	ticolari@bloomfieldnjpd.com
NFIP Floodplain Administrator			
Name and Title:	Paul Lasek, Engineer		
Address:	1 Municipal Plaza, Bloomfield, NJ		
Phone Number:	973-680-4000		
Email:	plasek@bloomfieldtwpnj.com		

Table 3-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Anthony G. DeZenzo, Township Administrator	Served as the primary point of contact for the Township during the update of the Essex County HMP
Thomas Icolari, OEM Coordinator	Served as the alternate point of contact for the Township during the update of the Essex County HMP; provided input; attended meetings; reviewed the annex
Paul Lasek, Engineer	Attended meetings; provided input; identified mitigation strategies; reviewed the annex

Borough of Caldwell



POPULATION STATISTICS

8,898
TOTAL POPULATION (2023 ACS)

0.12%
Change in population since 2010 Census

3,797
TOTAL HOUSEHOLDS

AT RISK POPULATION

1,693
Population Over 65

575
Population Under 5

795
Living With Disability

0
Households Without Vehicle

1,863
People Renting Homes

POVERTY AND LANGUAGE

464
Households Below Poverty Level

630
Population With English as 2nd Language

POPULATION AND BUSINESSES

7,842
Daytime Population

479
Total Businesses

4,943
Total Employees

FLOOD VULNERABILITY

0
Number of People in 1% SFHA

1
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

4 Borough of Caldwell

4.1 Jurisdictional Profile

The Borough of Caldwell is a small, suburban community located in western Essex County, New Jersey. It is bordered to the north and west by the Township of West Caldwell, to the east by the Borough of North Caldwell, and to the south by the Borough of Essex Fells (FEMA 2020).

Caldwell is located on the western slope of the Second Watchung Mountain ridge line and its topography slopes west and northwest toward the Hatfield Swamp and the Passaic River Valley. Grover Cleveland Pond, Pine Brook, and an unnamed tributary of the Passaic River are located in Caldwell Borough. Caldwell was established in 1798 and retains much of its charm and character within its historic districts and parks, including the Grover Cleveland Birthplace National Historic Site (Borough of Caldwell 2014).

The Borough of Caldwell operates under the borough form of government which consists of a Mayor and six-member Council. The Council is elected at-large every three years on a staggering basis with two seats coming up for election every year. The Mayor is elected every four years.

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

4.2 Jurisdictional Risk Assessment

The following sections assess the Borough of Caldwell's risk to the hazards of concern identified for the 2025 HMP update.

4.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Borough of Caldwell's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Borough experienced during hazard events since the last hazard mitigation plan update.

Table 4-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Although the County was impacted, the municipality did not report significant local impacts.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of	We had moderate flooding in the usual flood prone areas, and specifically in our municipal library where the basement was flooded resulting in an insurance claim and restoration work.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Ida resulted in major damage to our municipal complex due to flooding. Our Library, police department and borough offices were forced to relocate to temporary trailers where they remain. Borough hall has been demolished, and the library is awaiting repairs and mitigation. Additionally, a culvert and parking lot was damaged and is still awaiting repairs.

Source: FEMA 2024; NOAA NCEI 2025

4.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. The Borough stated that the FEMA flood maps do not adequately address flood risk in the Borough. The Borough identified the following areas prone to flooding:

- Bloomfield Ave. is the main street that passes through the Borough and defines the downtown business district. Heavy rains produce runoff from "The Hilltop Property" complex in neighboring North Caldwell, flowing east to west downhill and flooding the downtown.
- An underground culvert directs the Pine Brook under the municipal complex (1 Provost Square) backs up and floods the entire area from Provost Square to Roseland Avenue.
- The area of Personette Street and Orchard Square floods during heavy rains closing those roads and the adjacent Hatfield Street.
- Brookside Avenue between Bloomfield Avenue and Westville Avenue floods due to overpressure of manholes in the area.
- Smull Avenue for several hundred feet on either side of Hanford Avenue floods mostly in backyards, the site of a stream or possible culvert, no longer in use.
- Runoff from Caldwell University in the area of Oak Grove Road, floods Roseland Avenue and eventually Westbrook Drive.
- The Borough Library was destroyed by flooding and is currently being rebuilt.
- The Borough Hall sustained substantial damage from flooding and has been razed.

The Borough participates in the National Flood Insurance Program (NFIP). The following table summarizes the NFIP statistics for Borough of Caldwell.

Table 4-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
5	$16,734	$1,924,000	12	$429,004	0	0

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

The Borough is not aware of any previous substantial damage declarations.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 4-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
No community lifelines located in the floodplain		

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

4.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Borough of Caldwell, including major residential/commercial/industrial development and major infrastructure development.

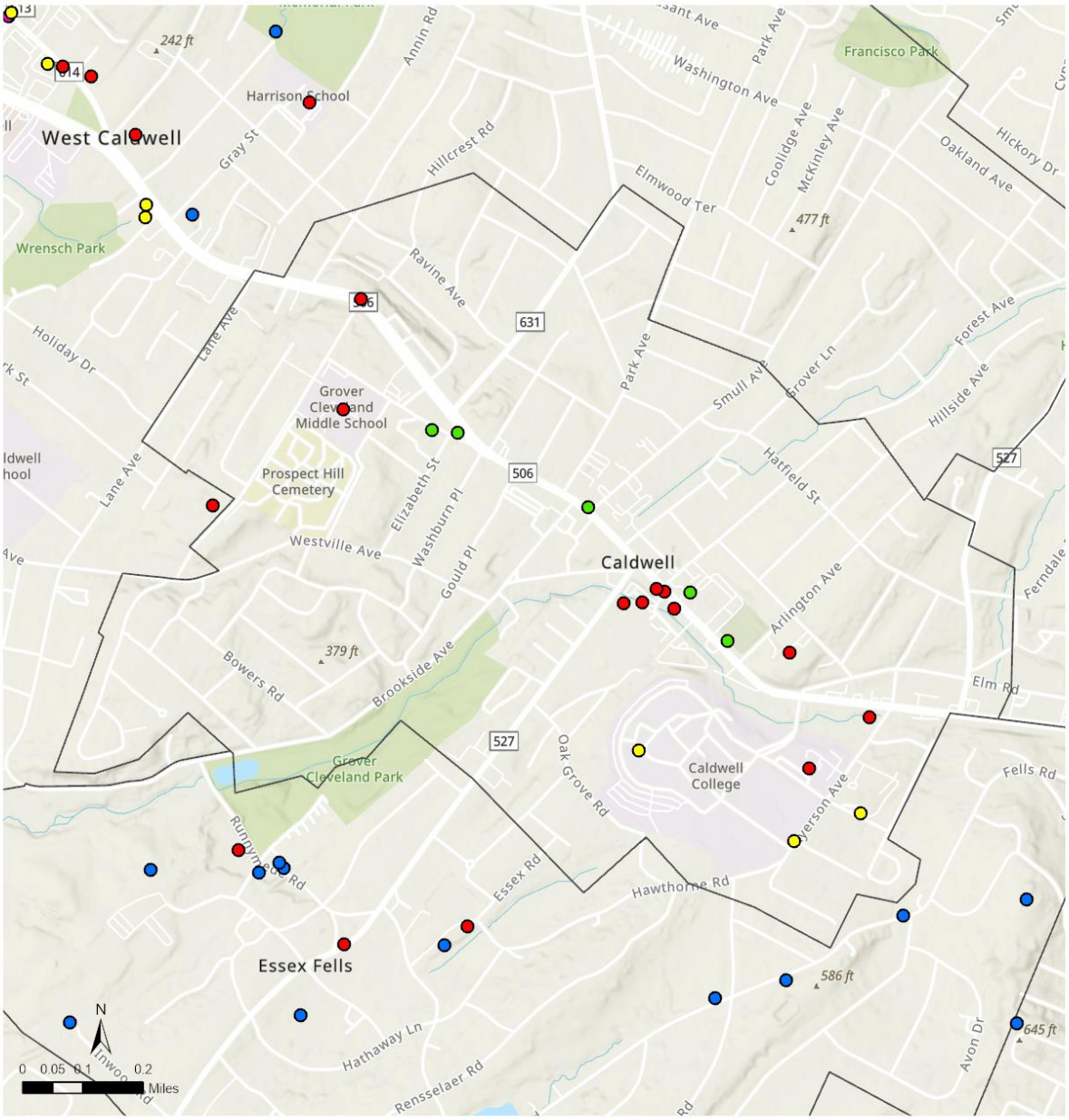
Table 4-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
S+S Caldwell Village LLC	Residential Apartment	98 Unit	14-18 Lane	none	Complete 2024
The Manor at Caldwell, LLC	Residential Apartments	44 Unit	-	none	Under Construction
Caldwell Apartments LLC	Mixed use	30 units plus retail	459 Bloomfield	none	Complete 2024
433 Bloomfield Ave LLC	Mixed Use	TBD	433 Bloomfield	none	Proposed

4.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Borough of Caldwell that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 4-1. Borough of Caldwell Community Lifelines

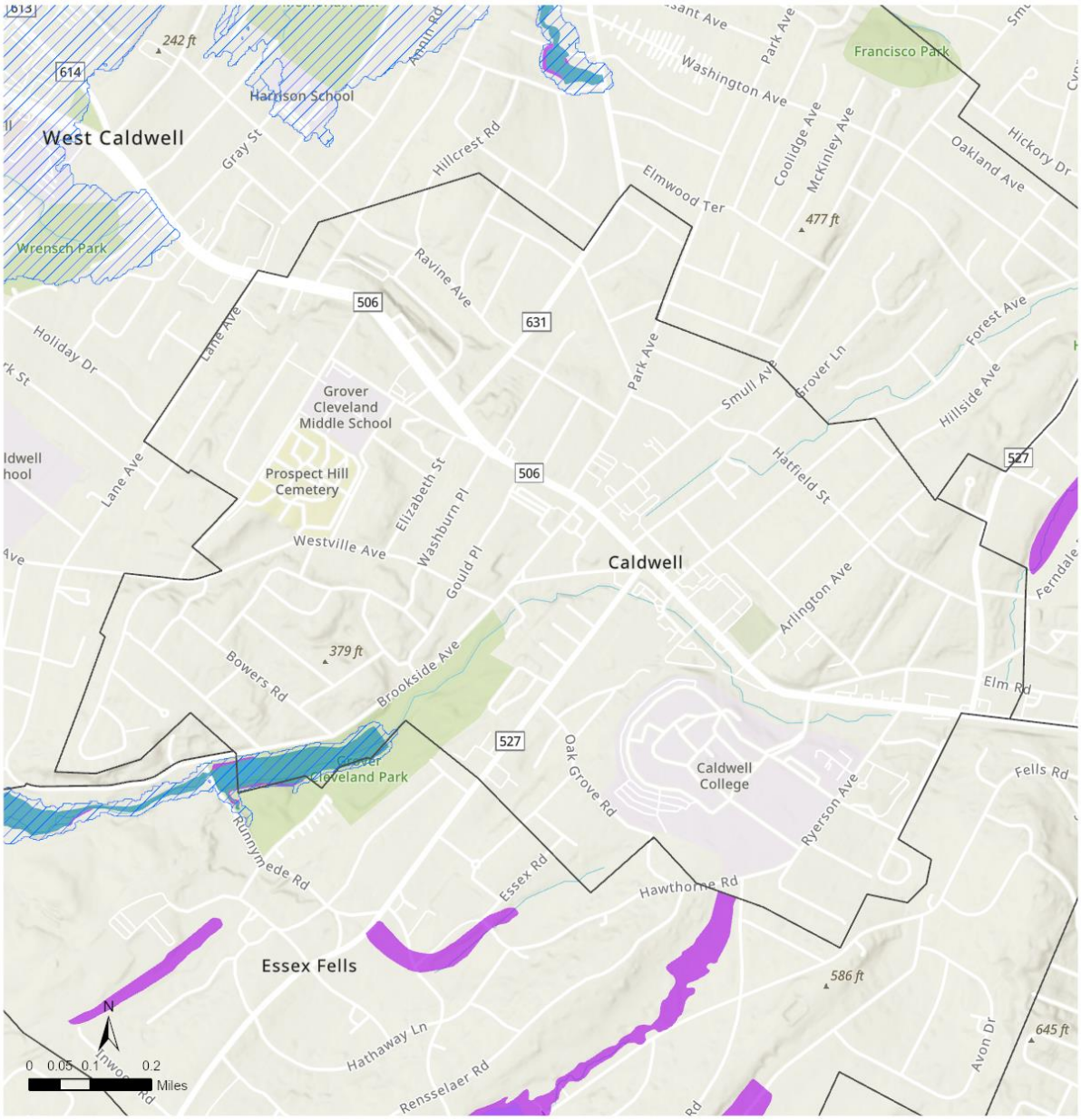


Caldwell Borough: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, Esri Community Maps Contributors, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Figure 4-2. Borough of Caldwell Flood-Related Hazards

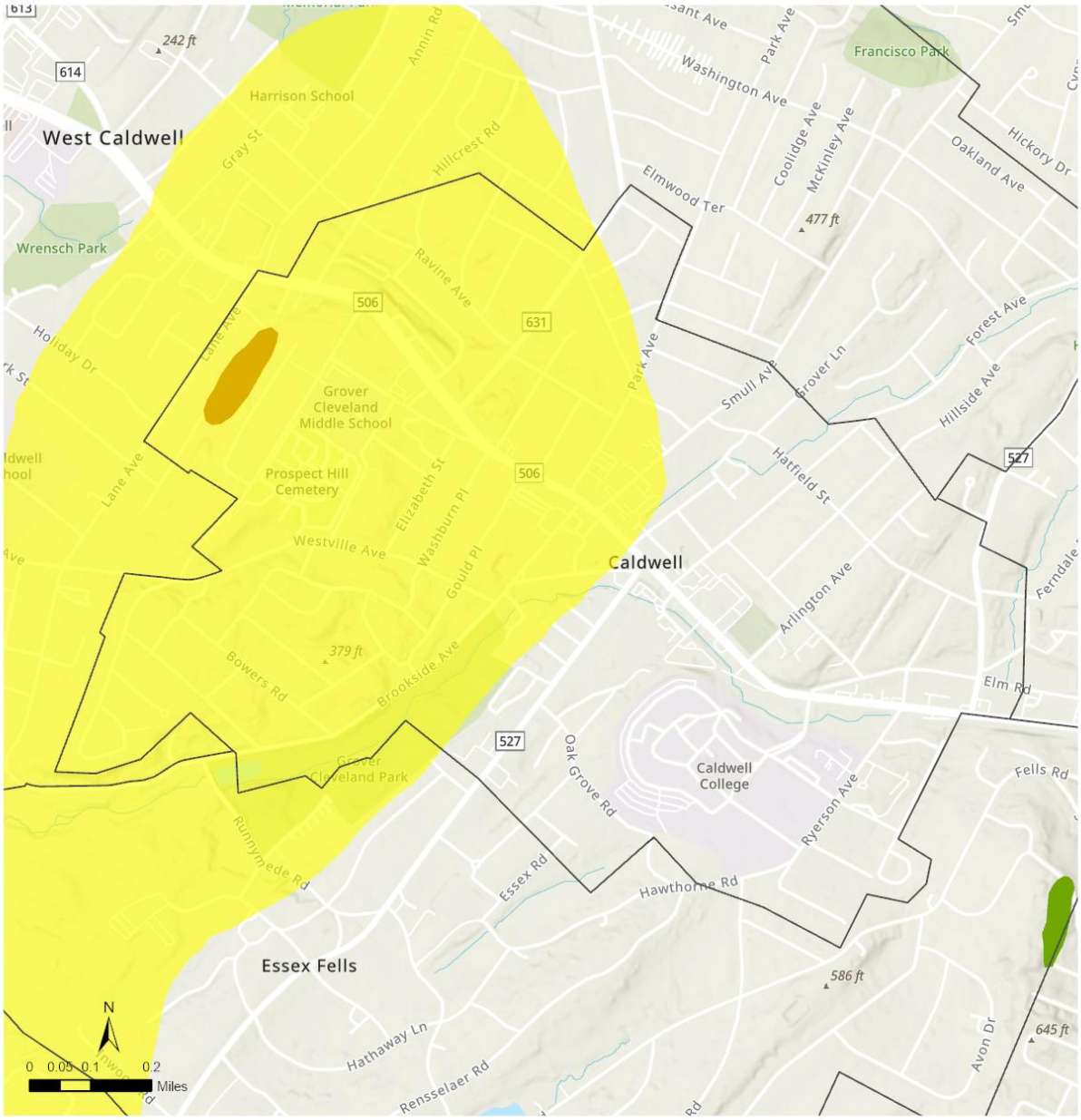


Caldwell Borough: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, Esri Community Maps Contributors, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Figure 4-3. Borough of Caldwell Geological Hazards



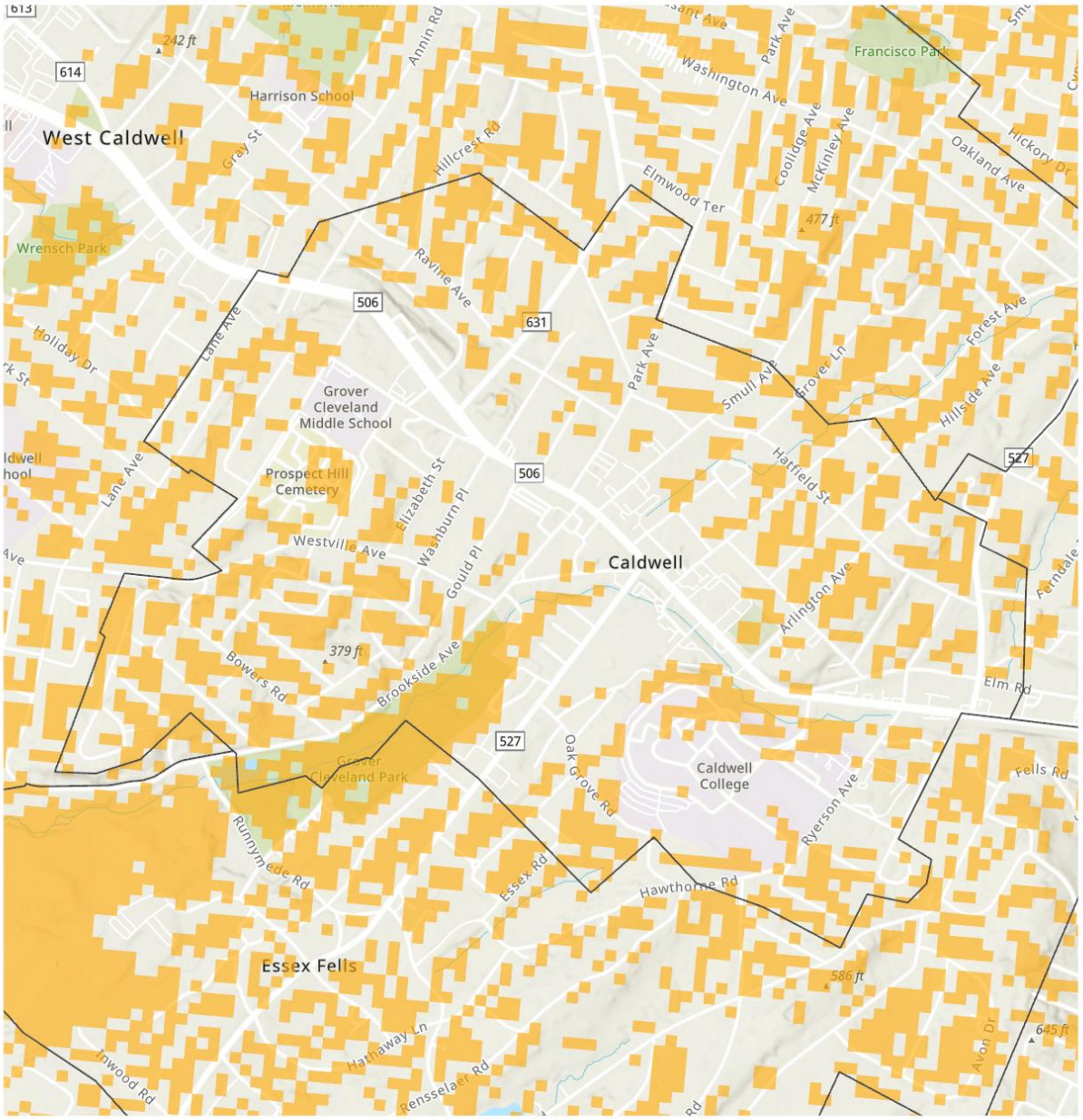
Caldwell Borough: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, Esri Community Maps Contributors, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Figure 4-4. Borough of Caldwell Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, Esri Community Maps Contributors, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

4.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Borough of Caldwell, climate change is likely to have the following impacts:

- The Borough is experiencing an increase in flood events related to climate change and frequent storm events.
- The Borough is also experiencing more drought-related events and impacts.
- At the time of this plan update, the Borough is preparing for climate change projections through pursuing grant opportunities to harden infrastructure against future storms and implementing post-storm recovery actions.

4.2.5 Risk Assessment Summary

The Borough's risk assessment identifies flooding and severe weather as the primary natural hazards, with stormwater flooding and streambank erosion being major sources of damage. To mitigate these risks, the Borough identified several mitigation strategies to address these concerns, including improvements to streambanks, floodproofing, and green infrastructure:

- The Pine Brook along Bloomfield Avenue is obstructed by vegetation and debris and leads to flooding along the Bloomfield Avenue Corridor. While the Borough performs routine maintenance, many of the culverts run through private properties where the Borough does not have jurisdiction.
- The Borough regularly experiences stormwater flooding due to undersized culverts in and around the municipal complex. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Borough. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- The stormwater system located along Bloomfield Avenue is vulnerable to flooding. While the Borough maintains the system, improvements are needed to help alleviate flooding. A study is being done on the unnamed streams in the area to identify problem areas and mitigation options to help address the flooding.
- Flooding occurs along Calamus and Grover Brook. The Borough met with North Caldwell to determine the cause of flooding, especially along Mountain Ave. It was determined that the flooding is related to new development occurring in North Caldwell. This is also leading to flooding to the Borough. The brooks are located on private property and the Borough does not have jurisdiction over those properties.
- The Caldwell Municipal Library has experienced repetitive damage from flooding. The Borough is currently rebuilding the library; however, mitigation measures are needed to protect from future flood events.
- For the 2020 impervious cover reduction action plan, projects have been identified in both of these watersheds. Initially, aerial imagery was used to identify potential project sites that contain extensive impervious cover. Field visits were then conducted at each of these potential project sites to determine if a viable option exists to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the site visit,

appropriate green infrastructure practices for the site were determined. Sites that already had stormwater management practices in place were not considered.

- Power outages are a common occurrence in the Borough especially during severe weather and winter weather events. Roseland Avenue experiences more frequent power outages. The Borough fire station is located on Roseland Avenue and when power outages occur, the fire station cannot function properly. Additionally, the Borough needs to implement a tree maintenance program to help reduce downed trees on power lines. The Borough also needs to implement redundant power sources within the Borough.
- The Borough's stormwater capabilities have not been increased. As a result, the Borough completed a stormwater study and a sanitary sewer system study was done by the Borough to determine I&I. The Borough is currently working on finding out the locations of I&I and will begin addressing those locations over the next year. The Borough's sewer system that serves 6 communities.
- An unnamed stream flows to the south of the municipal complex (24 Smull Ave.). The retaining wall that is behind the complex is at risk and if it fails, the Borough will lose a large portion of their complex property. Improvements and stabilization are needed.
- The Borough needs to conduct and complete a study of the Borough's stormwater systems to determine which improvements are needed.

4.3 Jurisdictional Capability Assessment

The Borough of Caldwell performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

4.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Borough of Caldwell.

Table 4-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Borough of Caldwell Master Plan Re-Examination Report, 2017	Planning Board
Impact on Risk Reduction: Previous reports: Re-examination Report in 2005 and original Master Plan in 1998. The 2017 Reexamination report includes mapping of Greenways and land use natural features.			
Capital Improvement Plan	Yes	Part of annual budget	Borough Council
Impact on Risk Reduction: Using capital improvement to address flood-related issues after Ida at the municipal complex (e.g., culvert improvements, demolition of structures, etc.)			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan, 2006	Engineering
Impact on Risk Reduction: The Stormwater Management Plan documents the strategy to address stormwater related impacts including groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major developments, defined as projects that disturb one or more acres of land or increasing impervious surface by one-quarter acre.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan, 2003	Engineering
Impact on Risk Reduction:			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Open Space and Recreation Plan Update, 2019	Environmental Commission
Impact on Risk Reduction: The Plan establishes a series of goals to steward Caldwell's existing parks and preserve its remaining open space lands. The plan guides land preservation and qualifies the Borough for funding through the NJDEP Green Acres program.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Fourth Community Forestry Management Plan, January 2018	Environmental Commission

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction: The Borough of Caldwell Community Forestry Management Plan will enable the Borough Council, Administrator and the Environmental Commission to set attainable goals within the present budgetary constraints in meeting present and future tree maintenance needs. This management plan will evaluate Caldwell's Shade Tree assets and liabilities and chart a course setting short and long term objectives to address existing maintenance areas such as the following: • To maintain a current Tree Inventory Assessment • To stay current in Hazard Tree Identification and Management • To stay current with Tree Planting • To provide superior Tree Maintenance and Removal Services • Municipal oversight of tree removals through established permit process • Replanting/replenishment requirements for certain tree removals			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	December 2020; November 2021	Borough Council
Impact on Risk Reduction: Borough of Caldwell "Redevelopment Plan" was adopted by ordinance in December of 2020, amended November 2021. It allows for new development in certain designated downtown areas. New construction is approved via a modified permit process which addresses land uses, bulk standards, designs, and building requirements. The new plan constitutes an overlay to existing zoning and is intended to eliminate blight, add affordable housing, and benefit businesses and residents. Approval of all new construction is contingent on strict standards in part addressing identifiable hazards and measures to prevent these hazards through mitigation planning.			

The table below summarizes the emergency response and recovery plans that guide the Borough of Caldwell to prepare for, respond to, and recover from hazard events.

Table 4-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to natural and non-natural hazard events. The Plan is updated every two years.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	Yes	-	Borough DPW
Impact on Risk Reduction: There is a plan in place to handle vegetative storm debris. Caldwell operates its own vegetative recycling facility which is operated via a DEP permit. All storm debris is picked up by public works employees and brought to facility for processing. In the past, the borough has acquired DEP permit for temporary storage of non-vegetative waste to be removed by private haulers.			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Borough of Caldwell.

Table 4-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 81 Construction Codes, Uniform	Department of Building Inspection
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
There is hereby established in the Borough of Caldwell a State Uniform Construction Code enforcing agency to be known as the "Department of Building Inspection," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the Chief Administrator of the enforcing agency. The building code sets standards for building to prevent damages from hazard events.			
Zoning or Land Use Regulations	Yes	Chapter 250 Zoning	Planning Board
Impact on Risk Reduction: This chapter is adopted in order to promote the public health, safety, morals, convenience and general welfare and in furtherance of the following related and more specific objectives: • A. To guide and regulate orderly growth, development, and redevelopment in accordance with the Borough's Master Plan. • B. To establish zoning districts and to set forth regulations governing these districts, in order to encourage the most appropriate use of land throughout the Borough. • C. To protect the established character and the social and economic well-being of both private and public property. • D. To prevent overcrowding of land and buildings and to avoid undue concentration of population. • E. To provide adequate light, air, convenience, and safety of access. • F. To conserve and enhance the value of property throughout the Borough of Caldwell. G. To facilitate the adequate provision of municipal services.			
Subdivision Regulations	Yes	Chapter 210 Subdivision and Site Plan Review	Planning Board, Zoning Board of Adjustment
Impact on Risk Reduction: The purpose of this chapter shall be to provide rules, regulations and standards to guide land subdivision and site development in the Borough of Caldwell in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.			
Site Plan Regulations	Yes	Chapter 210 Subdivision and Site Plan Review	Planning Board, Zoning Board of Adjustment
Impact on Risk Reduction: The purpose of this chapter shall be to provide rules, regulations and standards to guide land subdivision and site development in the Borough of Caldwell in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.			
Stormwater Regulations	Yes	Chapter 206 Stormwater Control, Chapter 205 Storm Sewer System	Construction Department and Code Enforcement Officers
Impact on Risk Reduction: The purpose of Chapter 206 is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge. Chapter 205 prohibits the improper disposal of waste and illicit connections.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Floodplain Regulations	yes	Chapter 110 Flood Damage Prevention, Adopted 2/20/2024	Floodplain Administrator
Impact on Risk Reduction: It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines. D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22.			
Environmental Protection Regulations	Yes	Chapter 144 Littering; Chapter 199 Soil Erosion; Chapter 227 Tree Removal and Protection	Police Department
Impact on Risk Reduction: Chapter 144 prohibits littering and illegal dumping. Chapter 199 Soil Erosion prohibits the uncontrolled and unregulated land disturbance and soil movement which is detrimental to the public safety, health and general welfare of the Borough and its citizens. Chapter 227 was adopted because the preservation, maintenance, protection and planting of trees aids in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in the removal of pollutants from the air and assists in the generation of oxygen; provides a buffer and screen against noise and pollution; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil subsequent to construction or grading; provides a haven for birds and other wildlife and otherwise enhances the environment; protects and increases property values; preserves and enhances the Borough's physical and aesthetic appearance; and generally protects the public health and safety as well as the general welfare.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

4.3.2 Administrative and Technical Capabilities

The table below summarizes the Borough of Caldwell's departments, boards, and committees that contribute to risk reduction.

Table 4-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board is responsible for the Master Plan, approval of subdivision and site plan applications, and to develop a program of capital improvement projects. Zoning Board of Adjustment may grant variances where the strict construction of the provisions of the Land Use Procedures chapter would work undue hardship.
Planning Department	-
Public Works / Highway Department	Public Works The Caldwell Wastewater Treatment Plant, located off of Passaic Avenue in West Caldwell, New Jersey, and the sewerage system constructed by and owned by the Borough of Caldwell. The Caldwell Sewer Board serves the towns of Caldwell, West Caldwell, Roseland, Fairfield, and Essex Fells.
Construction / Building / Code Enforcement Department	Construction and Zoning Department
Engineering Department	Engineering Department – reviews and comments on all development plans, assists in investigating complaints regarding flooding, and works with other agencies to ensure things align with codes and standards
Parks and Recreation Department	Caldwell shares Recreation services with West Caldwell and are administered by the West Caldwell Recreation Department, located at 30 Clinton Road. All programs, activities, and park facilities are available for enjoyment by both West Caldwell and Caldwell residents. Parks include Camp Wyanokie which comprises 150 acres and is located at the edge of Norvin Green State Forest and Grover Cleveland Park, a heavily wooded 42 acre park.
Open Space Board / Committee	• Recreation and Open Space Advisory Board: Responsibilities of the Board include: • Make recommendations to the County Executive regarding the overall administration of the County Open Space Acquisition Program established pursuant to the Public Law 1989, Chapter 30. • Prepare a park, recreation, and open space plan for adoption by the County. • Develop and recommend to the County Executive a system to prioritize the selection of open space areas for acquisition, the system to include: • Consideration of existing municipal, County, and state plans. • The identification of geographic areas for acquisitions based on established criteria. • The identification of the type of land to be acquired for open space. • Develop and recommend to the County Executive a funding assistance program, which may include: • Acquisition of lands for recreation and conservation purposes; • Development of lands acquired for recreation and conservation purposes; • Maintenance of lands acquired for recreation and conservation purposes;

Department / Board / Committee	Description and Role in Risk Reduction
	• Acquisition of farmland for farmland preservation purposes; • Historic preservation of historic properties, structures, facilities, sites, areas, or objects, and the acquisition of such properties, facilities, sites, areas, or objects for historic preservation purposes; and • Payment of debt service on indebtedness issued or incurred by a county or municipality for any of the purposes set forth above.
Environmental Board / Commission	The Environmental Commission promotes a more sustainable future by: • Educating and informing residents about ways to protect their local environment and shrink their carbon footprint. • Improving local decision-making by integrating sustainable policies into local plans and projects. • Helping local boards to understand the environmental consequences of land-use decisions. • Investigating environmental problems and offering solutions. Reviewing site plans for potential environmental risks.
Emergency Management / Public Safety Department	The Borough of Caldwell Office of Emergency Management coordinates the plans and operations of the various components of the emergency management system - police and fire, emergency medical service, public works, volunteers, and other groups contributing to the management of emergencies. The Emergency Management Coordinators are the point people responsible for implementing the Emergency Management Plan and directing the emergency response.
Fire Department	The mission of the Caldwell Volunteer Fire Department is the protection, preservation, and well-being of the health, safety, and property of all persons residing, working or otherwise within the Borough of Caldwell. This is achieved not only through the fire suppression but also fire prevention and education.
Additional departments, boards, and committees	The Caldwell Health Department oversees contracted services provided to the Borough which include promotion of health and well-being of the community offered through programming, information, and activities and communicable and infectious disease investigations and prevention.

The table below summarizes the Borough of Caldwell's staff with skills and expertise that contribute to risk reduction.

Table 4-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	-
Engineer	Borough Engineer
Stormwater Officer	-
Resilience / Sustainability Officer	-
Grant Writer	-
Staff with benefit / cost analysis expertise	-
Staff trained in conducting substantial damage determinations	-
Staff trained in GIS	Borough Engineer
Staff that provide support to socially vulnerable populations	A list of special needs residents, i.e. wheelchair bound, oxygen use, is on file at the police communications desk.

Staff	Description and Role in Risk Reduction
	Senior Transportation Committee
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the Borough of Caldwell.

Table 4-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Planning board, Zoning Department, Engineering Department,
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	-
How does your jurisdiction inventory land available for new development?	-
What percentage of your jurisdiction is available for new development?	Less than 5%

4.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Borough of Caldwell.

Table 4-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	The Borough has access to use; however, has not used in the past.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	We are in the process of completing FEMA application for Tropical Storm IDA, 2021, which includes several mitigation projects.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	-
Capital improvements funding	Yes	-
Open space acquisition programs	Yes	The Borough has received $1,177,374 from the State of New Jersey and $525,000 from Essex County for local open space and recreation projects. Since the establishment of its municipal open space trust fund, Caldwell Borough has expended $969,776 for land acquisition, preservation, and park improvement. Because of the existence of the Open Space Fund, we are eligible to apply for Open Space Funding from ANJEC. The Borough has been fortunate to receive two Open Space Grants to develop a Pollinator Garden which is part of the Open Space in Caldwell.
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Sewer
Stormwater utility fees	No	-

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Authority to levy taxes for specific purposes	Yes	-
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	No	-

4.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Borough of Caldwell.

Table 4-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Nixle Alerts, CodeRed Alerts
Public Information Officer	Mayor
Website	http:s//Caldwell-nj.com
Social media	Facebook, X (formerly known as Twitter)
Public safety campaigns	October fire prevention month, Project Medicine prescription drug disposal, Health Dept. Flu-shots, Rabies Clinics, Food Pantry,
Newsletters	-
Hazard education programs for schools	-
Outreach to socially vulnerable populations	-
Other outreach capabilities	-

4.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Borough of Caldwell.

Table 4-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Unknown
What local department is responsible for floodplain management?	Construction Department
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No formal process but part of the Borough's incident reporting if police or fire were called
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
How many properties have been mitigated (elevation or acquisition)?	None

Floodplain Administration	Comments
Summarize the jurisdiction's Substantial Damage determination procedures.	When buildings and structures are damaged due to any cause, including but not limited to man-made, structural, electrical, mechanical, or natural hazard events, or are determined to be unsafe as described in N.J.A.C. 5:23; and for applications for building permits to improve buildings and structures, including alterations, movement, repair, additions, rehabilitations, renovations, ordinary maintenance and minor work, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Construction Official, shall: A. Estimate the market value, or require the applicant to obtain a professional appraisal prepared by a qualified independent appraiser of the market value, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made. B. Determine and include the costs of all ordinary maintenance and minor work, as discussed in § 110-5, performed in the floodplain regulated by this chapter in addition to the costs of those improvements regulated by the Construction Official in substantial damage and substantial improvement calculations. C. Compare the cost to perform the improvement, the cost to repair the damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, where applicable, to the market value of the building or structure. D. Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage. This determination requires the evaluation of previous permits issued for improvements and repairs over a period of two years prior to the permit application or substantial damage determination as specified in the definition of substantial improvement. This determination shall also include the evaluation of flood related damages over a ten-year period to determine if the costs of repairs at the times of each flood constitutes a repetitive loss as defined by this chapter. E. Notify the applicant in writing when it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the building code is required and notify the applicant in writing when it is determined that work does not constitute substantial improvement or repair of substantial damage. The Floodplain Administrator shall also provide all letters documenting substantial damage and compliance with flood resistant construction requirements of the building code to the NJDEP Bureau of Flood Engineering.
Summarize the jurisdiction's Substantial Improvement procedures.	
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	-
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No

Floodplain Administration	Comments
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Meets minimum - All new construction and substantial improvement of any habitable building (as defined in Article IX) located in flood hazard areas shall have the lowest floor, including basement, together with the attendant utilities (including all electrical, heating, ventilating, air-conditioning and other service equipment) and sanitary facilities, elevated to or above the local design flood elevation as determined in § 110-12, be in conformance with ASCE Chapter 7, and be confirmed by an elevation certificate.

4.3.6 Community Classifications

Table 4-14 summarizes the Borough's participation in community classification programs.

Table 4-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Bronze	September 16, 2024
Other Programs	Class 5 in Fire ISO Protection	2016
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.		

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

4.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Borough of Caldwell has in place and will use to prepare for changes in risk due to climate change.

Table 4-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Drought, flooding due to more frequent and more severe storms
What information does the jurisdiction use to understand potential climate change impacts?	Damage assessments, weather reports
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Maintenance of storm drains, rivers and streams; public education
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	OEM coordinator, engineering, construction official, public works, environmental commission

Adaptive Capacities	Comments
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Very little prep other than pursuing grant opportunities to harden community against events, and post storm recovery actions
How does the jurisdiction educate the public on potential climate change impacts?	Borough website, emergency notifications prior to forecaster storms, post storm advice

4.3.8 Capability Assessment Summary

The Borough of Caldwell's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Borough of Caldwell determined the following hazard capability effectiveness ratings.

Table 4-16. Borough of Caldwell Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

4.3.9 Opportunities to Improve Capabilities and Integration

- Caldwell has a medium earthquake risk based on the HMP Risk Assessment Results. With recent earthquake events, the Borough would like to implement an education and outreach program that focuses on earthquakes.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality

is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.

- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

4.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Borough of Caldwell were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Borough's reduction of risk through current capabilities.

The Borough of Caldwell reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Borough discussed the following local factors that led to modifying the hazard rankings:

- Adjusted flood from medium to high due to climate change, frequent severe storms, and new construction have resulted in increases in flood damage throughout Borough.

Table 4-17. Borough of Caldwell Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temp	Medium
Flood	High
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

4.5 Jurisdictional Mitigation Strategy

4.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 4-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Caldwell-001	**Caldwell Pine Brook flood control/bank stabilization project:** Caldwell DPW will work in conjunction with Essex County Public Works and Private Property owners to clear debris and vegetation out of stream to promote better flow within the Pine Brook and reduce occurrences of flooding.	Borough DPW, Borough Administration, Borough Engineer FPA	Ongoing Capability – the Borough performs routine maintenance and checks for their infrastructure; they will reach out to the County regarding their infrastructure. The Borough has made culvert repairs and routine maintenance procedures to remove branches, debris, etc. Received a grant through FEMA from Ida to help support this effort – part of the $ was used for bank stabilization (minimal) A lot of culverts run through private properties and the Borough does not have jurisdiction over those culverts	Yes – include in the 2025 HMP	
2020-Caldwell-002	**Stormwater Infrastructure Upgrades:** Caldwell Engineering/OEM will work with Essex County Engineering/Public Works to determine if additional	Borough Engineering, Borough OEM, Essex County Public Works	No Progress – stormwater capabilities have not been increased; a stormwater study and a sanitary sewer system was done by the Borough to determine I&I – currently	Yes – include in the 2025 HMP	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made. Additionally, the

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	stormwater infrastructure can be installed along Bloomfield Avenue. If upgrades can be made, Caldwell Engineering will work with Essex County to improve the existing stormwater infrastructure.		working on finding out the locations of I&I and will begin addressing those locations over the next year Caldwell has a sewer system that serves 6 communities		Borough will address the inflow and infiltration locations starting in 2025.
2020-Caldwell-003	**Green Stormwater Infrastructure Public Outreach:** Cooperative Extension by assisting with public education and outreach for the citizens of Caldwell related to implementation of potential green stormwater infrastructure projects identified as a result of the study.	Borough OEM, Borough Administration, Rutgers Cooperative Extension	Ongoing Capability Reviewing a new stormwater control ordinance (to be presented to mayor/council at beginning of January); used the base model from DEP and made changes accordingly; this includes a green infrastructure component; includes flood control info as well Working with Rutgers to do green infrastructure (small stormwater mgt) – rain gardens in three locations in the Borough; environmental commission got funding to implement/install and will be completed in spring 2025	Yes – include in 2025 as continuing to make enhancements, etc.	Adopt and implement a new stormwater control ordinance that was presented to the mayor and council in January 2025. Continue working with Rutgers to implement green infrastructure projects (i.e. raingardens) in the Borough.
2020-Caldwell-004	**NFIP Insurance Public Outreach:** Caldwell	Borough OEM, Borough	Ongoing Capability	No – part of the Borough's day-to-day operations	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	OEM will provide additional information regarding National Flood Insurance Program policies to affected residential and commercial property owners.	Administration			
2020-Caldwell-005	**Floodproofing Caldwell Municipal Library:** Caldwell DPW will work to install floodproofing measures to mitigate damage sustained from flooding events on Bloomfield Ave.	Borough DPW, Borough OEM, Borough Administration	In Progress / Near Completion – rebuilding the library but will be repurposed; harden building to protect from flooding; install generator, etc.	Include in 2025 HMP – keep worded as is	Caldwell DPW will work to install floodproofing measures to mitigate damage sustained from flooding events on Bloomfield Ave.
2020-Caldwell-006	**FEMA HMA Phased Project for Bloomfield Ave Corridor Flooding:** Caldwell will gather data and submit an HMA Grant to request funding to fund a flood study along the corridor and based on the results of the study will implement the best alternative.	Borough OEM, Borough Engineer/FPA, Borough Administration	No Progress – no grant application submitted; Borough wants to make the upgrades to the stormwater systems; have maintained it but no significant improvements Engineer doing a flood study on the unnamed streams – should be completed by the end of 2025 – but keep in the 2025 plan to implement the results	Include in the 2025 HMP	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made and then implement those improvements. Additionally, the Borough will incorporate maintenance procedures as part of the improvements and upgrades. The Borough will review the engineering study performed on the unnamed streams in the municipality to identify projects and improvements

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
					needed to help reduce flooding along these areas of the Borough.
2020-Caldwell-007	**Water, Sewer, and Stormwater Study:** Conduct a Water, Sewer, and Stormwater Study and includes video inspection of Stormwater and Sewer lines.	Borough Engineer/FPA, Borough Administration	In Progress – study has been done but need to begin implementing and addressing findings	Include in the 2025 HMP	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made and then implement those improvements. Additionally, the Borough will incorporate maintenance procedures as part of the improvements and upgrades.
2020-Caldwell-008	**Flood Studies of the Calamus and Grover Brook:** Conduct Flood Studies of the Calamus and Grover Brook to include Mountain Avenue Flooding and implement the best identified alternative.	Borough Engineering, FPA	In Progress - Borough met with North Caldwell to determine the cause of flooding, especially along Mountain Ave. – related to new development in N. Caldwell – project wasn't fully connected and this led to flooding in the Borough – once connected there no issues related to this; related to stormwater and runoff; this brook is located on private property and the Borough does not have jurisdiction over	Include in the 2025 HMP	Outreach program to property owners to inform them of ways they can mitigate flooding on their properties; eventually the Borough would like to make improvements and work with the property owners where these flood sources are located

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
			it, it floods areas of the Borough		
2020-Caldwell-009	**Power Line Mitigation:** Conduct study to determine if specific areas have more occurrences of downed power lines than others, and work to bury power lines or focus tree trimming program on these areas.	Engineering	Roseland Ave – loses power more frequently; fire station is located on this road – could use a new generator Tree maintenance, redundant power Substation on Roseland Ave (PSE&G) floodprone; it was mitigated over the last 4 years and see less flooding and power outages	Include in the 2025 HMP	Purchase and install a generator for the fire station (30 Roseland Avenue, Caldwell). This will allow for continuity of operations and provide essential services to residents and businesses during power outages. The Borough will implement a tree maintenance program to help reduce risk of downed trees on powerlines.
2020-Caldwell-010	**Earthquake Education and Outreach:** Borough Officials will work to develop an outreach program about earthquake risk and mitigation activities in homes, schools, and businesses	Borough Administration, Borough OEM	Ongoing Capability – keep in plan and perhaps reword to be more relevant	Include in the 2025 HMP	The Borough will develop a Substantial Damage Management Plan that will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.

4.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Borough of Caldwell identified the following mitigation efforts completed since the last HMP:

- The Caldwell Sewage Treatment plant has a solar installation under the present PSEG Solar4All Program extension. This includes a photovoltaic array with about 200kW of peak output and battery backup to allow for continued operation during grid outages (Sustainable Jersey 2024a).
- Caldwell received a $20,000 Sustainable Jersey Grant in 2019 to develop green infrastructure with the Rutgers Cooperative Extension Water Resources Program. The Borough installed two rain gardens in 2020 at the Caldwell Community Center and in 2021 at the First Presbyterian Church.
- The Borough received funding from FEMA after Hurricane Ida to make improvements to the Pine Brook streambank.
- A power substation on Roseland Ave (operate by PSE&G) is floodprone. It was mitigated over the last 4 years and experiences less flooding and power outages.

4.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Borough of Caldwell identified the following issues that require mitigation.

- The Pine Brook along Bloomfield Avenue is obstructed by vegetation and debris and leads to flooding along the Bloomfield Avenue Corridor. While the Borough performs routine maintenance, many of the culverts run through private properties where the Borough does not have jurisdiction.
- The Borough regularly experiences stormwater flooding due to undersized culverts in and around the municipal complex. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Borough. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- Caldwell has a medium earthquake risk based on the HMP Risk Assessment Results. With recent earthquake events, the Borough would like to implement an education and outreach program that focuses on earthquakes.
- The stormwater system located along Bloomfield Avenue is vulnerable to flooding. While the Borough maintains the system, improvements are needed to help alleviate flooding. A study is being done on the unnamed streams in the area to identify problem areas and mitigation options to help address the flooding.
- Flooding occurs along Calamus and Grover Brook. The Borough met with North Caldwell to determine the cause of flooding, especially along Mountain Ave. It was determined that the flooding is related to new development occurring in North Caldwell. This is also leading to flooding to the

Borough. The brooks are located on private property and the Borough does not have jurisdiction over those properties.

- The Caldwell Municipal Library has experienced repetitive damage from flooding. The Borough is currently rebuilding the library; however, mitigation measures are needed to protect from future flood events.
- For the 2020 impervious cover reduction action plan, projects have been identified in both of these watersheds. Initially, aerial imagery was used to identify potential project sites that contain extensive impervious cover. Field visits were then conducted at each of these potential project sites to determine if a viable option exists to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the site visit, appropriate green infrastructure practices for the site were determined. Sites that already had stormwater management practices in place were not considered.
- Power outages are a common occurrence in the Borough especially during severe weather and winter weather events. Roseland Avenue experiences more frequent power outages. The Borough fire station is located on Roseland Avenue and when power outages occur, the fire station cannot function properly. Additionally, the Borough needs to implement a tree maintenance program to help reduce downed trees on power lines. The Borough also needs to implement redundant power sources within the Borough.
- The Borough's stormwater capabilities have not been increased. As a result, the Borough completed a stormwater study and a sanitary sewer system study was done by the Borough to determine I&I. The Borough is currently working on finding out the locations of I&I and will begin addressing those locations over the next year. The Borough's sewer system that serves 6 communities.
- An unnamed stream flows to the south of the municipal complex (24 Smull Ave.). The retaining wall that is behind the complex is at risk and if it fails, the Borough will lose a large portion of their complex property. Improvements and stabilization are needed.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The Borough needs to conduct and complete a study of the Borough's stormwater systems to determine which improvements are needed.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

4.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Borough of Caldwell's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories

(discussed in Section Volume I Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 4-19. Borough of Caldwell 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Caldwell Boro-01	Caldwell Pine Brook flood control/bank stabilization project					X		X		
2025-Caldwell Boro-02	Underground rainwater retention systems for new municipal complex					X		X		
2025-Caldwell Boro-03	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-Caldwell Boro-04	Earthquake Education and Outreach			X						
2025-Caldwell Boro-05	FEMA HMA Phased Project for Bloomfield Ave Corridor Flooding					X		X		
2025-Caldwell Boro-06	Improvements Along Calamus and Grover Brook					X		X		
2025-Caldwell Boro-07	Floodproofing Caldwell Municipal Library					X		X		
2025-Caldwell Boro-08	Implement Green Infrastructure Action Plan				X	X	X	X	X	X
2025-Caldwell Boro-09	Power Line Mitigation			X	X	X	X	X	X	X
2025-Caldwell Boro-10	Stormwater Infrastructure Upgrades					X		X		
2025-Caldwell Boro-11	Stream improvements and stabilization behind current municipal trailers					X		X		
2025-Caldwell Boro-12	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Caldwell Boro-13	Water, Sewer, and Stormwater Study					X		X		
2025-Caldwell Boro-14	Watershed Improvement Plan	X	X		X	X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with

prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 4-20. Borough of Caldwell 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Caldwell Boro-01	Caldwell Pine Brook flood control/bank stabilization project	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Caldwell Boro-02	Underground rainwater retention systems for new municipal complex	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Caldwell Boro-03	Disaster Debris Management Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High
2025-Caldwell Boro-04	Earthquake Education and Outreach	1	1	1	1	1	1	1	1	1	0	1	1	0	0	11	High
2025-Caldwell Boro-05	FEMA HMA Phased Project for Bloomfield Ave Corridor Flooding	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High
2025-Caldwell Boro-06	Improvements Along Calamus and Grover Brook	1	1	1	1	1	0	1	0	1	1	1	1	0	0	10	Medium
2025-Caldwell Boro-07	Floodproofing Caldwell Municipal Library	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-Caldwell Boro-08	Implement Green Infrastructure Action Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Caldwell Boro-09	Power Line Mitigation	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	Medium
2025-Caldwell Boro-10	Stormwater Infrastructure Upgrades	1	1	1	1	1	0	1	1	1	1	1	0	0	1	11	High
2025-Caldwell Boro-11	Stream improvements and stabilization behind current municipal trailers	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-Caldwell Boro-12	Substantial Damage Response Plan	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Caldwell Boro-13	Water, Sewer, and Stormwater Study	1	1	1	1	1	0	1	1	1	1	1	0	0	1	11	High
2025-Caldwell Boro-14	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Caldwell Boro-01: Caldwell Pine Brook flood control/bank stabilization project

Lead Agency:	Borough DPW	
Supporting Agencies:	Borough Administration, Essex County	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Pine Brook along Bloomfield Avenue is obstructed by vegetation and debris and leads to flooding along the Bloomfield Avenue Corridor. While the Borough performs routine maintenance, many of the culverts run through private properties where the Borough does not have jurisdiction.	
Description of the Solution:	Caldwell DPW will work in conjunction with Essex County Public Works and Private Property owners to clear debris and vegetation out of stream to promote better flow within the Pine Brook and reduce occurrences of flooding.	
Estimated Cost:	$20,000/annually	
Potential Funding Sources:	FEMA HMGP and FMA, Municipal Budget	
Implementation Timeline:	Within 3 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Cliamte change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Caldwell Boro-02: Underground rainwater retention systems for new municipal complex

Lead Agency:	Borough Engineer and DPW	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Borough regularly experiences stormwater flooding due to undersized culverts in and around the municipal complex. Increased frequency of heavy rainfall events overwhelm stormwater systems in the Borough. A boroughwide study was performed on I&I and flood issues. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.	
Description of the Solution:	The Borough will install a rainwater retention system under the municipal complex – fed by rainwater and culverts. Additionally, the Borough will install a 2nd culvert to help with any overflow from the culvert associated with the underground retention system	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will result in a decrease in stormwater flowing downstream and an increase in capacity in the stormwater system, decreasing flooding.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	Provides protection from stormwater flooding on future development	
Impact on Critical Facilities/Lifelines:	The municipal complex is a community lifeline; the project will help reduce flood damage to the complex	
Impact on Capabilities:	This action will increase the Borough's stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rain gardens	Lack of space and likely low change in stormwater volumes
	Above ground detention	No available space in the Borough for this type of project

2025-Caldwell Boro-03: Disaster Debris Management Plan

Lead Agency:	Borough OEM and DPW	
Supporting Agencies:	Borough Council	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 3, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

2025-Caldwell Boro-04: Earthquake Education and Outreach

Lead Agency:	Borough Administration, Borough OEM	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Earthquake	
Description of the Problem:	Caldwell has a medium earthquake risk based on the HMP Risk Assessment Results. With recent earthquake events, the Borough would like to implement an education and outreach program that focuses on earthquakes.	
Description of the Solution:	Borough officials will work to develop an outreach program about earthquake risk and mitigation activities in homes, schools, and businesses.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal Budget	
Implementation Timeline:	1 to 3 years	
Goals Met:	1, 2, 3	
Benefits:	Reduction in property damages related to earthquake events and increased awareness	
Impact on Socially Vulnerable Populations:	Provides outreach to all residents in the Borough	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	Part of the Borough's outreach methods to its residents	
Climate Change Considerations:	N/A	
Mitigation Category:	Education and Awareness Programs	
CRS Category:	Public Information, Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Refer to residents to state outreach	Not focused on the Borough and its specific risk to earthquakes
	Use current outreach methods	While it includes all hazards, it does not provide specific outreach to each hazard

2025-Caldwell Boro-05: FEMA HMA Phased Project for Bloomfield Ave Corridor Flooding

Lead Agency:	Borough OEM, Borough Engineer/FPA
Supporting Agencies:	Borough Administration
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The stormwater system located along Bloomfield Avenue is vulnerable to flooding. While the Borough maintains the system, improvements are needed to help alleviate flooding. A study is being done on the unnamed streams in the area to identify problem areas and mitigation options to help address the flooding.
Description of the Solution:	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made and then implement those improvements. Additionally, the Borough will incorporate maintenance procedures as part of the improvements and upgrades. The Borough will review the engineering study performed on the unnamed streams in the municipality to identify projects and improvements needed to help reduce flooding along these areas of the Borough.
Estimated Cost:	$500,000+
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures), BRIC, and HMGP; Capital Improvement; Municipal Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 5, 6, 7
Benefits:	Reduce stormwater flooding along Bloomfield Ave.; reduction in flood losses
Impact on Socially Vulnerable Populations:	Populations living in this area will benefit from the project
Impact on Future Development:	New development occurring in this area will be less exposed to flood damage
Impact on Critical Facilities/Lifelines:	Community lifelines located in this area will be less exposed to flood damage
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
Acquire properties and restore to open space	Not feasible; loss tax base

2025-Caldwell Boro-06: Improvements Along Calamus and Grover Brook

Lead Agency:	Borough Engineering, FPA
Supporting Agencies:	Borough DPW, North Caldwell
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Flooding occurs along Calamus and Grover Brook. The Borough met with North Caldwell to determine the cause of flooding, especially along Mountain Ave. It was determined that the flooding is related to new development occurring in North Caldwell. This is also leading to flooding to the Borough. The brooks are located on private property and the Borough does not have jurisdiction over those properties.
Description of the Solution:	The Borough will implement an outreach program to the property owners along the Calamus and Grover Brooks to inform them of ways they can mitigate flooding on their properties. The Borough will also conduct a study to identify additional flood sources and identify mitigation measures that the Borough can implement to reduce flood damage.
Estimated Cost:	$500,000+
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures), BRIC, and HMGP; Capital Improvement; Municipal Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 5, 6, 7
Benefits:	Reduction in flood losses and damages
Impact on Socially Vulnerable Populations:	Populations living in this area will benefit from the project
Impact on Future Development:	New development occurring in this area will be less exposed to flood damage
Impact on Critical Facilities/Lifelines:	Community lifelines located in this area will be less exposed to flood damage
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	Current problem continues
Redirect streams	Costly; may not solve problem; increase flood risk in other areas
Install green stormwater infrastructure along the streams	Costly; the Borough is fully developed and land may not be available to implement these measures

2025-Caldwell Boro-07 Floodproofing Caldwell Municipal Library

Lead Agency:	Borough DPW	
Supporting Agencies:	Borough OEM, Borough Administration	
Hazard(s) of Concern:	Flood, Severe Storm	
Description of the Problem:	The Caldwell Municipal Library has experienced repetitive damage from flooding. The Borough is currently rebuilding the library; however, mitigation measures are needed to protect from future flood events.	
Description of the Solution:	The Borough will install floodproofing measures to the library. This includes elevating utilities, waterproofing the walls, and installing sump pumps. Additionally, the Borough will install a backup generator to use during power outages so the library can be used as a heating/cooling/charging center.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA FMA and BRIC, Capital Improvement Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 3, 6, 7	
Benefits:	Reduction in flood risk to library; continuity of operations	
Impact on Socially Vulnerable Populations:	When library is open after disasters, it will provide a facility for residents to go to charge electronics and serve as a heating/cooling center	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	The library is a community lifeline and will be able to function during and after hazard events	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Build floodwall around library	Costly, may not solve problem, increase flood risk in other areas adjacent to flood wall
	Relocate library	Costly and may not solve the problem

2025-Caldwell Boro-08 Implement Green Infrastructure Action Plan

Lead Agency:	Borough OEM
Supporting Agencies:	Borough Administration, Rutgers Cooperative Extension
Hazard(s) of Concern:	Extreme Temperature, Flood, Geolgoical Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	The New Jersey Department of Environmental Protection's (NJDEP) 2012 land use/land cover geographical information system (GIS) data layer categorizes Caldwell into many unique land use areas, assigning a percent impervious cover for each delineated area. These impervious cover values were used to estimate the impervious coverage for Caldwell. Based upon the 2012 NJDEP land use/land cover data, approximately 37.9% of Caldwell has impervious cover. This level of impervious cover suggests that the streams in Caldwell are likely non-supporting streams. For the 2020 impervious cover reduction action plan, projects have been identified in both of these watersheds. Initially, aerial imagery was used to identify potential project sites that contain extensive impervious cover. Field visits were then conducted at each of these potential project sites to determine if a viable option exists to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the site visit, appropriate green infrastructure practices for the site were determined. Sites that already had stormwater management practices in place were not considered. http://water.rutgers.edu/Projects/Caldwell/Caldwell_SJ_GI_ActionPlan1.pdf
Description of the Solution:	The Borough will move forward with implementing the identified green infrastructure projects such as rain gardens, pervious pavement, etc. identified in the action plan at the following locations: • Grover Cleveland Center for Senior Citizens • United States Postal Service • Caldwell Municipal Complex • Caldwell United Methodist Church • Caldwell University • Center For Spiritual Living North Jersey • Congregation Agudath Israel • Essex Lodge No. 7 • First Baptist Church • First Presbyterian Church • Gould Place & Bloomfield Avenue Right of Way • Green Acres: 27 Personette Street • Grover Cleveland Birthplace • Grover Cleveland Middle School • Grover Cleveland Park • Lincoln Elementary School • Municipal Parking Lot • Park Avenue & Bloomfield Avenue Right of Way • Saint Aloysius Roman Catholic Church
Estimated Cost:	$1 million+
Potential Funding Sources:	Capital Improvement; Volunteer time; NJDEP; New Jersey Water Bank
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	Reduce flood losses; implements green infrastructure
Impact on Socially Vulnerable Populations:	All residents will benefit from these improvements

Impact on Future Development:	Any new development in the Borough will benefit from these improvements	
Impact on Critical Facilities/Lifelines:	Community lifelines will benefit from these improvements	
Impact on Capabilities:	Implementing the Borough's Green Infrastructure Action Plan	
Climate Change Considerations:	Climate change is expected to increase the frequency and intensity of rainfall events and this project will help the Borough with flood mitigation	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; stormwater flooding will occur and cause damage
	Build floodwall around the Borough	Costly, may not solve problem, increase flood risk in other areas downstream from the Borough

2025-Caldwell Boro-09: Power Line Mitigation

Lead Agency:	Engineering	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Extreme Temperature, Flood, Geological Hazard, Severe Weather, Severe Winter Weather	
Description of the Problem:	Power outages are a common occurrence in the Borough especially during severe weather and winter weather events. Roseland Avenue experiences more frequent power outages. The Borough fire station is located on Roseland Avenue and when power outages occur, the fire station cannot function properly. Additionally, the Borough needs to implement a tree maintenance program to help reduce downed trees on power lines. The Borough also needs to implement redundant power sources within the Borough.	
Description of the Solution:	Purchase and install a generator for the fire station (30 Roseland Avenue, Caldwell). This will allow for continuity of operations and provide essential services to residents and businesses during power outages. The Borough will implement a tree maintenance program to help reduce risk of downed trees on powerlines.	
Estimated Cost:	Low to Medium	
Potential Funding Sources:	Capital Improvement, FEMA HMGP, Municipal Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6, 7	
Benefits:	Reduction in impacts from of power outages; continuity of operations	
Impact on Socially Vulnerable Populations:	All residents will benefit from these improvements	
Impact on Future Development:	Any new development in the Borough will benefit from these improvements	
Impact on Critical Facilities/Lifelines:	Community lifelines will benefit from these improvements	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is expected to increase the frequency and intensity of weather events and the Borough will experience more power outages as a result	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Remove all trees along areas with powerlines	Damaging to the environment; not feasible
	Establish microgirds throughout the Borough to provide power	Costly and difficult to implement

2025-Caldwell Boro-10: Stormwater Infrastructure Upgrades

Lead Agency:	Borough Engineering, Borough OEM
Supporting Agencies:	Essex County Public Works
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Borough's stormwater capabilities have not been increased. As a result, the Borough completed a stormwater study and a sanitary sewer system study was done by the Borough to determine I&I. The Borough is currently working on finding out the locations of I&I and will begin addressing those locations over the next year. The Borough's sewer system that serves 6 communities.
Description of the Solution:	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made. Improvements will be made based on findings and prioritization of actions needed. Additionally, the Borough will address the inflow and infiltration locations starting in 2025.
Estimated Cost:	$250,000+
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater inundation and an increase in capacity in the stormwater system, decreasing flooding.
Impact on Socially Vulnerable Populations:	Stormwater upgrades will reduce flood damage throughout the Borough and all residents, including socially vulnerable populations
Impact on Future Development:	Provides protection from stormwater flooding on future development
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.
Impact on Capabilities:	This action will increase the Borough's stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Implement green infrastructure throughout the Borough	This can reduce stormwater flooding but does not address infrastructure and necessary improvements
Elevate all homes and roads	Costly; not feasible; stormwater flooding will occur and cause damage

2025-Caldwell Boro-11: Stream improvements and stabilization behind current municipal trailers

Lead Agency:	Borough DPW and Engineer	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	An unnamed stream flows to the south of the municipal complex (24 Smull Ave.). The retaining wall that is behind the complex is at risk and if it fails, the Borough will lose a large portion of their complex property. Improvements and stabilization are needed.	
Description of the Solution:	The Borough Engineer will evaluate the retaining wall to identify options in addressing the Borough's concerns. Once identified, the Borough will reinforce, stabilize, and increase the level of protection of the retaining wall. This may include improving drainage around the wall, extending the footing of the wall, and replacing fill around the wall. The Borough will also implement a monitoring program to regularly inspect and maintain the wall and surrounding area.	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures) and HMGP, Capital Improvement, Municipal budget	
Implementation Timeline:	1 to 3 years	
Goals Met:	1, 2, 5, 6	
Benefits:	Reduce flood risk and loss of property from erosion; continuity of operations	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	The municipal complex is a community lifeline and this project will provide protection to the complex	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Implement green infrastructure throughout the Borough	This can reduce stormwater flooding but does not address infrastructure and necessary improvements
	Relocate the municipal complex	Costly and no available land to relocate

2025-Caldwell Boro-12: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Caldwell Boro-13: Water, Sewer, and Stormwater Study

Lead Agency:	Engineer/FPA, Borough Administration	
Supporting Agencies:	DPW	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Borough needs to conduct and complete a study of the Borough's stormwater systems to determine which improvements are needed.	
Description of the Solution:	The Borough will review the stormwater study conducted on the systems in the municipality to determine which improvements need to be made and then implement those improvements. Additionally, the Borough will incorporate maintenance procedures as part of the improvements and upgrades.	
Estimated Cost:	$250,000+	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will result in a decrease in stormwater and sewer system flooding and an increase in capacity in the stormwater and sewer systems.	
Impact on Socially Vulnerable Populations:	Stormwater upgrades will reduce flood damage throughout the Borough and all residents, including socially vulnerable populations	
Impact on Future Development:	Provides protection from stormwater and sewer system flooding on future development	
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater and sewer systems.	
Impact on Capabilities:	This action will increase the Borough's stormwater and sewer capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Implement green infrastructure throughout the Borough	This can reduce stormwater and sewer flooding but does not address infrastructure and necessary improvements
	Elevate all homes and roads	Costly; not feasible; stormwater and sewer flooding will occur and cause damage

2025-Caldwell Boro-14: Watershed Improvement Plan

Lead Agency:	Borough Engineer, DPW, and Council	
Supporting Agencies:	NJDEP	
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather	
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.	
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.	
Estimated Cost:	Medium for planning, High for implementation of identified projects	
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Completion required by December 2027	
Goals Met:	1, 2, 5, 7	
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.	
Impact on Socially Vulnerable Populations:	TBD by identified projects	
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.	
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.	
Impact on Capabilities:	This action will improve stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.	
Mitigation Category:	Natural Resource Protection	
CRS Category:	Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

4.6 Jurisdictional Hazard Mitigation Team

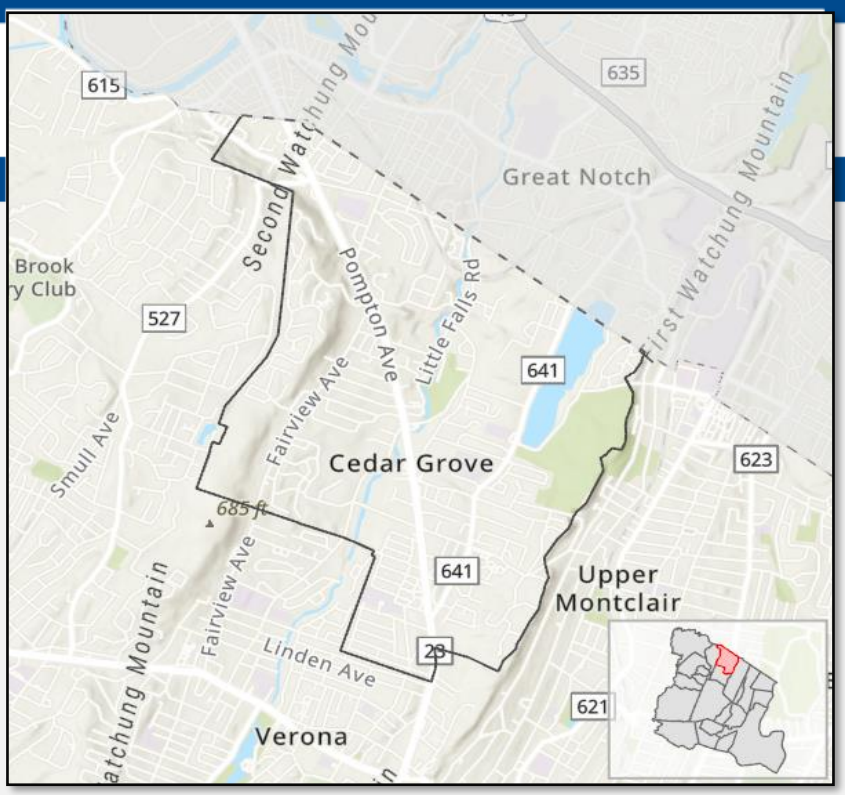
Table 4-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Mark Guiliano, OEM Coordinator/Zoning	Name and Title:	Gary Garamella, Deputy OEM Coordinator
Address:	24 Smull Avenue, Caldwell, NJ 07006	Address:	24 Smull Avenue, Caldwell, NJ 07006
Phone Number:	(973) 226-6100	Phone Number:	(973) 226-6100
Email:	fireofficial@caldwell-nj.com	Email:	firepi@caldwell-nj.com
NFIP Floodplain Administrator			
Name and Title:	Carl Thunell, Construction Official		
Address:	24 Smull Avenue, Caldwell, NJ 07006		
Phone Number:	(973) 226-6100		
Email:	cthunell@caldwell-nj.com		

Table 4-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Garrett Jones, Mayor	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Alex Palumbo, Borough Administrator	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Mark Guiliano, OEM Coordinator/Zoning	Served on the Essex County HMP Planning Partnership, identified primary point of contact for the Borough's annex, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Gary Garamella, Deputy OEM Coordinator	Identified alternate point of contact for the Borough's annex, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Thomas Tucci, Administrative Consultant	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Captain Matt DeAngelo, Caldwell PD	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP

Township of Cedar Grove



POPULATION STATISTICS

13,252
TOTAL POPULATION (2023 ACS)

0.06%
Change in population since 2010 Census

4,942
TOTAL HOUSEHOLDS

AT RISK POPULATION

3,312
Population Over 65

947
Population Under 5

1,101
Living With Disability

191
Households Without Vehicle

791
People Renting Homes

POVERTY AND LANGUAGE

527
Households Below Poverty Level

629
Population With English as 2nd Language

POPULATION AND BUSINESSES

13,402
Daytime Population

478
Total Businesses

6,046
Total Employees

FLOOD VULNERABILITY

19
Number of People in 1% SFHA

9
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

5 Township of Cedar Grove

5.1 Jurisdictional Profile

The Township of Cedar Grove is located along the northwestern border of Essex County. The Township is bordered by the Borough of North Caldwell to the west, the Township of Verona to the south, the Township of Montclair to the southeast, and Little Falls to the north in Passaic County. Cedar Grove reservoir is located in the northeast portion of the Township.

Cedar Grove became a Township in 1908. Cedar Grove began as a small farming community and officially became a Township in 1908. Cedar Grove operates under the council manager form of municipal government. There is a 5-member town council who are elected at large every four years. According to the US Census Bureau, the Township has a total land area of 4.378 square miles, of which 4.252 square miles is land and 0.126 square miles is water.

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

5.2 Jurisdictional Risk Assessment

The following sections assess the Township of Cedar Grove's risk to the hazards of concern identified for the 2025 HMP update.

5.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Cedar Grove's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 5-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The Township was subject to closures and masking/social distancing requirements.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Costs included: Town wide debris - $30,000.00 Staffing - $1,385.00

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Costs included: Road Repairs $40,257.57 Staffing $7,315.06 Wall Collapse $95,169.37 Sanitary Sewer $22,477.38 Town wide debris $242,490.37

5.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

FEMA flood maps adequately address flood risk in the Township. The Township of Cedar Grove is subject to flooding from the Peckman River and its tributaries. All flooding sources flow in well-defined channels with flooding occurring in adjacent low-lying areas. Flooding occurs along the Peckman River and its tributaries during times of excessive and prolonged rainfall, particularly in residential areas having steep slopes. This flooding is the result of high runoff combined with insufficient carrying capacity of bridge openings and culverts.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Township of Cedar Grove.

Table 5-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
38	$62,210	$12,274,000	33	$1,088,017	6	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

The Township does not have a history of substantially damaged properties.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 5-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex County 2025; FEMA 2020

5.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of Cedar Grove, including major residential/commercial/industrial development and major infrastructure development.

Table 5-4. Recent and Expected Future Development

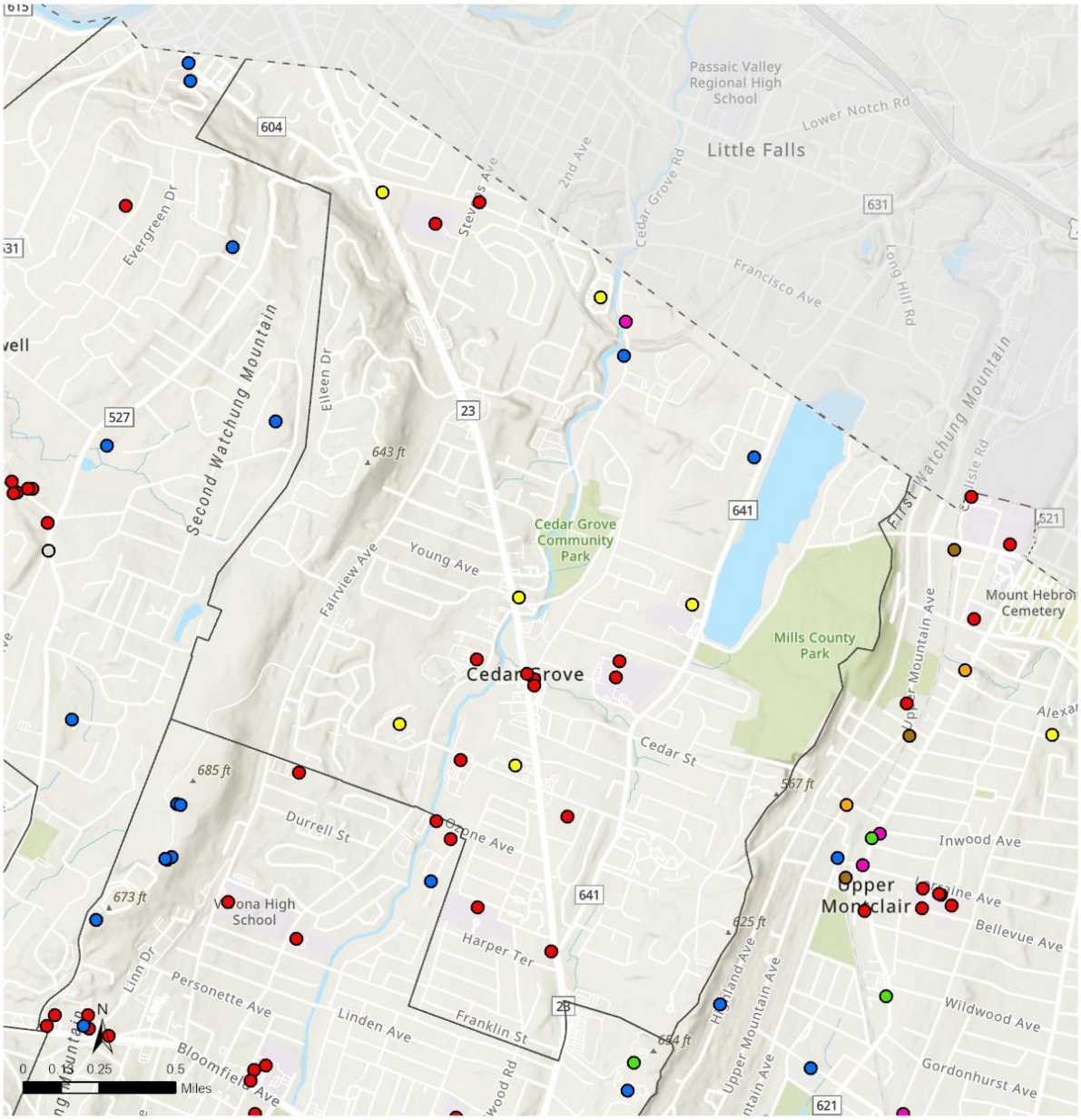
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
10-12 & 16 Ozone Ave	Residential	1 Duplex (2) units 1 single family home	10-12 & 16 Ozone Avenue	N/A	2024
Rt 23, LLC	Mixed Use	1955 sq ft retail 1st floor,3 apartments 2nd floor	1440 Pompton Avenue	N/A	Board Approval
Cliffside Drive Holding, LLC-Davids Cookies	Commercial	58,650 square foot addition to the existing two-story building	11 Cliffside Drive-12 Old Bridge	N/A	Board Approval / Construction Started
March Development/Marmont Cedar Grove	Residential	55 And over senior living facility. 138 units also approved for rea in need of redevelopment in 1/2025	1201 Pompton Avenue	N/A	Board Approval
O'Toole Scrivo	Commercial	Consolidating lots 14 Village Pk Rd & 98 Commerce Road, to construct 17,500 2nd floor & 14,000 sq ft to 98 Commerce Road building	14 Village Park Road	N/A	Board Approval

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
VJC Construction, LLC	Residential	4 Townhome units, each 2 bedrooms	1186 Pompton Avenue	N/A	TBD

5.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Cedar Grove that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 5-1. Township of Cedar Grove Community Lifelines

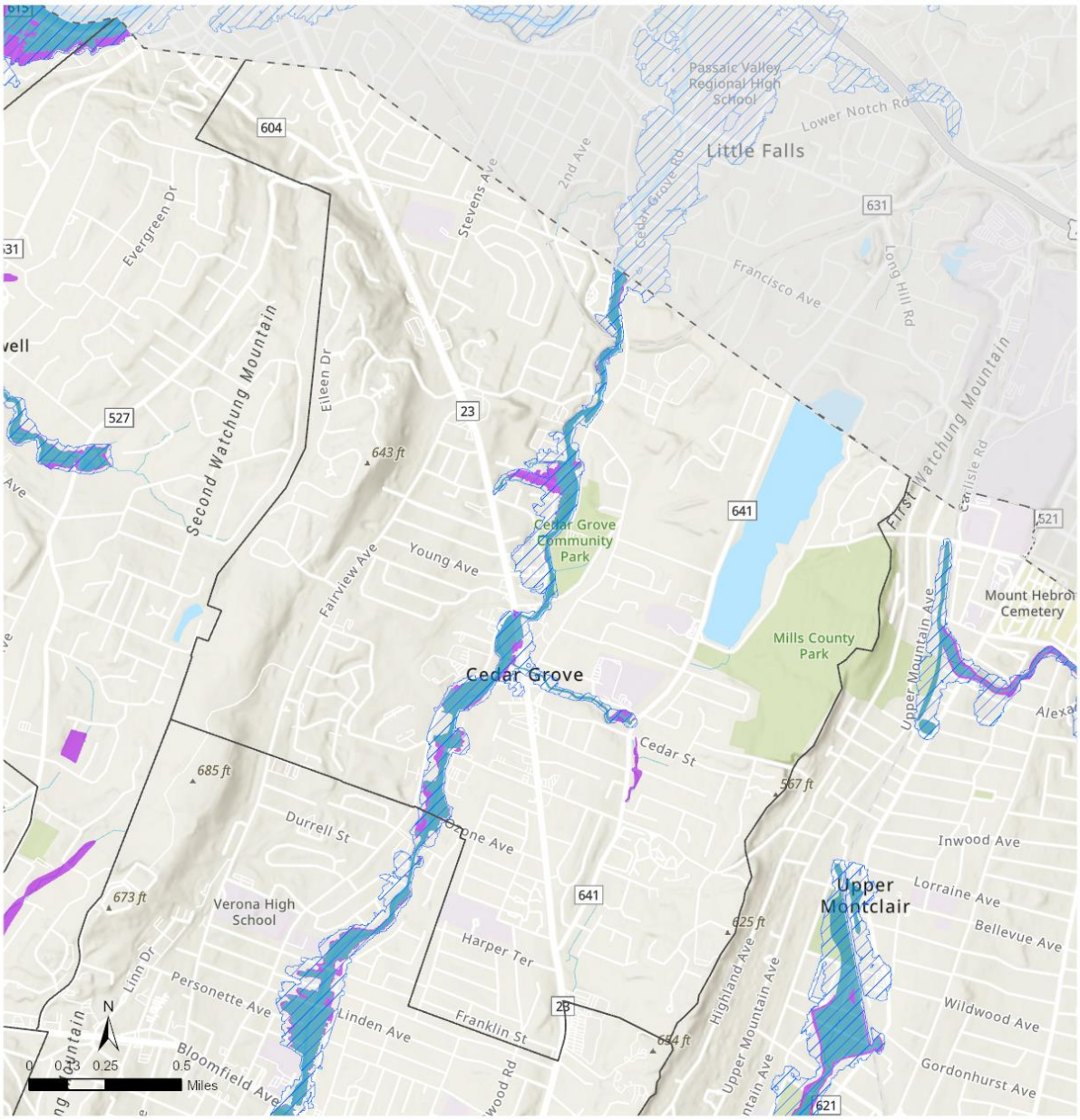


Cedar Grove Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 5-2. Township of Cedar Grove Flood-Related Hazards



Cedar Grove Township: Flood-Related Hazards

FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)

FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)

FEMA 1%-Annual-Chance Flood

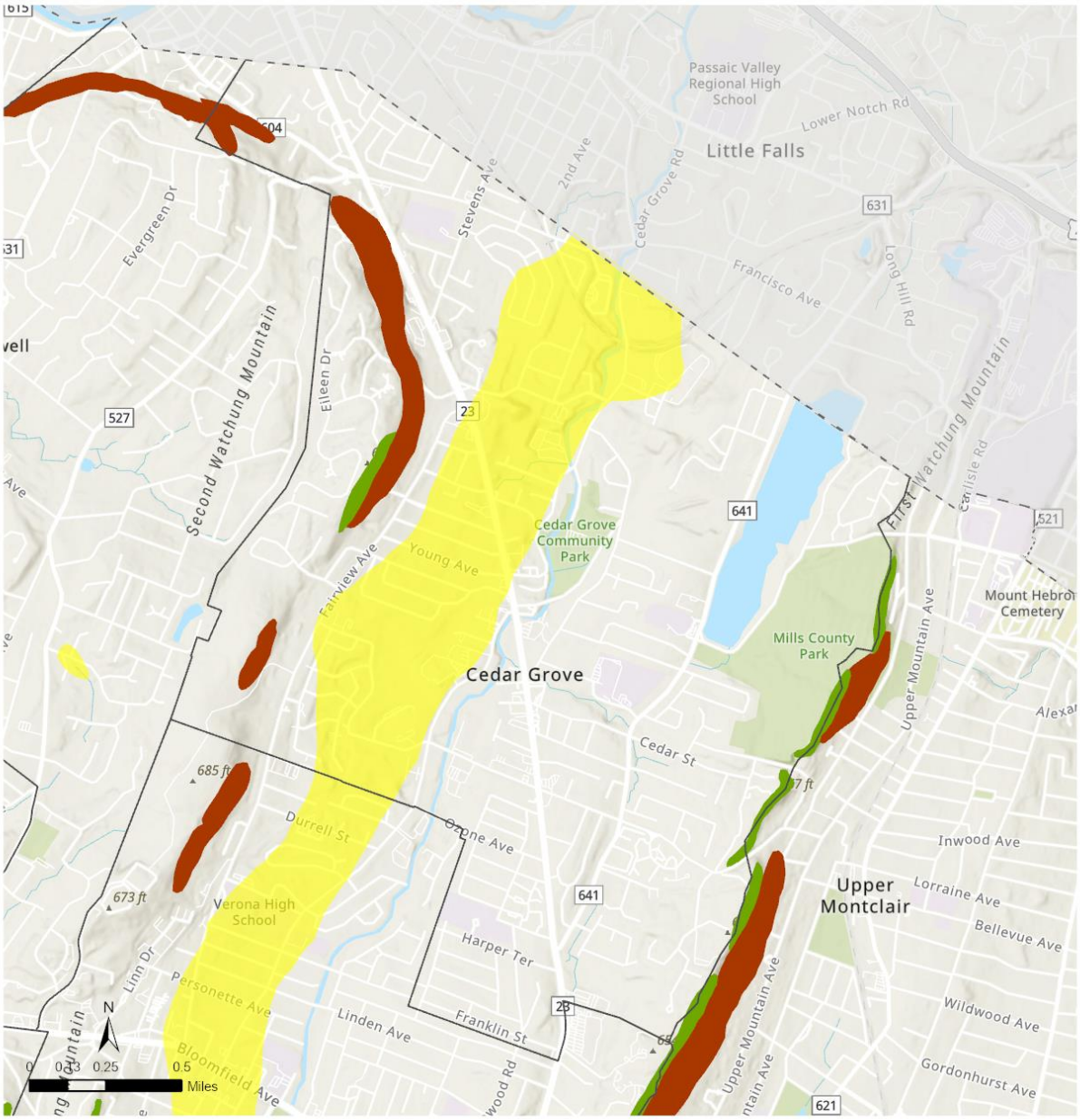
FEMA 0.2%-Annual-Chance Flood

Essex County

Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 5-3. Township of Cedar Grove Geological Hazards



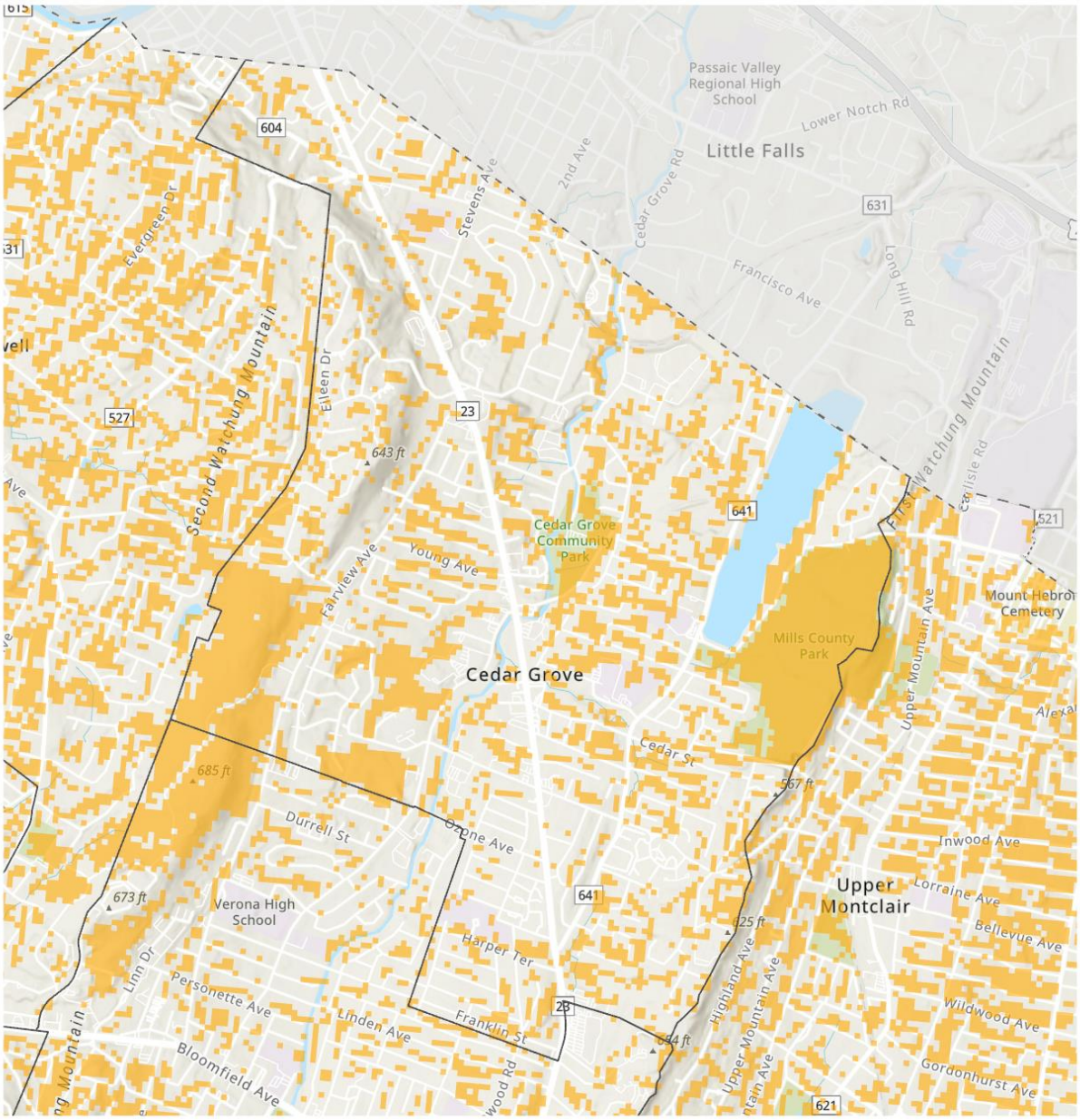
Cedar Grove Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 5-4. Township of Cedar Grove Wildfire Hazards



Cedar Grove Township: Wildfire Hazard Potential

N

0 0.13 0.25 0.5 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

5.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Cedar Grove, climate change is likely to have the following impacts:

- The Township is likely to experience more extreme temperature events.
- Heavy rainfall events are likely increase flood risk.

5.2.5 Risk Assessment Summary

- The Township and would like to establish the Cedar Grove Public Library as a designated heating/cooling center for displaced residents. The facility lacks backup power.
- The Cedar Grove Sewage Treatment Plant is located off of Little Falls Road along the Peckman River. An overall assessment of the facility's resiliency to various natural hazards is needed.
- The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.
- The Township has 6 repetitive loss properties, but other properties may be impacted by flooding as well.

5.3 Jurisdictional Capability Assessment

The Township of Cedar Grove performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

5.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Cedar Grove.

Table 5-5. Planning Capabilities

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Master Plan	Yes	2020 Master Plan & Reexamination Report	Planning Board

Impact on Risk Reduction:

The Master Plan guides the long-term development of the Township. Goals relating to hazard mitigation include:

To encourage municipal action to guide the appropriate use or development of all lands in this Township, in a manner that will promote the public health, safety, morals, and general welfare.

To secure safety from fire, flood, panic, and other natural and manmade disasters.

- Maintain and improve the storm drainage system serving the Township.

To provide adequate light, air, and open space:

- Promote the conservation of environmental resources and the natural appearance of the Township.
- To continue the Township's on-going open space and recreation planning and acquisition efforts to ensure that sufficient permanent open space remains within the Township for conservation and recreation purposes and for the visual protection of the Township's natural beauty.
- To provide for a continuous network of linked open space greenways along rivers, streams, and steep slopes.
- Encourage the preservation of existing vegetation, especially in areas of large, wooded tracts.

4. To ensure that the development of the Township does not conflict with the development and general welfare of neighboring municipalities, the County and the State as a whole;

- Maintaining constant vigilance over regional planning activities, especially those at the state and county levels, in terms of their potential impact on local planning and development capabilities and decision-making powers.
- Preserving and improving to the greatest extent possible the established character and natural resources of the Township through careful land use planning at both the Master Plan and site-specific levels.
- Coordinating where needed local planning efforts with those of neighboring municipalities to achieve a maximum degree of compatibility, particularly along common municipal boundaries.

To provide sufficient space in appropriate locations for a variety of residential, recreational, commercial and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all the citizens of New Jersey Citizens;

- Preserve the environmental resources of the Township by locating conservation parklands and easements where necessary; by limiting development in environmentally sensitive areas; by encouraging the preservation of specimen trees and general landscaping; and by preservation of the township's natural character.
- Preserve environmentally sensitive lands by identifying wetlands and preserving them according to the rules and regulations promulgated by the New Jersey Department of Environmental Protection.
- Preserve environmentally sensitive lands by identifying steep slopes and deterring development on said lands.
- Recognizing and adjusting land use planning efforts where necessary to address changing demographic characteristics and conditions found within the municipality.
- Protect and reinforce the prevailing residential development patterns throughout the community by precluding the introduction of incompatible non-residential land uses.
- Reduce the overall intensity of use of those sites that are characterized by environmentally sensitive features.
- Encourage and require buffer zones to separate incompatible land uses.

To promote a desirable visual environment through creative development techniques and good civic design and arrangement;

- Reduce the cutting of trees on private property through tree preservation regulations.
- Support the planting and maintain trees along public rights-of-way.

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of land; ○ Avoiding adverse impacts on the local environment and adopting ordinances and techniques that will protect to the extent of municipal powers sensitive wetlands, steep slopes, woodlands, and flood prone areas. ○ Encourage the protection and preservation of historic sites and buildings. ○ Protection and preservation of the local heritage and traditions by careful planning in and around historic buildings and other landmarks of the community			
Capital Improvement Plan	No	-	-
Impact on Risk Reduction:			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan, February 28, 2006	Engineer
Impact on Risk Reduction: The Plan documents the strategy for the Township to address stormwater-related impacts. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for ne major development, defined as projects that disturb one or more acre of land or result in ¼ acre of new impervious surface. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities. The plan also addresses the review and update of existing ordinances, the Township Master Plan, and other planning documents to allow for project designs that include low impact development techniques. The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan	Engineer
Impact on Risk Reduction: Outlines the Best Management Practices (BMPs) employed to reduce pollutants in stormwater discharges from construction sites.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Management Plan	Administration
Impact on Risk Reduction: Provides an overview of relevant past management of the urban forest, including community tree planting, pruning, removal and hazard identification practices.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Cedar Grove to prepare for, respond to, and recover from hazard events.

Table 5-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides the Township's response to natural and non-natural hazards. The Plan must be updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Cedar Grove.

Table 5-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 119 Construction Codes, Uniform	Building Department
Impact on Risk Reduction: There is hereby established in the Township of Cedar Grove a State Uniform Construction Code enforcing agency to be known as the "Cedar Grove Construction Inspection Agency," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. The adoption and enforcement of a building code ensures that new construction and redevelopment meet modern standards to protect from damages from hazard events.			
Zoning or Land Use Regulations	Yes	Chapter 268 Zoning	Planning Board
Impact on Risk Reduction: The purpose of this chapter is to promote health, safety, morals and general welfare; prevent the overcrowding of land and buildings; avoid undue concentration of population; lessen congestion in the street; and provide adequate light and air, with reasonable consideration to the character of the zone and its peculiar suitability for particular uses and with the objective of conserving the value of property and encouraging the most appropriate use of land throughout the Township.			
Subdivision Regulations	Yes	Chapter 234 Subdivision of Land	Planning Board
Impact on Risk Reduction: The purpose of this chapter shall be to provide rules, regulations, and standards to guide land subdivision in the Township in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities, and services.			
Site Plan Regulations	Yes	Chapter 268 Zoning Article X Site Plan Approval	Planning Board
Impact on Risk Reduction: A site plan shall be required for any excavation, soil moving, or paving, and for any change or intensification of the use of any building, structure, or land, and for demolition, construction, alteration, relocation, enlargement, or reconstruction of any structure or improvement on any lot in any district in the Township, except as provided herein. No permit shall be issued for any such work unless approved by the Township Planning Board in accordance with a site plan that complies with all the applicable requirements of this article and as set forth in this chapter.			
Stormwater Regulations	Yes	Chapter 228 Stormwater Management; Chapter 196 Private Storm Drain Inlet Retrofitting	Planning Board

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Impact on Risk Reduction: The purpose of Chapter 228 is to establish minimum stormwater management requirements and controls for "major development." This includes design and performance standards, safety standards for stormwater management basins, requirements for a site development stormwater plan, and maintenance and repair of stormwater facilities. The purpose of Chapter 196 is to require the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property; prevent the discharge of solids and floatables to the municipal separate storm sewer systems operated by the Township so as to protect public health, safety, and welfare; and prescribe penalties for the failure to comply.			
Floodplain Regulations	Yes	Chapter 140 Flood Damage Prevention, Pending Ordinance #23-912, May 1, 2023	Floodplain administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: (1) Protect human life and health. (2) Prevent unnecessary disruption of commerce, access, and public service during times of flooding. (3) Manage the alteration of natural floodplains, stream channels and shorelines; (4) Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. (5) Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. (6) Contribute to improved construction techniques in the floodplain. (7) Minimize damage to public and private facilities and utilities. (8) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. (9) Minimize the need for rescue and relief efforts associated with flooding. (10) Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. (11) Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. (12) Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 226 Soil Removal; Chapter 246 Trees	Planning and Zoning Coordinator
Impact on Risk Reduction: Chapter 226 notes that continuation of the unregulated and uncontrolled relocation, filling, excavation and removal of soil will result in serious and irreparable damage to the public welfare by reason of consequent soil erosion by water and wind; inadequate and improper surface water drainage; a decrease in or destruction of the fertility of the soil; removal of lateral support of abutting streets, lands and premises; creation of dust storms and places for mosquito breeding; creation of dangerous depressions or pits; deterioration of property values; rendering of lands unfit or unsuitable for their most appropriate use; and creation of other factors and elements hampering and deterring the coordinated, adjusted and harmonious development of the Township. The chapter then notes permit and application procedures for soil removal or movement. Chapter 246 notes that the Township Council of the Township of Cedar Grove finds: that the preservation, protection and planting of trees aids in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in the removal of pollutants from the air and assists in the generation of oxygen; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
subsequent to construction or grading; and generally protects the public health and safety as well as the general welfare. The Chapter then provides standards for tree removal and planting.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

5.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Cedar Grove's departments, boards, and committees that contribute to risk reduction.

Table 5-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	Planning Board Zoning Board of Adjustment
Planning Department	Planning/Zoning Department
Public Works / Highway Department	Public Works Department
Construction / Building / Code Enforcement Department	Building Department
Engineering Department	Engineering Department
Parks and Recreation Department	The Parks/Shade Tree Department routinely circulates throughout the Township, neighborhood by neighborhood, pruning and/or removing dead Township trees.
Open Space Board / Committee	The Open Space Trust Committee prepares a report recommending the parcels of land which may be acquired in fee. The Open Space Trust Committee also develops and maintain an updated open space and recreation plan. The Open Space Trust Committee submits to the Township Council the properties which it recommends the Township acquire. The Township Council reviews the properties submitted and make a determination as to which properties are to be acquired, if any.
Environmental Board / Commission	The Environmental Commission provides information and expertise to municipal boards, the Town Council, and general public on various environmental issues. The Commission oversees the Township's Sustainable Jersey program.
Emergency Management / Public Safety Department	Cedar Grove Police Department
Fire Department	The Cedar Grove Fire Department is a 100 percent volunteer organization with four fire stations located throughout the Township. The Department protects well over 12,000 people within 4.5 square miles and is actively involved with surrounding fire departments providing mutual aid wherever and whenever possible.
Additional departments, boards, and committees	None

The table below summarizes the Township of Cedar Grove's staff with skills and expertise that contribute to risk reduction.

Table 5-9. Technical/Staffing Capabilities

Staff	*Description and Role in Risk Reduction*
Planner	No
Engineer	Yes, responsible for NFIP administration as well.
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	Employees write grants on behalf of their own department.
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	No
Staff that provide support to socially vulnerable populations	The Cedar Grove Police Department is committed to helping residents with disabilities and or those that require special needs. A form has been created so that residents can notify the police department of any special needs that in the event of an emergency will aid those responding. This form and the information provided is confidential. The Police Department also encourages residents to sign up for the state's Register Ready program.
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of Cedar Grove.

Table 5-10. Development and Permitting Capabilities

Development and Permitting Procedure	*Comment*
What department or outside agency is responsible for issuing development permits?	Building Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Flood
How does your jurisdiction inventory land available for new development?	The Township uses the Green Acres ROSI to determine open space and non-developmental potentials.
What percentage of your jurisdiction is available for new development?	Subject to multiple variations depending on realistic development potential.

5.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Cedar Grove.

Table 5-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible
Capital improvements funding	Yes	Municipal funds
Open space acquisition programs	Yes	The funds from the Open Space Trust Fund may be used, as directed by the governing body, to acquire vacant land, easements and development rights. The funds from the account may also be used to acquire land which has improvements on it at the time of acquisition provided that the principal purpose of the acquisition is to preserve open space. In the event that the governing body shall find it appropriate to apportion the cost of acquisition between open space and improvements, it may do so and charge the Open Space Trust Fund for the approximate value that the governing body deems relative to open space and the Township's capital account for the value that it determines attributable to improvements. The Open Space Trust Fund is funded through the dedication to the fund of an amount of up to $0.02 per $1,000 of assessed valuation of each annual tax levy. The Open Space Trust Fund is also permitted to accept donations and testamentary bequests. The monies accumulated within the Open Space Trust Fund may be utilized for the acquisition of land and/or easements.
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Water and sewer
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	As needed
Ability to incur debt through bonds	Yes	General obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	No	-

5.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Cedar Grove.

Table 5-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Nixle
Public Information Officer	No
Website	The Township website (https://cedargrovenj.org/?ref=header_logo) includes information on stormwater management.
Social media	Facebook
Public safety campaigns	No
Newsletters	Posted on bulletin board in Town Hall lobby
Hazard education programs for schools	No
Outreach to socially vulnerable populations	No
Other outreach capabilities	The Township maintains an email list.

5.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Cedar Grove.

Table 5-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit review
What local department is responsible for floodplain management?	Engineering
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	Follow FEMA procedures
Summarize the jurisdiction's Substantial Improvement procedures.	Follow FEMA procedures
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None that the Township is aware of.
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	None, other than state requirements.

5.3.6 Community Classifications

Table 5-14 summarizes the Township of Cedar Grove's participation in community classification programs.

Table 5-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	
Sustainable Jersey Municipal Certification	Participating but not certified	N/A
Other Programs	Fire ISO Protection Class (Possibly 3 or 4)	Unknown

Program	Participation Status / Classification	Date Classified
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

5.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Cedar Grove has in place and will use to prepare for changes in risk due to climate change.

Table 5-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	The Township is likely to experience more extreme temperature events. Heavy rainfall events are likely to increase flood risk.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	No
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not underway
How does the jurisdiction educate the public on potential climate change impacts?	Not underway

5.3.8 Capability Assessment Summary

The Township of Cedar Grove's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Cedar Grove determined the following hazard capability effectiveness ratings.

Table 5-16. Township of Cedar Grove Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

5.3.9 Opportunities to Improve Capabilities and Integration

- The Township lacks a Substantial Damage Response Plan.
- The Township will be required to develop a Watershed Improvement Plan by December 2027.

5.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Cedar Grove were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Cedar Grove reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the calculated hazard rankings.

The Township of Cedar Grove agreed upon the following hazard rankings.

Table 5-17. Township of Cedar Grove Hazard Rankings

Hazard	Hazard Ranking
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temp	High
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

5.5 Jurisdictional Mitigation Strategy

5.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 5-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Cedar Grove-001	**Obtain backup power for Fire House Company 3 and the Municipal Library:** The following have been identified as locations to date: Generator for Fire House Company 3 and Municipal Library.	Township of Cedar Grove	In Progress. South End has a fixed generator. Library does not have a generator.	Yes	Establish the library as a heating and cooling center.
2020-Cedar Grove-002	**Flood study for Park Ridge:** Complete Flood Study to assess options for flood reduction.	Engineering	No Progress, no longer a priority.	No, no longer a priority.	-
2020-Cedar Grove-003	**Mitigate flood-prone properties, including RL/SRL properties:** The Township will conduct public outreach to the RL and SRL properties to identify if there is interest in mitigation (elevation or acquisition). If there is no interest in mitigation, the Township will provide a list of options homeowners can do to protect their home from future flood damage.	Floodplain Administrator	In Progress. NJOEM conducted outreach to all repetitive property owners in the state in summer 2024.	Yes	NJOEM will work with the Township and property owners to develop grant applications for interested properties.
2020-Cedar Grove-004	**Cooperate with Essex County to develop strategy to reduce W Lindsley Road flooding:** Cedar Grove engineering will work with Essex County to	Engineering, Essex County	No Progress.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	determine a solution to reduce runoff on W Lindsley Road and ultimately reduce flood impacts.				
2020-Cedar Grove-005	**Flood study for Bowden to Grove Avenue on Route 23:** Develop application for Flood Study and implement best alternative. USACE has previously dredged the Peckman near Little Falls Road.	Engineering	No Progress. Route 23 is under state jurisdiction.	Yes	Change to outreach to state.
2020-Cedar Grove-006	**Feasibility study for shared water services:** Cedar Grove will pursue a feasibility study to determine if a connection with surrounding municipalities can be made for shared water service during periods of outage.	Cedar Grove Engineering, Water Department,	Complete. Interconnections exist and can be used in emergency situations.	No, complete	-
2020-Cedar Grove-007	**Update Flood Damage Prevention Ordinance to include freeboard:** Update ordinance to include 1 foot of freeboard.	FPA	Complete	No, complete.	-
2020-Cedar Grove-008	**All Hazards Education and Outreach:** Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural	Cedar Grove OEM, Cedar Grove Administration	Ongoing Capability. Stormwater specific hazard related information is on the municipal website. Information is sent out in the	No, ongoing capability.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	 If yes, provide an update on the problem and solution.
	hazard risks and what they can do in the way of mitigation and preparedness. This program will include: • Providing general natural hazard risk, preparedness and mitigation in regular newsletter and mailings and website. • Including natural hazard risk and risk reduction information through social media channels and email blast systems. Developing/ maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted		water bill each quarter. Social media posts.		

5.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Cedar Grove identified the following mitigation efforts completed since the last HMP:

- The North End Firehouse was rebuilt to modern standards for a cost of $4 million. $800,000 came from CARES grant funding.

5.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Cedar Grove identified the following issues that require mitigation.

- The Township and would like to establish the Cedar Grove Public Library as a designated heating/cooling center for displaced residents. The facility lacks backup power.
- The Cedar Grove Sewage Treatment Plant is located off of Little Falls Road along the Peckman River. An overall assessment of the facility's resiliency to various natural hazards is needed.
- Several roadways in the Township of Cedar Grove are prone to flooding but are not under the Township's jurisdiction including West Lindsley Road (Essex County jurisdiction) and Route 23 from Bowden to Grove Avenue (NJ DOT jurisdiction).
- The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 6 repetitive loss properties, but other properties may be impacted by flooding as well.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

5.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Cedar Grove's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 5-19. Township of Cedar Grove 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of Cedar Grove-01	Establish Cedar Grove Library as a Warming and Cooling Center				X				X	
2025-Township of Cedar Grove-02	Resiliency Study of Sewage Treatment Plant		X	X	X	X	X	X	X	X
2025-Township of Cedar Grove-03	Support Mitigation of Non-Municipal Infrastructure					X		X		
2025-Township of Cedar Grove-04	Multi-Jurisdictional Approach to Peckman River					X	X	X	X	
2025-Township of Cedar Grove-05	Repetitive Loss Mitigation					X		X		
2025-Township of Cedar Grove-06	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-Township of Cedar Grove-07	Watershed Improvement Plan	X	X		X	X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 5-20. Township of Cedar Grove 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of Cedar Grove-01	Establish Cedar Grove Library as a Warming and Cooling Center	1	0	1	1	1	0	1	1	1	1	1	0	1	1	11	High
2025-Township of Cedar Grove-02	Resiliency Study of Sewage Treatment Plant	0	1	1	1	1	0	1	0	1	1	1	0	1	1	10	Medium
2025-Township of Cedar Grove-03	Support Mitigation of Non-Municipal Infrastructure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2025-Township of Cedar Grove-04	Multi-Jurisdictional Approach to Peckman River	1	1	1	1	1	0	1	0	1	1	1	1	0	1	11	High
2025-Township of Cedar Grove-05	Repetitive Loss Mitigation	1	1	1	1	0	1	1	0	1	1	1	1	0	1	10	Medium
2025-Township of Cedar Grove-06	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Township of Cedar Grove-07	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Township of Cedar Grove-01: Establish Cedar Grove Library as a Warming and Cooling Center

Lead Agency:	Engineer	
Supporting Agencies:	Public Works, OEM	
Hazard(s) of Concern:	Extreme Temperature, Severe Winter Weather	
Description of the Problem:	The Township and would like to establish the Cedar Grove Public Library as a designated heating/cooling center for displaced residents. The facility lacks backup power.	
Description of the Solution:	The Engineer will determine the appropriate sized generator needed to power the Library. Public Works will oversee installation of a fixed mounted diesel powered generator and necessary electrical components to supply backup power to the Library. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 6, 7	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations often rely on warming and cooling shelters during extreme temperature events.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to result in an increase of extreme temperature events. Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Township of Cedar Grove-02: Resiliency Study of Sewage Treatment Plant

Lead Agency:	Sewer Department	
Supporting Agencies:	Engineer	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geologic Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Cedar Grove Sewage Treatment Plant is located off of Little Falls Road along the Peckman River. An overall assessment of the facility's resiliency to various natural hazards is needed.	
Description of the Solution:	The Township will conduct a resiliency study of the Sewage Treatment Plant and determine vulnerabilities and potential solutions to natural hazard risk. Cost effective solutions such as backup power needs or flood mitigation will be implemented.	
Estimated Cost:	Medium for study	
Potential Funding Sources:	BRIC, HMGP, Municipal budget	
Implementation Timeline:	5 years	
Goals Met:	2, 6	
Benefits:	Improved resiliency of the Sewage Treatment Plant, reduction in loss of service or unintended releases	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This facility is a lifeline facility. The action will strengthen the resiliency of the water lifeline in Cedar Grove.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in an increase in frequency and severity of flooding and severe weather. This action aims to address the impacts and increased frequency of these events.	
Mitigation Category:	Structural Projects, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Relocate Sewage Treatment Plan	High cost, may not be possible to identify a new location
	Shift Township to septic	Not feasible/environmentally damaging, costly, unpopular

2025-Township of Cedar Grove-03: Support Mitigation of Non-Municipal Infrastructure

Lead Agency:	Administration	
Supporting Agencies:	Engineer, Public Works	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Several roadways in the Township of Cedar Grove are prone to flooding but are not under the Township's jurisdiction including West Lindsley Road (Essex County jurisdiction) and Route 23 from Bowden to Grove Avenue (NJ DOT jurisdiction).	
Description of the Solution:	The Township will work with the County and State to provide information on flooding including flood frequency, necessary municipal response, and probable causes of flooding and urge these jurisdictions to take actions to address flood risk.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budgets	
Implementation Timeline:	1 year	
Goals Met:	1, 2, 5	
Benefits:	Information to support mitigation provided to Essex County and State of New Jersey Department of Transportation.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Flooding on these roadways negatively impacts the transportation lifeline and can slow emergency response.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in an increase in flooding events and severe weather events that cause roadway flooding.	
Mitigation Category:	Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Close access to roadways when rainfall is forecast	Not feasible
	Offer to purchase roadways from state and county to conduct flood mitigation	Costly, no interest

2025-Township of Cedar Grove-04: Multi-Jurisdictional Approach to Peckman River

Lead Agency:	Administration	
Supporting Agencies:	Administrations of Verona, Little Falls, and Woodland Park, Public Works	
Hazard(s) of Concern:	Flood, Geological Hazards, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.	
Description of the Solution:	The Township will work with the other municipalities impacted by flooding in the Peckman River in the region: Verona, Little Falls, and Woodland Park. A collective approach to maintenance of the river will be established including identifying and removing snags and fallen trees, addressing shoaling, and mapping the shoreline position to determine trends and areas that need to be addressed.	
Estimated Cost:	Medium	
Potential Funding Sources:	Municipal budgets	
Implementation Timeline:	3 years	
Goals Met:	1, 2, 5	
Benefits:	Flooding due to stream bank failure and debris snags will be reduced along the Peckman River.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the capabilities of the Township to maintain the Peckman River.	
Climate Change Considerations:	Climate change is likely to result in an increase in flooding events and severe weather events that cause downed trees and streambank erosion. This action aims to address the impacts and increased frequency of these events.	
Mitigation Category:	Natural Systems Protection, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Retreat from areas near Peckman River	High cost, unpopular
	Levees along Peckman River	Not feasible/environmentally damaging, costly

2025-Township of Cedar Grove-05: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 6 repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. The Township will also conduct outreach to homeowners that may be interested in acquisition, specifically in areas where the existing building stock makes elevation very difficult due to age and construction techniques. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners, NJ DEP Blue Acres
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection

Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of Cedar Grove-06: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Township of Cedar Grove-07: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.

Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

5.6 Jurisdictional Hazard Mitigation Team

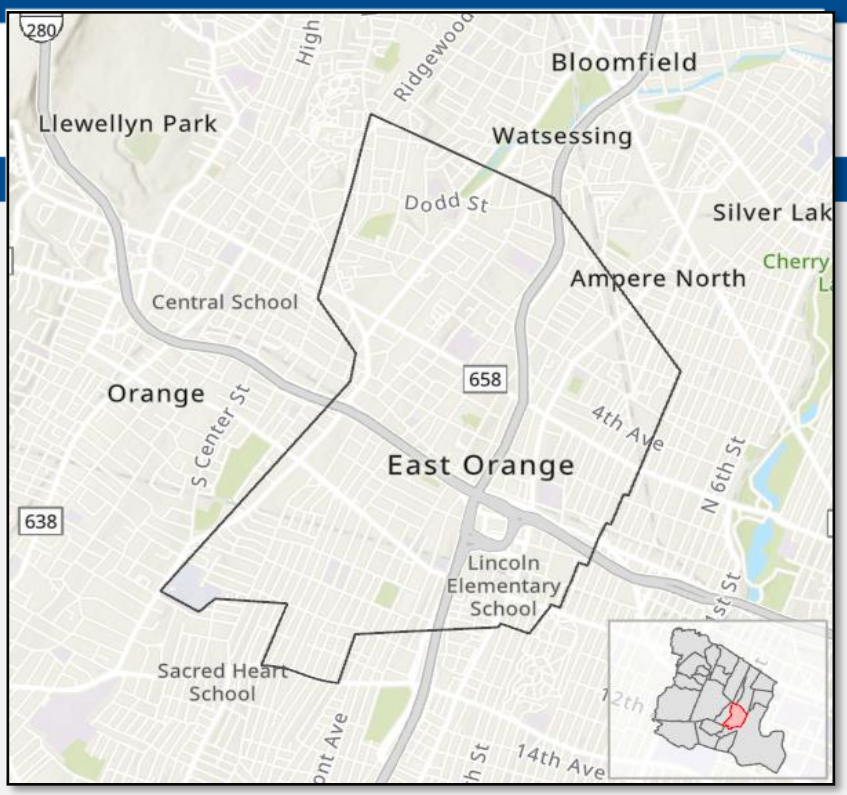
Table 5-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Jeffrey McElroy, Emergency Management	Name and Title:	Jospeh Zichelli, Township Manager
Address:	525 Pompton Avenue Cedar Grove, NJ	Address:	525 Pompton Avenue Cedar Grove, NJ
Phone Number:	973-239-4100 x262	Phone Number:	973-239-1410 x202
Email:	jmcelroy@cedargrovepd.org	Email:	zichelli@cedargrovenj.org
NFIP Floodplain Administrator			
Name and Title:	Alexandra Handel, Township Engineer, Suburban Consulting Engineers		
Email:	ahandel@suburbanconsulting.com		

Table 5-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Alexandra Handel, Township Engineer	Attended annex support meeting, contributed to mitigation strategy.
Jeffrey McElroy, Emergency Management	Attended annex support meeting, contributed to mitigation strategy.
Jospeh Zichelli, Township Manager	Attended annex support meeting, contributed to mitigation strategy.

City of East Orange



POPULATION STATISTICS

69,183
TOTAL POPULATION (2023 ACS)

0.07%
Change in population since 2010 Census

28,188
TOTAL HOUSEHOLDS

AT RISK POPULATION

10,300
Population Over 65

4,559
Population Under 5

9,892
Living With Disability

664
Households Without Vehicle

18,970
People Renting Homes

POVERTY AND LANGUAGE

7,721
Households Below Poverty Level

4,659
Population With English as 2nd Language

POPULATION AND BUSINESSES

56,509
Daytime Population

1,403
Total Businesses

30,781
Total Employees

FLOOD VULNERABILITY

305
Number of People in 1% SFHA

48
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

6 City of East Orange

6.1 Jurisdictional Profile

The City of East Orange separated from Orange in 1863 (City of East Orange 2014). The East Orange Public Library system once included three of the thirty-six Carnegie-funded libraries in New Jersey. Parts of East Orange fall into an Urban Enterprise Zone where purchases made at specific merchants are taxed at 3.5 percent instead of the statewide 7 percent.

The City is bordered by the City of Orange Township to the west, the Village of South Orange to the southwest, the City of Newark to the southeast, the Township of Bloomfield to the northeast, the Township of Montclair, and the Borough of Glen Ridge to the north.

According to the U.S. Census Bureau, the City has a total land area of 3.924 square miles, of which 3.924 square miles is land and 0 square miles is water.

The City of East Orange has operated under a Mayor-Council form of government since being established by a special Charter in 1909 (City of East Orange 2014).

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

6.2 Jurisdictional Risk Assessment

The following sections assess the City of East Orange's risk to the hazards of concern identified for the 2025 HMP update.

6.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the City of East Orange's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the City experienced during hazard events since the last hazard mitigation plan update.

Table 6-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The City was subject to closures and social distancing requirements.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage	Although the County was impacted, the City did not report significant impacts.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Although the County was impacted, the City did not report significant impacts.
June 6 - 8, 2023	Wildfire smoke	Wildfire smoke from Canada blanketed the region in hazy smog.	Public health concerns.
August 7-8, 2024	Heavy Rain	Heavy rain impacted the area on August 7-8, 2024.	Many residents were effected by flooding. Vehicle damage and basement flooding.
August 18, 2024	Heavy rain	On Sunday, August 18, 2024, extreme weather again affected the tri-state area, with more than 12 inches of rain causing flooding in low laying areas.	Vehicle damage and basement flooding.

6.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

The City experiences flooding on a regular basis. Heavy rainfall events of several inches in a short time frame will overwhelm the stormwater system. The stormwater system flows into the City of Newark. Once the system is overwhelmed in Newark, it backs up into East Orange resulting in several feet of flooding on roadways and flooding of residential homes in numerous locations.

The following areas are prone to flooding during heavy rain:

- 4th Avenue & N 15th Street (Under the railroad overpass)
- N Grove Street & Lafayette Avenue (Under the railroad overpass)
- Springdale Ave & Ampere Parkway (Under the railroad overpass)
- N Oraton Parkway & Park Avenue
- Beech Street & S Brunet Street
- Woodland Avenue
- 20 Melmore Gardens
- Warwick Street

- Brookwood Street & Tremont Avenue
- Halsted Street & Rohde Island Avenue
- Rutledge Avenue (between Roosevelt Avenue & N Arlington Avenue)

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the City of East Orange.

Table 6-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
87	$105,979	$24,167,000	85	$984,001	4	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

No properties in the City have been declared substantially damaged.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 6-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex 2025; FEMA 2020

6.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the City of East Orange, including major residential/commercial/industrial development and major infrastructure development.

Table 6-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
227 North Walnut Street	Residential	90 Dwelling Units	227 North Walnut Street / Block 351, Lot 4.01	None	2024
The Crossings at Brick Church Station	Mixed-Use (Residential and Commercial)	820 Dwelling Units; 200,000 SF of commercial space	533 Main Street / Block 683, Lots 1, 1.01, 4.01, 4.02, and 5; Block 688.01, Lots 1 and 2;	None	Anticipated late 2025/early 2026

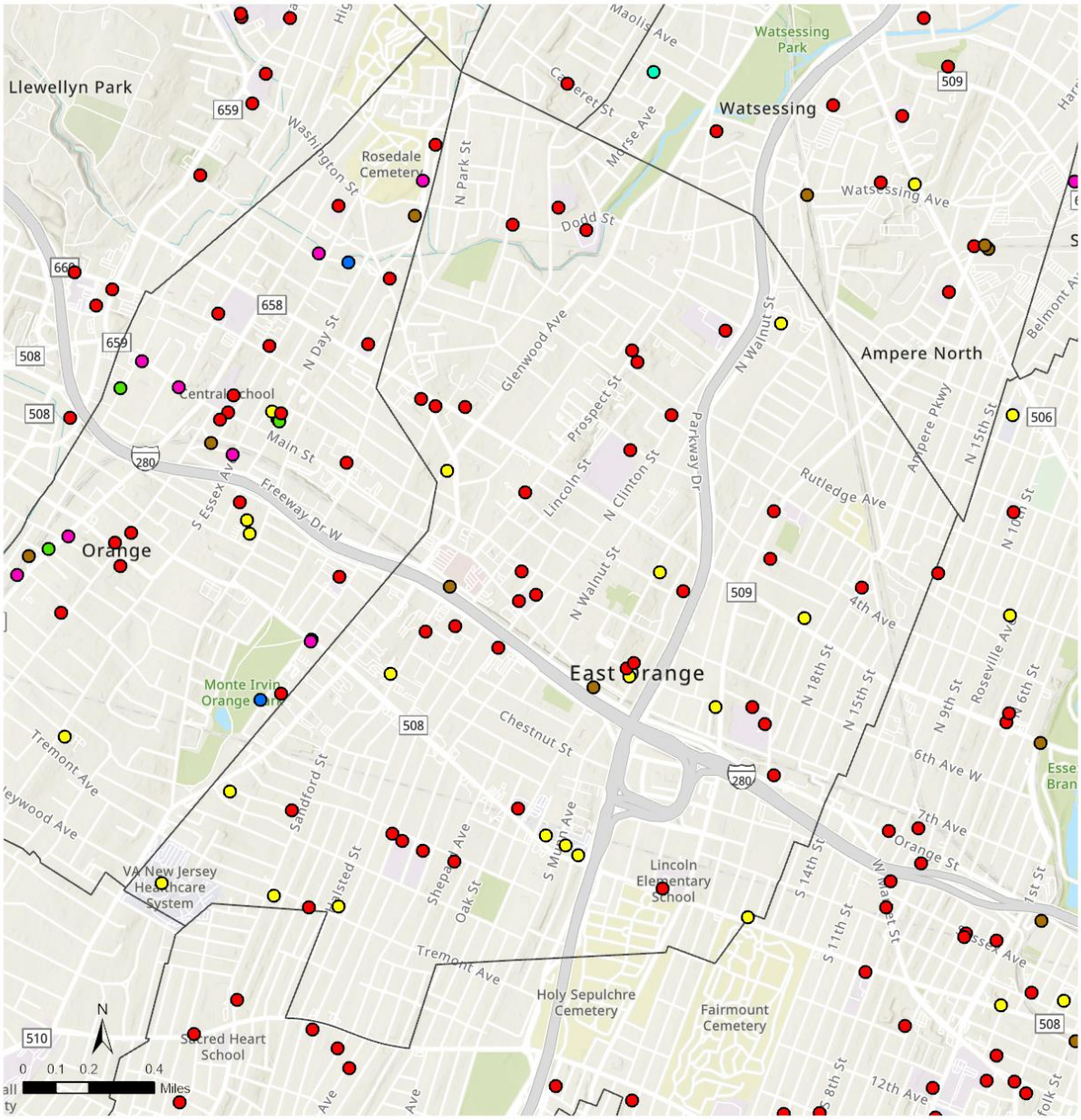
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
			Block 688, Lot 1		
14 Summit Street	Residential	1 Dwelling Unit	14 Summit Street / Block 361, Lot 22	None	Unknown/Pre-Development Phase
30 & 34 South Arlington Avenue	Residential	Designated redevelopment site with a potentially new 5-story multifamily building containing 122 dwelling units above a parking garage on the first floor.	30 & 34 South Arlington Avenue / Block 391, Lots 27 and 18	None	Unknown/Pre-Development Phase
31 & 33 Washington Street	Residential	Designated redevelopment site with a potentially new 5-story multifamily building containing 42 dwelling units and parking.	31 & 33 Washington Street / Block 673, Lots 1 and 2	None	Unknown/Pre-Development Phase
61& 63 4th Avenue	Mixed-Use (Residential and Commercial)	Designated redevelopment site with a potentially new 3-story mixed-use building containing 10 dwelling units, approximately 2,500 SF of commercial space, and a parking garage with 8 spaces.	61 & 63 4th Ave / Block 71, Lots 25.01 and 25.02	None	Unknown/Pre-Development Phase
75, 77 & 79 William Street	Residential	Designated redevelopment site with a potentially new 4-story multifamily building containing 18 dwelling units, and 19 parking spaces.	75, 77 & 79 William Street / Block 55, Lots 21-23	None	Unknown/Pre-Development Phase
100 Sussex Avenue	Mixed-Use (Residential/Commercial)	Vacant	80-96 Sussex Avenue / Block 31, Lot 1; Block 40, Lot 1; Block 180, Lot 1	None	Unknown/Pre-Development Phase
105 N. Clinton	N/A	Designated redevelopment site with a potentially new multifamily building containing 25 dwelling units.	105 N. Clinton Street / Block 550, Lot 17	None	Unknown/Pre-Development Phase

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
125 Park Avenue	Commercial	1 Dwelling Unit	125 Park Avenue / Block 60, Lots 20-27; Block 61, Lot 16.01	None	Unknown/Pre-Development Phase
614 William Street	Residential	150 Units	614 William Street / Block 674, Lot 15	None	Unknown/Pre-Development Phase
418-430 William Street	Residential	Designated development site with a potentially new 7-story multifamily building containing 115 dwelling units and parking spaces.	418-430 William Street / Block 363, Lots 16-19	None	Unknown/Pre-Development Phase
552 MLK Boulevard	Commercial	10 Dwelling Units	552 Main Street / Block 684, Lot 15	None	Unknown/Pre-Development Phase
603-623 Central Avenue	Residential	156 Dwelling Units	602-623 Central Avenue / Block 720, Lots 4, 4.01, 5, and 6	None	Unknown/Pre-Development Phase

6.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the City of East Orange that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 6-1. City of East Orange Community Lifelines

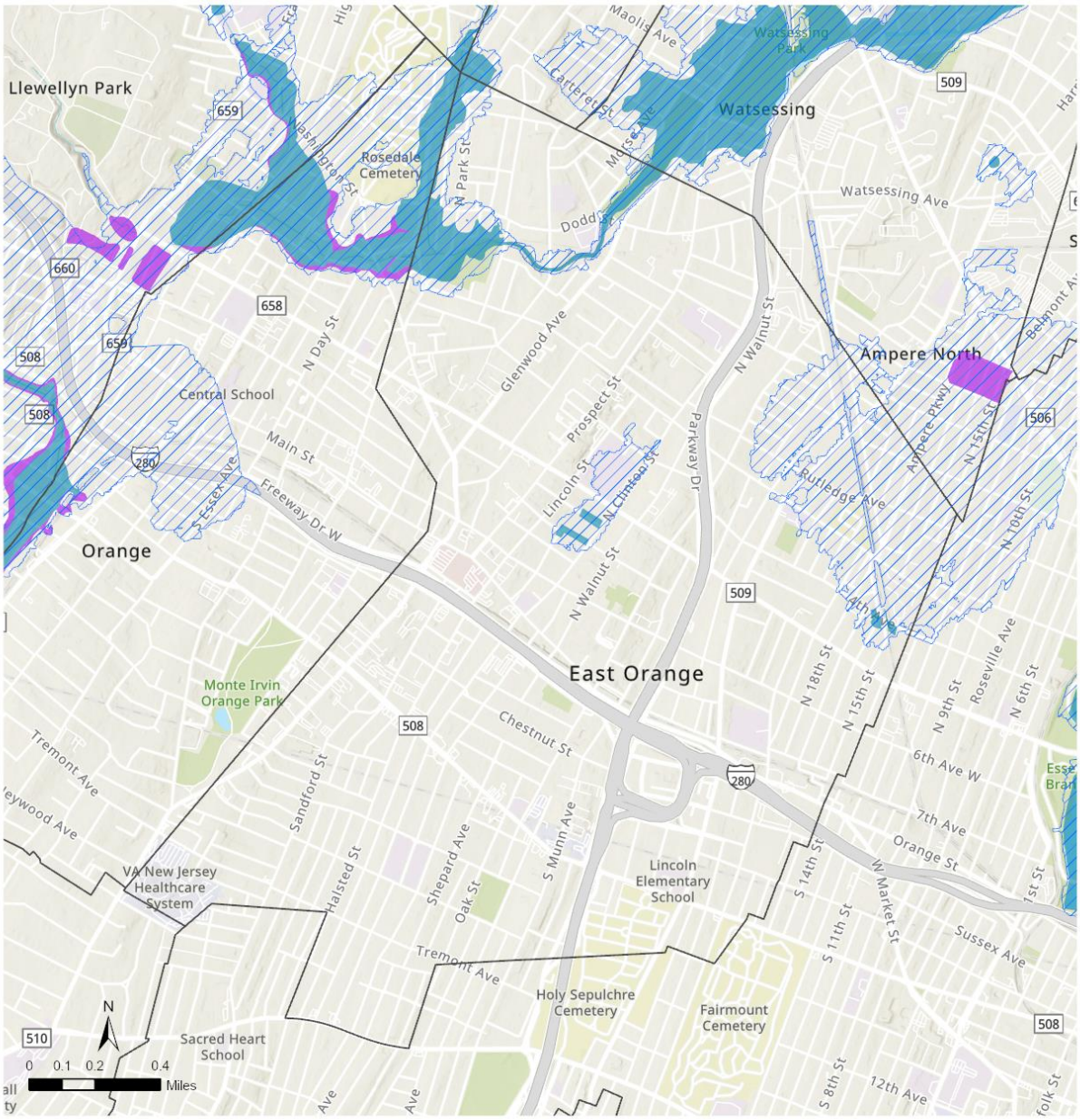


East Orange City: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 6-2. City of East Orange Flood-Related Hazards

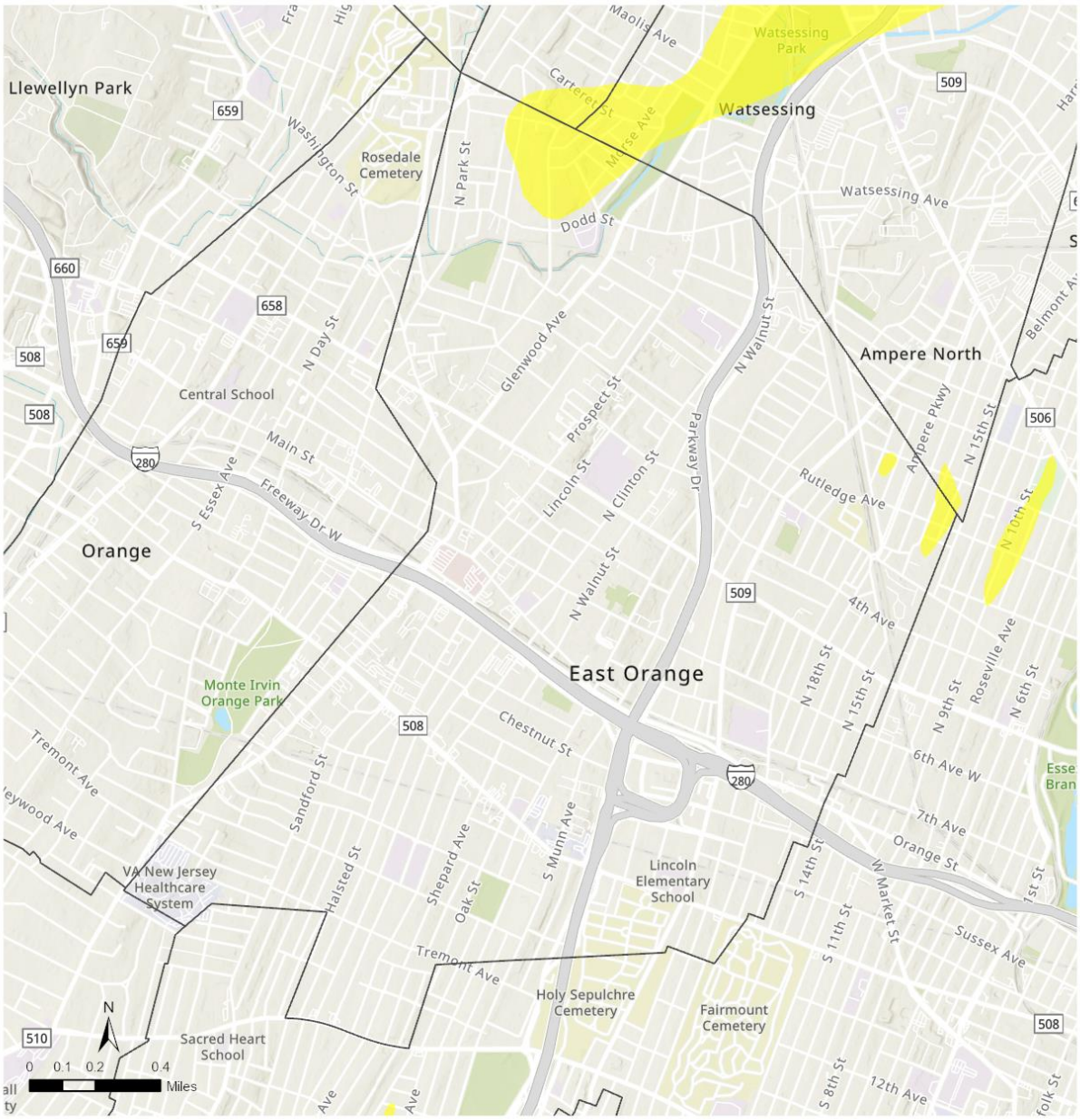


East Orange City: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 6-3. City of East Orange Geological Hazards



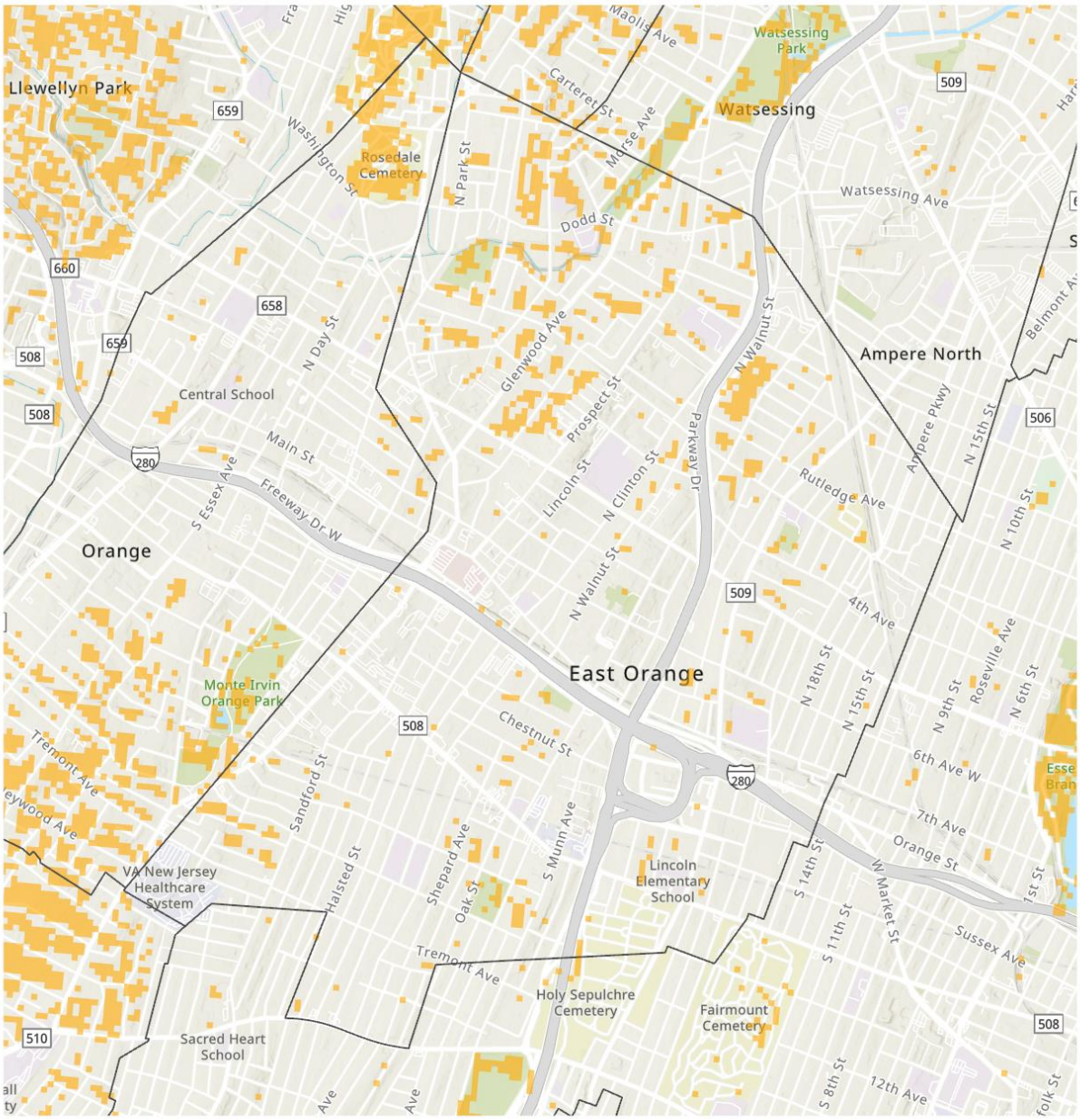
East Orange City: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 6-4. City of East Orange Wildfire Hazard



East Orange City: Wildfire Hazard Potential

N

0 0.1 0.2 0.4 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

6.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the City of East Orange, climate change is likely to have the following impacts:

- An increase in heavy rainfall events which will continue to overwhelm the stormwater system.

6.2.5 Risk Assessment Summary

- The City has 4 repetitive loss properties.
- The City experiences flooding on a regular basis. Locations include Brookwood Street, Warwick Street, Treemont Avenue, the 4th Avenue underpass, areas bordering the City of Newark, and the area near the border with Montclair. Heavy rainfall events of several inches in a short time frame will overwhelm the stormwater system. The stormwater system flows into the City of Newark. Once the system is overwhelmed in Newark, it backs up into East Orange, resulting in several feet of flooding on roadways. Flooding of basements occurs in heavy rainfall events. In severe events, flooding enters the first floor of residential homes. Some stormwater system improvements including upsized catch basins and drainage pipes but additional improvements are needed.
- Several critical facilities that provide lifeline services to the City lack backup power.
- Second River channel walls are degraded.
- The police pistol range is located in a flood prone area. The facility has suffered repeated flood damages.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 4 repetitive loss properties, but other properties may be impacted by flooding as well.
- The City lacks efficient warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need. Current identified facilities are outdated and lack backup power.

6.3 Jurisdictional Capability Assessment

The City of East Orange performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs

- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

6.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the City of East Orange.

Table 6-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	East Orange Master Plan, 2018	Planning Board
Impact on Risk Reduction: The Master Plan contains Elements on Demographics, Land Use, Economic Development, Circulation, Housing, Community Facilities, Sustainability, Recycling, Historic Preservation, and a Parks Master Plan. Information is included on storm resiliency, smart growth, and environmental sustainability in the Land Use Element. Transportation failure is discussed in the Circulation element. The Sustainability element discusses the differences between sustainability and resiliency and covers green stormwater infrastructure. The City of East Orange is launching the process of overhauling its Community Master Plan to shape the physical, social, environmental, and economic future of the city, in accordance with Municipal Land Use Law. The updated Master Plan will provide a framework for preserving the city's character, ensuring its diversity, supporting investment and promoting desired change. The new Master Plan is required to include Goals and Objectives and a Land Use Element, plus a Housing Element if there will be changes to the zoning code. In addition to those required elements, the City's plan will include the following elements: • Circulation • Economic Development • Sustainability • Community Facilities • Parks and Recreation • Open Space • Recycling			
Capital Improvement Plan	Yes	Capital Improvement Plan	Administration
Impact on Risk Reduction: Allocates municipal funding for projects, including hazard mitigation related actions.			
Stormwater Management Plan	Yes	Stormwater Control Plan, 2022	Department of Policy Planning and Development
Impact on Risk Reduction: Manages stormwater components to reduce stormwater flooding.			
Stormwater Pollution Prevention Plan	No	-	-
Impact on Risk Reduction:			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	East Orange Master Plan, Sustainability element, 2018	Planning Board
Impact on Risk Reduction: The Sustainability element discusses sustainability efforts (in place and proposed) in the City.			
Transportation Plan	Yes	East Orange Master Plan, Circulation element, 2018	Planning Board
Impact on Risk Reduction: The Circulation element discusses the current and future transportation needs of the City.			
Economic Development Plan	Yes	East Orange Master Plan, Economic Development element, 2018	Planning Board
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the City of East Orange to prepare for, respond to, and recover from hazard events.

Table 6-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Comprehensive Emergency Management Plan	Office of Emergency Management
Impact on Risk Reduction: The Comprehensive Emergency Management Plan provides plans for emergency response to natural and non-natural hazard events. The plan is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Continuity of Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Continuity of operations ensures critical government services are maintained.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Evacuation Plan	Yes	Comprehensive Emergency Management Plan	Office of Emergency Management
Impact on Risk Reduction: Included in Comprehensive Emergency Management Plan			
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	THIRA	Office of Emergency Management
Impact on Risk Reduction: Identifies threats and hazards, including natural hazards.			
Public Health Plan	Yes	Public Health Plan	Health and Human Services
Impact on Risk Reduction: Includes discussion of disease outbreak.			
Disaster Debris Management Plan	Yes	Debris Management Plan	Public Works
Impact on Risk Reduction: Establishes procedures for removing debris following major disaster events.			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the City of East Orange.

Table 6-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 125 Construction Codes, Uniform	Building Department
Impact on Risk Reduction: The Building Division is designated as a State Uniform Construction Code Enforcement Agency. Enforcement of the New Jersey Construction Code includes: Requirement to apply for and to obtain a written permit to erect, construct or alter any building or structure or parts thereof designed for human occupancy. Requirement to apply for and to obtain a Certificate of Occupancy (C of O) after the completion of any new construction to indicate that the said building or structure has been constructed in accordance with the New Jersey Uniform Construction Code and is approved for occupancy. Requirement to apply for and to obtain Certificate of Continued Occupancy (C of CO) after major renovations to any building or structure to indicate that there are no imminent hazards and that the said building or structure is approved for continued occupancy. The Construction Official is authorized and empowered to condemn a building or structure when appropriate and to order and require the occupants of such building or structure or part thereof to vacate the premises.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Zoning or Land Use Regulations	Yes	Chapter 51 Land Use	Department of Policy, Planning, and Development (Division of Comprehensive Planning)
Impact on Risk Reduction: It is the intent and purpose of this chapter to: A. Encourage the appropriate use and development of all lands within the City in a manner which will promote the public health, safety, morals and general welfare. B. Regulate the use, size, type and location of buildings and other structures as well as the size and location of yards and open spaces in relation to buildings. C. Provide for the uses of land in each district considering its peculiar suitability for particular uses and to encourage the most appropriate use of land. D. Provide a zoning plan which is substantially consistent with the land use plan element of the adopted Master Plan of the City of East Orange. E. Provide regulations and standards to guide land subdivision and site plan review. F. Confer the greatest power of local self-government consistent with the Constitution of this state to do any act authorized expressly or impliedly by the adoption of this chapter. Any specific enumeration of municipal powers contained in this chapter shall be construed as in addition and supplementary to the powers conferred in general terms by the Municipal Land Use Law and general statutory body of law. This chapter shall be liberally construed in favor of the City.			
Subdivision Regulations	Yes	Chapter 51 Land Use Article XII Subdivision and Site Plan Procedures	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Subdivision approval shall be required for all applications for development except the following: (1) Subdivision or individual lot applications for detached one- or two-dwelling-unit buildings; (2) A change of use to a permitted use where there is no increase in the parking requirement when compared to the current use; (3) The rehabilitation of commercial, industrial, institutional or attached or multifamily dwelling unit buildings, provided there is no increase in the parking requirement, no decrease in the number of on-site parking spaces, no change in on-site circulation patterns and no variance relief required; or (4) The construction of an accessory building which has a gross floor area of less than 1,000 square feet, unless one or more variances are required.			
Site Plan Regulations	Yes	Chapter 51 Land Use Article XII Subdivision and Site Plan Procedures	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Site plan approval shall be required for all applications for development except the following: (1) Subdivision or individual lot applications for detached one- or two-dwelling-unit buildings; (2) A change of use to a permitted use where there is no increase in the parking requirement when compared to the current use; (3) The rehabilitation of commercial, industrial, institutional or attached or multifamily dwelling unit buildings, provided there is no increase in the parking requirement, no decrease in the number of on-site parking spaces, no change in on-site circulation patterns and no variance relief required; or (4) The construction of an accessory building which has a gross floor area of less than 1,000 square feet, unless one or more variances are required.			
Stormwater Regulations	Yes	Chapter 51 Land Use, Article XXX Stormwater Control	Department of Public Works
Impact on Risk Reduction: The purpose of this article is to establish minimum stormwater management requirements and controls for "major development."			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Floodplain Regulations	Yes	Chapter 150 Floodplain Management	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines; D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22.			
Environmental Protection Regulations	No	-	-
Impact on Risk Reduction:			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

6.3.2 Administrative and Technical Capabilities

The table below summarizes the City of East Orange's departments, boards, and committees that contribute to risk reduction.

Table 6-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board is responsible for developing the Master Plan, administering the provisions of subdivision control and site plan review, to annually prepare a program of municipal capital improvement projects projected over a term of six years, and other planning support.
Planning Department	The mission of the East Orange Department of Policy, Planning and Development is "to enhance the quality of life for residents by promoting housing and economic development and revitalization through comprehensive planning and land use strategies and quality and timely delivery of services."

Department / Board / Committee	Description and Role in Risk Reduction
	The Comprehensive Planning Division collects and analyzes data and prepares planning studies relating to land use in the City of East Orange. Additionally, the division: • Develops Planning related legislation and amendments • Maintain Planning maps and land use related records • Process Land Use Applications and administers Site Plan Review • Provides in-person and telephone customer services to the public • Provides staff support to governing bodies: • City Council Subcommittees • Planning Board • Zoning Board of Adjustment
Public Works / Highway Department	The East Orange Department of Public Works is comprised of 60 workers. • The Buildings and Grounds Division provides essential repairs and maintenance to City Hall as well as the Health Department, Municipal Court, and Police Headquarters. • The Plans and Construction Division designs and supervises Public Works construction projects such as road reconstruction and also maintains the East Orange street numbering system and tax maps. • The Street Division maintains and repairs 84 miles of roadway, but is also responsible for providing a host of other vital services including: ○ Catch basin cleaning ○ Cleaning ○ Fabrication and repair of all posted street name and instructional signs ○ Inspection of sidewalks ○ Installation and repair of all traffic lights ○ Leaf removal ○ Maintaining the Second River ○ Painting all line markings on roadways ○ Road surface repairs ○ Snow and ice removal ○ Street sweeping ○ Upkeep of the City's storm drains The Water Commission serves the City of East Orange and the Borough of East Newark. The Commission provides quality water and wastewater service to our customers.
Construction / Building / Code Enforcement Department	The mission of the Department of Code Enforcement is to promote the appreciation, preservation, and revitalization of East Orange's properties, communities and landscapes. • The Building Division, supervised by licensed Construction Official, isresponsible for the administration, supervision, and approval of all applications for construction, alterations and renovations of buildings within the City according to the Building Code of the City of East Orange, along with the enforcement and compliance of Chapter 268, Zoning. • The Division of Inspections and Code Enforcement is responsible for the administration of the Code of the City of East Orange that establish minimum standards governing the maintenance, appearance, conditions, and occupancy of residential and non-residential premises.
Engineering Department	No
Parks and Recreation Department	The mission of Recreation & Cultural Affairs is to enhance the quality of life for the residents of the City of East Orange by providing and maintaining safe, quality and affordable recreational activities, as well as culturally enriched programs to residents of all ages and abilities.
Open Space Board / Committee	Open Space Advisory Board

Department / Board / Committee	Description and Role in Risk Reduction
Environmental Board / Commission	No
Emergency Management / Public Safety Department	The mission of the Office of Emergency Management is to provide effective and professional assistance to other city departments, the East Orange School District, Hospitals and private sector by aiding them in their planning and preparation for emergencies and by responding to incidents, consistent with the policies of the City of East Orange, Essex County Office of Emergency Management and the New Jersey State Police Office of Emergency Management. OEM coordinates the plans and operations of the various components of the emergency operations plan: • Community Emergency Response Team (CERT) volunteers • Emergency medical service • Emergency warning system • Fire • Police • Public health • Public information • Public works • And many other groups who assist during emergencies
Fire Department	The objective of the East Orange Fire Department is to provide fire protection and other related fire services for the citizens and employees of East Orange. The Fire Department aims to provide the best in fire protection for the City of East Orange, affording East Orange the best available insurance ratings; to provide a fire prevention program that enforces the Uniform Fire Codes; and to be responsive to citizen concerns and complaints through community relations programs.
Additional departments, boards, and committees	Health and Human Services provides public health services and education, to the residents of East Orange. Health and Human Services maintain regulatory compliance and achieve state of the art application of the principles of public health services and identify and promote strategies for disease prevention and quality of life enhancement, based on community needs, essential public health performance indicators and the standards which are set by the U.S. Centers for Disease Control (CDC) and the Federal Emergency Management Agency (FEMA) in addition to the New Jersey State Department of Health and Senior Services.

The table below summarizes the City of East Orange's staff with skills and expertise that contribute to risk reduction.

Table 6-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Department of Policy, Planning and Development
Engineer	Department of Public Works
Stormwater Officer	Water Department
Resilience / Sustainability Officer	No
Grant Writer	Department of Policy, Planning and Development
Staff with benefit / cost analysis expertise	City Administrator
Staff trained in conducting substantial damage determinations	Code Enforcement
Staff trained in GIS	Department of Public Works

Staff	Description and Role in Risk Reduction
Staff that provide support to socially vulnerable populations	Health Department
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the City of East Orange.

Table 6-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Department of Policy, Planning, and Development (for Zoning Permits); Department of Code Enforcement (for Building Permits)
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Flood (SFHA)
How does your jurisdiction inventory land available for new development?	The City's Office of the Tax Assessor tracks all vacant and abandoned land in the process of maintaining accurate property tax rolls. The Department of Policy, Planning, and Development tracks all City-owned land or land that would qualify as a redevelopment site (per N.J.S.A 40a:12a-1 et seq.).
What percentage of your jurisdiction is available for new development?	1.38% (or 1,511,691 sf./34.7 acres of 109,562,112 sf./2,525 acres)

6.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the City of East Orange.

Table 6-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Planning Department
Capital improvements funding	Yes	Finance Department
Open space acquisition programs	Yes	County program
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Water Department
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	City Council

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Ability to incur debt through bonds	Yes	General obligation bonds through City Council & Water Department; special tax bonds through the Parks Department, Housing and Water Commission; Private Activity Bonds through City Council & Water Department
Other financial resources available for hazard mitigation	No	-

6.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the City of East Orange.

Table 6-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Reverse 911
Public Information Officer	The Office of Public Information: • Fosters positive relationships with local and national media and provides timely, proactive and responsive information to media inquiries • Manages marketing and branding for all major citywide initiatives • Writes and copy edits external communications from the Mayor's Office • Actively promotes city projects, programs and initiatives using traditional and social media
Website	https://www.eastorange-nj.gov/ includes information on hurricane preparedness and other preparedness tips and techniques.
Social media	Facebook, X (formerly known as Twitter), and Instagram
Public safety campaigns	The East Orange Office of Emergency Management (OEM) offers emergency preparedness training to East Orange City employees and to the general public.
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	OEM maintains a Special Needs registry. The Division of Senior Services aims to serve as advocates on behalf of East Orange residents 60 years of age and older and disabled adults through: • Providing assistance to senior citizens and disabled adults in completing applications for benefits and entitlements. • Providing information regarding benefits, entitlements and opportunities available for senior citizens and disabled adults. • Providing transportation for senior citizens and disabled adults. • Disseminating information through a bi-annual newsletter, periodic news releases and flyers. • Sponsoring an annual Senior Citizen Conference with representatives from various entitlement offices and services to afford East Orange Senior Citizens an opportunity to interact with service providers and receive information that is pertinent to their quality of life.
Other outreach capabilities	No

Source(s):

6.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the City of East Orange.

Table 6-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit review
What local department is responsible for floodplain management?	Department of Public Works
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	N/A
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	Building Department will inspect damaged buildings as needed. A full plan is needed.
Summarize the jurisdiction's Substantial Improvement procedures.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	Unknown
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Unknown

Source(s):

6.3.6 Community Classifications

Table 6-14 summarizes the City of East Orange's participation in community classification programs.

Table 6-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Participant but not certified	-
Other Programs	No	-

Program	Participation Status / Classification	Date Classified
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

-Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

6.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the City of East Orange has in place and will use to prepare for changes in risk due to climate change.

Table 6-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Increased flooding risks.
What information does the jurisdiction use to understand potential climate change impacts?	Community input and public safety calls for service.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Stormwater Control Plan (2022)
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Department of Policy Planning and Development
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	OEM
How does the jurisdiction educate the public on potential climate change impacts?	Multiple departments conduct ongoing community outreach.

6.3.8 Capability Assessment Summary

The City of East Orange's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The City of East Orange determined the following hazard capability effectiveness ratings.

Table 6-16. City of East Orange Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

6.3.9 Opportunities to Improve Capabilities and Integration

- The City lacks a Substantial Damage Response Plan.
- The City will be required to develop a Watershed Improvement Plan by December 2027.

6.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the City of East Orange were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the City's reduction of risk through current capabilities.

The City of East Orange reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the City discussed the following local factors that led to modifying the hazard rankings:

- The City changed the hazard ranking for disease outbreak from low to medium, noting that there have been several areas where disease outbreak has heavily impacted residents.
- The City changed the hazard ranking for flood and severe winter weather from medium to high, nothing that there has been an increase in urban flooding during severe storm and winter storm events.
- The City agreed with the remainder of the calculated hazard rankings.

The City of East Orange agreed upon the following hazard rankings.

Table 6-17. City of East Orange Hazard Rankings

Hazard	Hazard Ranking
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low

Hazard	*Hazard Ranking*
Extreme Temp	High
Flood	High
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	High
Wildfire	Low

6.5 Jurisdictional Mitigation Strategy

6.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 6-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-East Orange-001	**Backup generator for water pumping station:** The city will purchase and install a backup generator for the water pumping station.	Public Works	No Progress, lack of funding.	Yes	-
2020-East Orange-002	**Develop plan to acquire emergency equipment:** The city will develop a plan to identify how many standby pumps and generators are needed to service high priority areas and fund the purchase of equipment. The city will also purchase a water tender/tanker.	OEM, Public Works	Complete. Portable pumps and generators have been purchased. The purchase of a water tender/tanker is no longer being considered.	No, complete.	-
2020-East Orange-003	**Feasibility assessment for police pistol range:** The city will conduct a feasibility assessment to determine the best mitigation action (floodproof, elevate, relocate) to protect the range and implement the identified action.	FPA, Police Department	No Progress	Yes	-
2020-East Orange-004	**Outreach to Johnnie L. Cochran Jr. Academy Elementary School:** The city will contact the	City of East Orange	Ongoing Capability. Citywide outreach programs cover this.	No, ongoing capability.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	school facility manager to alert them of the school's location in the D&E zone and discuss possible mitigation actions.				
2020-East Orange-005	**Mitigate flood-prone properties, including RL properties:** The city will conduct outreach to 15 flood-prone property owners including RL properties and help identify funding for mitigation.	FPA	In Progress, NJOEM has completed outreach to all repetitive loss properties in the state and is gathering information on those properties interested in mitigation.	Yes	-
2020-East Orange-006	**Obtain sources of backup power for critical facilities to ensure continuity of operations:** The city will obtain sources of backup power for critical facilities to ensure continuity of operations. The following are currently identified: 1. East Orange Fire Station 2 generator 2. East Orange Fire Station 3 generator 3. East Orange Fire Station 5 generator	East Orange OEM	In Progress. Fire Station 2 has a quick connect that can be used for a 100k mobile generator the City received with grant funding. Fire Station 3 has a fixed generator. Fire Station 5 and the City garage still need generators.	Yes	City Hall and Admin Office/IT hub each need backup generators

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	4. East Orange City garage generator				
2020-East Orange-007	**Reconstruction of Second River channel walls:** Reconstruction of Second River channel walls; design phase funded for replacement channel structure.	Department of Public Works	In Progress, work has been funded. Construction underway.	Yes	-
2020-East Orange-008	**Work with NJ Transit to address flooding:** Continue to have dialog with NJ Transit to address parking capacity, address flooding of train station viaducts and underpasses.	Engineering	In Progress. Continued flooding up to 5 feet deep on regular basis. 4th Avenue underpass.	Yes	Include other floodprone locations in the City as part of feasibility assessments for stormwater improvements.
2020-East Orange-009	**Outreach program expansion:** Expand existing outreach to include information on cyber-attack.	East Orange OEM	Ongoing Capability	No, ongoing capability.	-

6.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of East Orange identified the following mitigation efforts completed since the last HMP:

- None identified.

6.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the City of East Orange identified the following issues that require mitigation.

- The City experiences flooding on a regular basis. Locations include Brookwood Street, Warwick Street, Treemont Avenue, the 4th Avenue underpass, areas bordering the City of Newark, and the area near the border with Montclair. Heavy rainfall events of several inches in a short time frame will overwhelm the stormwater system. The stormwater system flows into the City of Newark. Once the system is overwhelmed in Newark, it backs up into East Orange, resulting in several feet of flooding on roadways. Flooding of basements occurs in heavy rainfall events. In severe events, flooding enters the first floor of residential homes. Some stormwater system improvements including upsized catch basins and drainage pipes but additional improvements are needed.
- Several critical facilities that provide lifeline services to the City lack backup power. Facilities without backup power include:
    - Water Pumping Station
    - Fire Station 5
    - City Garage
    - City Hall
    - Administrative Office/IT hub
- Second River channel walls are degraded. Project design has been completed for a replacement channel structure.
- The police pistol range is located in a flood prone area. The facility has suffered repeated flood damages.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 4 repetitive loss properties, but other properties may be impacted by flooding as well.
- The City lacks efficient warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need. Current identified facilities are outdated and lack backup power.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed

Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

- The Canoe Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (5/23/2023). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.

6.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The City of East Orange's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume 1, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 6-19. City of East Orange 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-East Orange-01	Flood Study and Stormwater System Upgrades					X		X		
2025-East Orange-02	Lifeline Facilities Backup Power			X	X	X	X	X	X	X
2025-East Orange-03	Reconstruction of Second River Floodwalls					X				
2025-East Orange-04	Pistol Range Flood Feasibility Assessment					X				
2025-East Orange-05	Repetitive Loss Mitigation					X		X		
2025-East Orange-06	Warming & Cooling Centers	X			X					
2025-East Orange-07	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-East Orange-08	Watershed Improvement Plan	X	X		X	X				
2025-East Orange-09	Canoe Brook Dam					X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 6-20. City of East Orange 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-East Orange-01	Flood Study and Stormwater System Upgrades	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-East Orange-02	Lifeline Facilities Backup Power	1	1	1	1	1	0	0	1	1	1	1	0	1	1	10	High
2025-East Orange-03	Reconstruction of Second River Floodwalls	1	1	1	1	1	1	0	1	1	1	1	0	0	1	11	High
2025-East Orange-04	Pistol Range Flood Feasibility Assessment	0	1	1	1	1	0	0	0	1	0	1	0	0	1	7	High
2025-East Orange-05	Repetitive Loss Mitigation	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-East Orange-06	Warming & Cooling Centers	1	1	1	1	1	0	0	1	1	1	1	0	1	1	11	High
2025-East Orange-07	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-East Orange-08	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-East Orange-09	Canoe Brook Dam	0	1	1	1	1	0	1	1	1	0	1	0	1	1	10	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-East Orange-01: Flood Study and Stormwater System Upgrades

Lead Agency:	Engineer
Supporting Agencies:	Public Works
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The City experiences flooding on a regular basis. The following areas are prone to flooding during heavy rain: • 4th Avenue & N 15th Street (Under the railroad overpass) • N Grove Street & Lafayette Avenue (Under the railroad overpass) • Springdale Ave & Ampere Parkway (Under the railroad overpass) • N Oraton Parkway & Park Avenue • Beech Street & S Brunet Street • Woodland Avenue • 20 Melmore Gardens • Warwick Street • Brookwood Street & Tremont Avenue • Halsted Street & Rohde Island Avenue • Rutledge Avenue (between Roosevelt Avenue & N Arlington Avenue) Heavy rainfall events of several inches in a short time frame will overwhelm the stormwater system. The stormwater system flows into the City of Newark. Once the system is overwhelmed in Newark, it backs up into East Orange, resulting in several feet of flooding on roadways. Flooding of basements occurs in heavy rainfall events. In severe events, flooding enters the first floor of residential homes. Some stormwater system improvements including upsized catch basins and drainage pipes but additional improvements are needed.
Description of the Solution:	The City will conduct a flood study of the locations where flooding is common, identify the source of the flooding, identify potential mitigation measures, and implement cost-effective measures. Potential actions include upsizing stormwater components and encouraging more natural drainage through rain gardens, permeable pavement, etc. to reduce the volume of stormwater entering into the stormwater system.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	Stormwater flooding reduced.
Impact on Socially Vulnerable Populations:	Numerous locations that experience flooding are home to socially vulnerable populations.
Impact on Future Development:	Future development/redevelopment will be reviewed to ensure that development does not increase stormwater runoff.
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is also likely to increase heavy rainfall events. This action will address the increased severity and frequency of rainfall events and the stormwater that it generates.
Mitigation Category:	Structural Projects, Natural Resource Protection
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action /

	Elevate floodprone properties	Addresses flooding of homes but not roadway flooding
	Acquire floodprone properties and convert to natural floodplain	Expensive and homeowners may not be interested

2025-East Orange-02: Lifeline Facilities Backup Power

Lead Agency:	OEM
Supporting Agencies:	Engineer, Public Works, Fire Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Several critical facilities that provide lifeline services to the City lack backup power. Facilities without backup power include: • Water Pumping Station • Fire Station 5 • City Garage • City Hall • Administrative Office/IT hub
Description of the Solution:	The Engineer will determine the appropriate sized generators needed to power each facility. Public Works will oversee installation of a fixed mounted generators and necessary electrical components to supply backup power to each facility. Public Works will be responsible for maintenance and testing of each of the generators following installation.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 6
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Lifeline facilities provide critical services to socially vulnerable populations in the City.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of critical facilities and their essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / - Microgrid / Costly and difficult to implement. Solar panels and battery backup / Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-East Orange-03: Reconstruction of Second River Floodwalls

Lead Agency:	USACE	
Supporting Agencies:	NJ DEP	
Hazard(s) of Concern:	Flood	
Description of the Problem:	Second River channel walls are degraded. Project design has been completed for a replacement improved channel structure.	
Description of the Solution:	The City will complete construction of the an improved channel structure for the Second River.	
Estimated Cost:	$1.5 million	
Potential Funding Sources:	HMGP, FMA (for activities benefiting NFIP-insured structures), BRIC, municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2	
Benefits:	The project features will restore the flood structures of the Second River and prevent flooding caused by system failure.	
Impact on Socially Vulnerable Populations:	Numerous socially vulnerable populations would be impacted by failure of the Second River's floodwalls. This action will protect these populations from flooding.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is also likely to increase heavy rainfall events. This action will result in increased flood protection.	
Mitigation Category:	Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Move the Second River to an underground channel	Costly
	Buyout properties along the Second River	Costly and interest is likely to be limited.

2025-East Orange-04: Pistol Range Flood Feasibility Assessment

Lead Agency:	Engineer	
Supporting Agencies:	Police Department	
Hazard(s) of Concern:	Flood	
Description of the Problem:	The police pistol range is located in a flood prone area. The facility has suffered repeated flood damages.	
Description of the Solution:	The City Engineer will conduct a feasibility assessment to determine what flood protection measures are cost -effective for the facility such as floodproofing and mobile flood barriers. Once the most cost-effective option is identified, the City will carry out the option.	
Estimated Cost:	Low for feasibility assessment	
Potential Funding Sources:	FEMA HMGP and PDM, BRIC, FMA (for activities benefiting NFIP-insured structures), USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2	
Benefits:	The project features would reduce flood damages to a City owned facility.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is also likely to increase heavy rainfall events that contribute to flooding. This action will result in increased flood protection.	
Mitigation Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Relocate facility	Expensive and may not be available
	Close pistol range. Establish plans to enter into MOU with neighboring communities to use their facility.	Reduction in response times and delay of critical services in the immediate area.

2025-East Orange-05: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 4 repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the City will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners
Implementation Timeline:	3 years
Goals Met:	2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, and riverine flooding events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-East Orange-06: Warming & Cooling Centers

Lead Agency:	OEM	
Supporting Agencies:	NJOEM,	
Hazard(s) of Concern:	Disease Outbreak, Extreme Temperature	
Description of the Problem:	The City lacks efficient warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need. Current identified facilities are outdated and lack backup power.	
Description of the Solution:	The City will review available facilities that could fit the needs of warming and cooling centers. Factors to consider will include capacity, access, and backup power. Facilities identified as appropriate locations for warming and cooling centers, including existing locations, will have the necessary upgrades made (HVAC, backup power generation) as necessary. Outreach will be conducted on the availability of these locations for sheltering during extreme temperature events.	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners	
Implementation Timeline:	3 years	
Goals Met:	1, 3, 5, 6, 7	
Benefits:	Warming and cooling centers established. These facilities can also provide additional facility space in the event of pandemic type events.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often the first to need access to warming and cooling centers. This action will support these populations.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will establish new warming and cooling centers and strengthen existing centers.	
Impact on Capabilities:	This action will improve sheltering capabilities for extreme temperature events and provide additional staging capabilities for disease outbreak events.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of extreme temperature events.	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Purchase multi-use trailers for warming and cooling	$1M per trailer
	Build separate facilities	Costly and space may not be available

2025-East Orange-07: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-East Orange-08: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-East Orange-09: Canoe Brook Dam

Lead Agency:	Engineer
Supporting Agencies:	Dam manager (East Orange Board of Water Commissioners), NJDEP Bureau of Dam Safety, County Engineer
Hazard(s) of Concern:	Flood
Description of the Problem:	The Canoe Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (5/23/2023). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
Description of the Solution:	The municipal engineer will work with dam managers, the NJDEP Bureau of Dam Safety, and the County Engineer to review the most recent inspections of dams in the municipality that have resulted in a poor or unsatisfactory safety rating, identify the deficiencies, determine the necessary repairs and improvements necessary to address the deficiencies, identify available funding sources for the identified repairs/improvements, and implement the cost-effective repairs/improvements.
Estimated Cost:	Low for initial assessment of options, TBD for total cost based on mitigation actions selected
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), NJDEP, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	Dam failure will be avoided, which will reduce the risk of harm to people and property downstream. Certain safety requirements will be met that can allow for funding to be received for further mitigation projects.
Impact on Socially Vulnerable Populations:	The most vulnerable populations may live directly downstream of the dam and lack the ability to receive notifications of dam failure or evacuate when notified. Preventing dam failure allows those communities to remain intact and reduces the risk of loss of life and property in those areas.
Impact on Future Development:	Future development downstream of dams will also be protected from dam failure.
Impact on Critical Facilities/Lifelines:	Critical roads and utilities will be protected from potential damage or loss from unintended dam releases.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is resulting in an increase to annual precipitation. Much of this increase is in the form of heavy rainfall events. Consideration should be taken for increases in frequency and severity of rainfall events to ensure that the dam is designed to withstand these increases.
Mitigation Category:	Structural Projects
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Work without County Engineer involvement / Improvements made but may lack appropriate support from County, including data and potential funding access
	Remove dam / Without proper analysis, dam removal may increase flooding risk

6.6 JURISDICTIONAL HAZARD MITIGATION TEAM

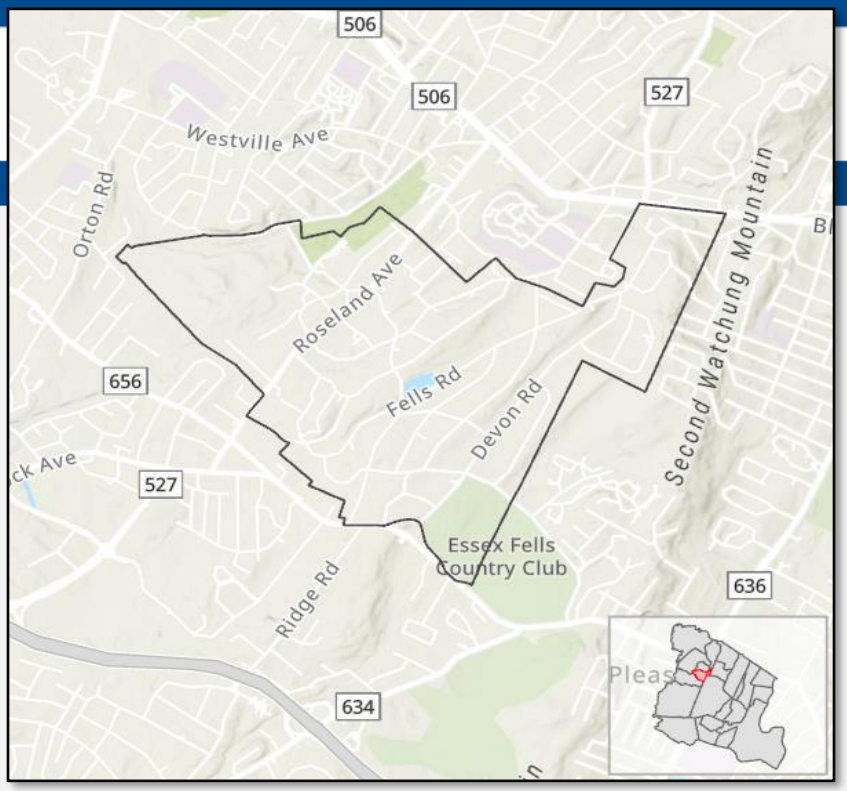
Table 6-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	David Williams, Emergency Management Coordinator	Name and Title:	Natasha Ortiz, Office of Emergency Management and Grants
Address:	44 City Hall Plaza East Orange, NJ 07017	Address:	44 City Hall Plaza East Orange, NJ 07017
Phone Number:	973-677-8924 or 201-704-7604	Phone Number:	862-220-2677
Email:	David.williams@eastorange-nj.gov	Email:	Natasha.ortiz@eastorange-nj.gov
NFIP Floodplain Administrator			
Name and Title:	Elizabeth Collins, Engineer, Assistant Director of Public Works		
Address:	44 City Hall Plaza East Orange, NJ 07017		
Phone Number:	973-266-5330		
Email:	Elizabeth.collins@eastorange-nj.gov		

Table 6-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
David Williams, Emergency Management Coordinator	Attended annex support meeting, contributed to mitigation strategy. Provided information on capabilities, adaptive capacity, NFIP administration
Rupert Bell, Director of Public Works	Attended annex support meeting, contributed to mitigation strategy
Elizabeth Collins, Engineer, Assistant Director of Public Works	Attended annex support meeting, contributed to mitigation strategy
Alexander McClean, Principal Planner	Attended annex support meeting, contributed to mitigation strategy
Alysia Cohen, Director of Policy, Planning & Development	Attended annex support meeting, contributed to mitigation strategy

Borough of Essex Fells



POPULATION STATISTICS

2,320
TOTAL POPULATION (2023 ACS)

0.09%
Change in population since 2010 Census

724
TOTAL HOUSEHOLDS

AT RISK POPULATION

382
Population Over 65

103
Population Under 5

69
Living With Disability

16
Households Without Vehicle

19
People Renting Homes

POVERTY AND LANGUAGE

31
Households Below Poverty Level

28
Population With English as 2nd Language

POPULATION AND BUSINESSES

1,719
Daytime Population

46
Total Businesses

993
Total Employees

FLOOD VULNERABILITY

0
Number of People in 1% SFHA

0
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

7 BOROUGH OF ESSEX FELLS

7.1 JURISDICTIONAL PROFILE

The Borough of Essex Fells is centrally located in Essex County. The Borough is bordered by the Borough of Caldwell to the north, Township of Verona to the east, Township of West Orange to the southeast, Borough of Roseland to the southwest, and Township of West Caldwell to the northwest. According to the U.S. Census Bureau, the Borough has a total land area of 1.418 square miles, of which 1.412 square miles is land and 0.006 square miles is water.

The name Essex Fells was derived from the name of the County in which it resides and one of the founders of the Suburban Land Company, John F. Fell), who helped create the new residential community. An ordinance passed in 1928 limited commercial activity to single three-story buildings that are constructed to look like a house (The Borough of Essex Fells, New Jersey, 2014).

The Borough of Essex Fells operates under the borough form of government which consists of a Mayor and six-member Council. The Council is elected at-large every three years on a staggering basis with two seats coming up for election every year. The Mayor is elected every four years (The Borough of Essex Fells, New Jersey, 2014).

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

7.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Borough of Essex Fells' risk to the hazards of concern identified for the 2025 HMP update.

7.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Borough of Essex Fells' history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Borough experienced during hazard events since the last hazard mitigation plan update.

Table 7-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Although the County was impacted, the municipality did not report significant local impacts.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph,	Although the County was impacted, the municipality did not report significant local impacts.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Essex County provided assistance to the Borough of Essex Fells following a storm event that caused damage in the form of tree, soil and rock deposits within the Trotter Tract after Hurricane Ida.

7.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

FEMA mapping is incomplete within the Borough. Only one watercourse is studied, while two remain unstudied. There are several areas where low points exist, including Devon Road, that are not mapped.

Of the areas where mapping is completed, the FEMA mapping does adequately address flood risk. Unfortunately, this does cause the residents to spend exorbitant amounts of money to secure NJDEP review prior to determining if permits are even required.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Borough of Essex Fells.

Table 7-2. NFIP Summary

Active NFIP Policies	Total Premium + Policy Fee	Number of Losses	Total Net Payment	Repetitive Loss (RL) Properties	Severe Repetitive Loss (SRL) Properties
9	$8,606	14	$175,322	1	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

There have been a few homes that have been damaged by flooding in some of the more severe storms. However, the majority of the damage has been non-structural in nature and not resulted in substantial damage determinations.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 7-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex 2025; FEMA 2020

7.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Borough of Essex Fells, including major residential/commercial/industrial development and major infrastructure development.

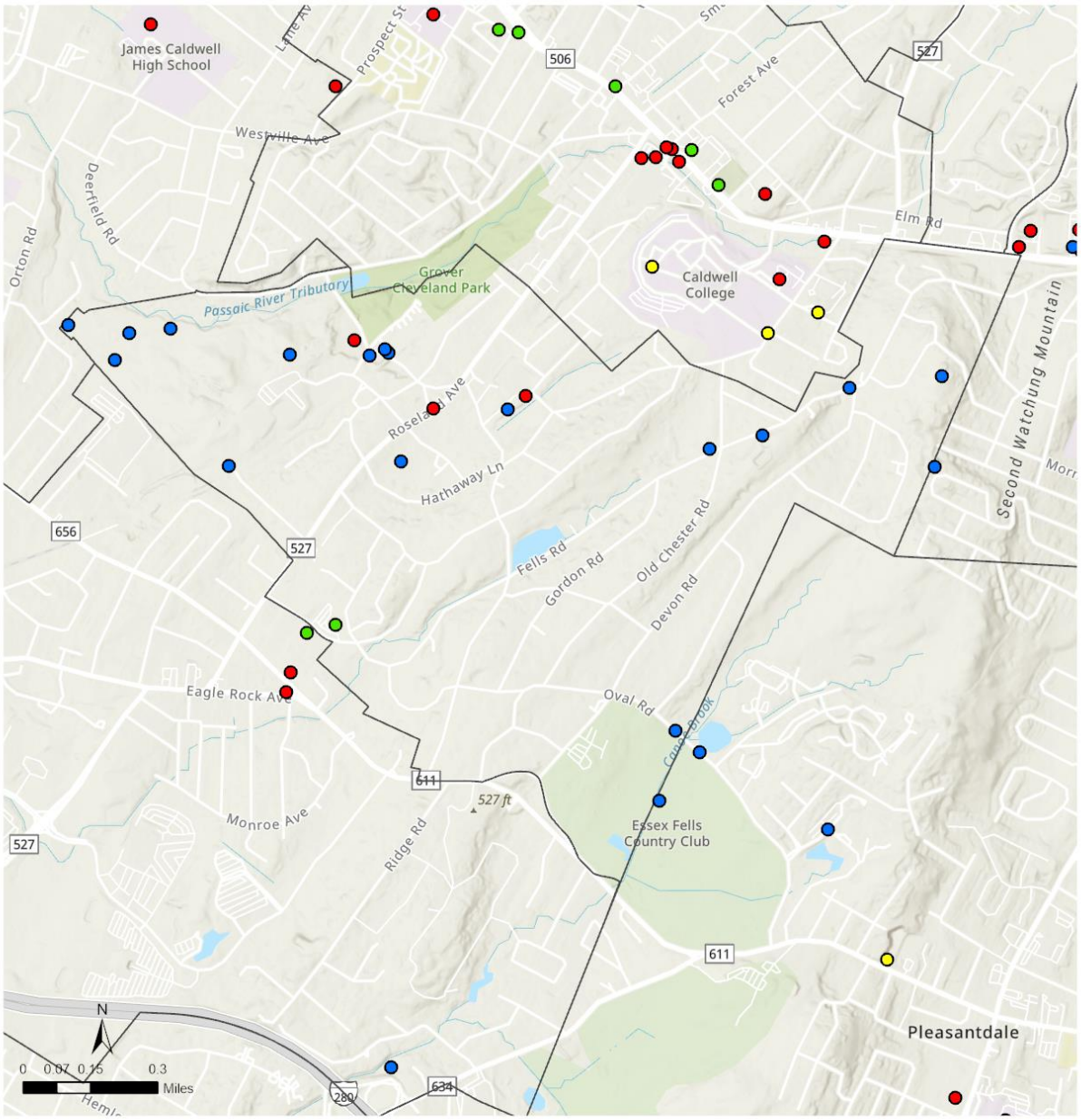
Table 7-4. Recent and Expected Future Development

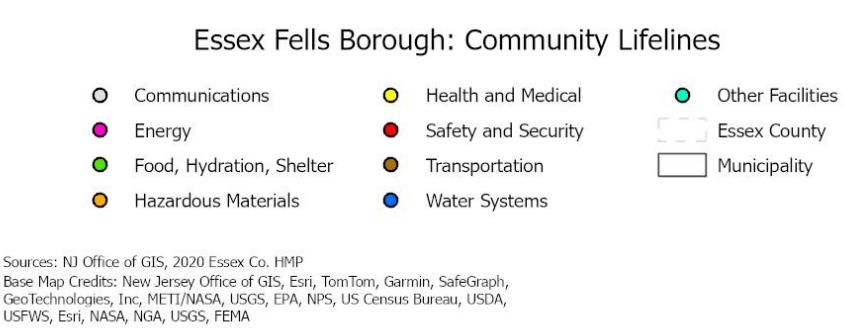
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
No new development identified or anticipated. The Borough is built out.					

7.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Borough of Essex Fells that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

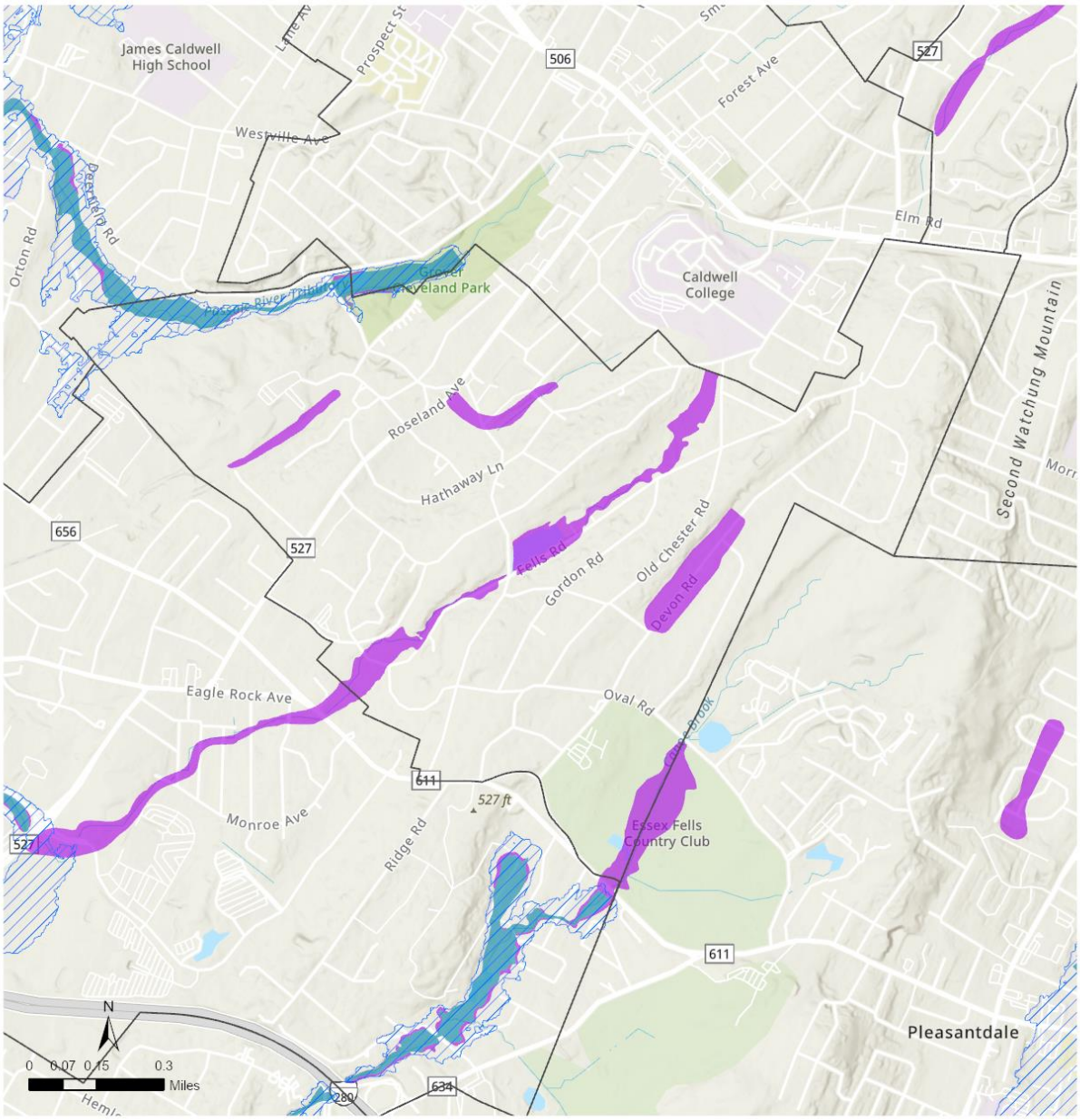
Figure 7-1. Borough of Essex Fells Community Lifelines





Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 7-2. Borough of Essex Fells Flood-Related Hazards

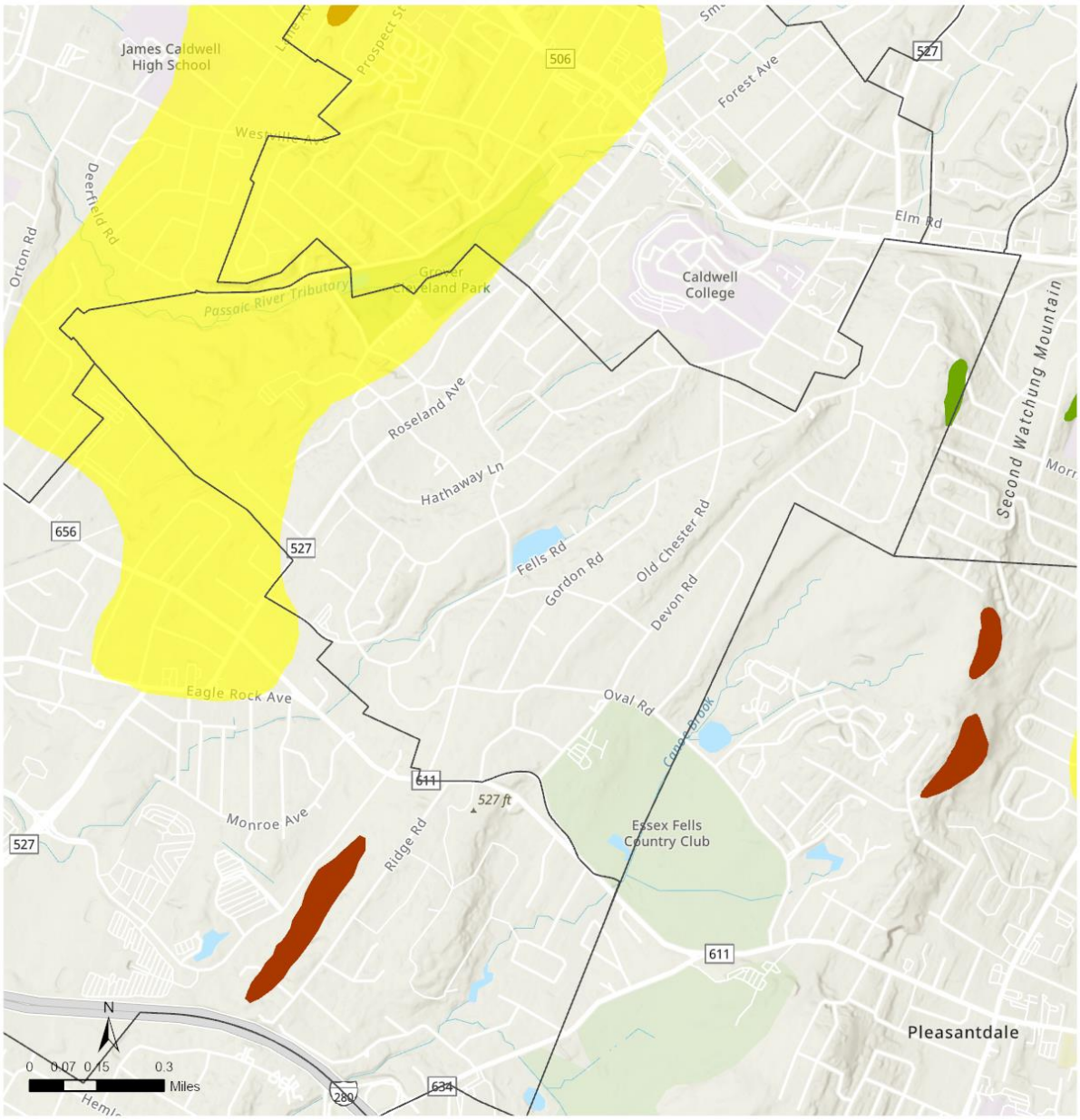


Essex Fells Borough: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 7-3. Borough of Essex Fells Geological Hazards



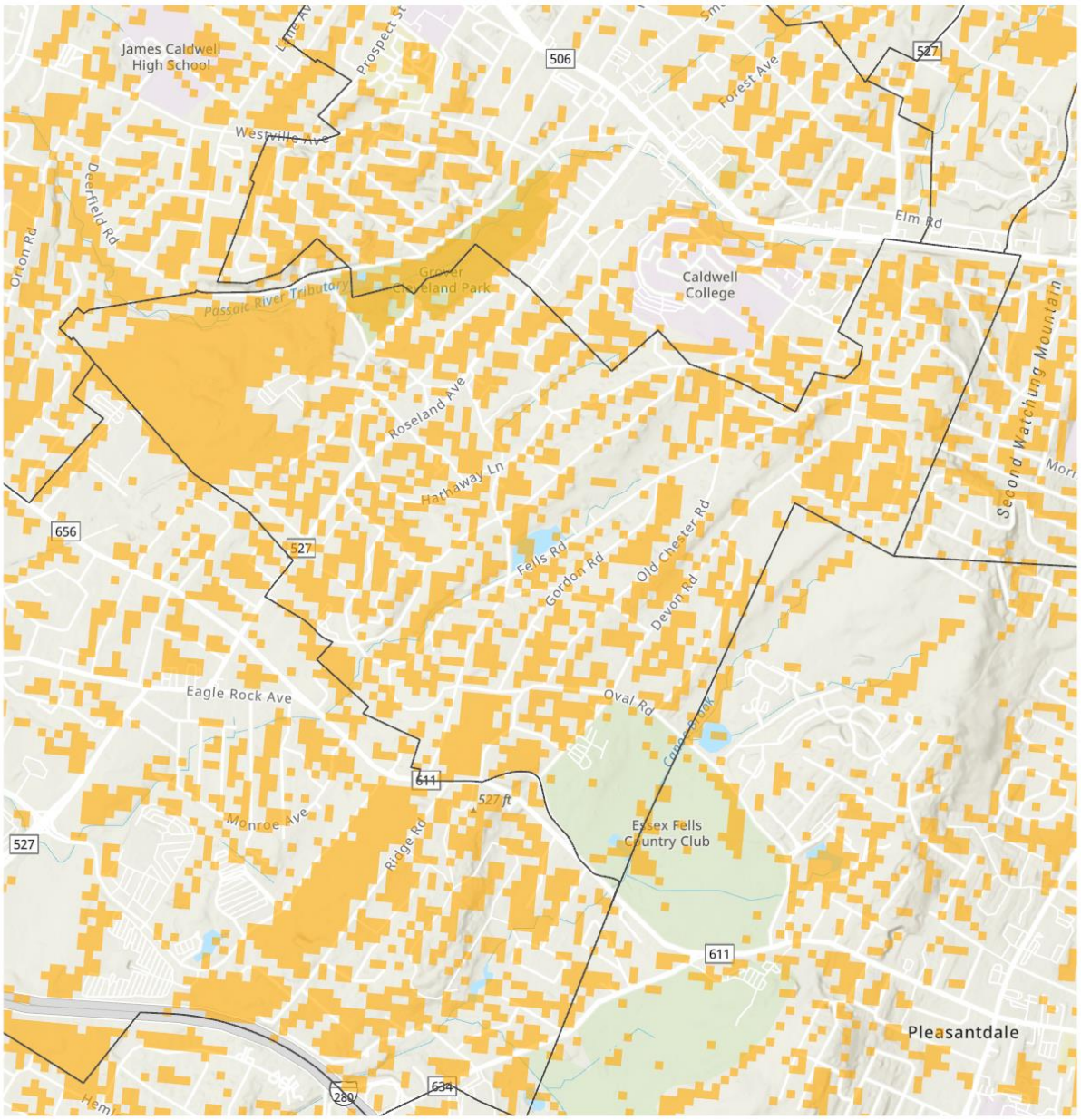
Essex Fells Borough: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 7-4. Borough of Essex Fells Wildfire Hazard



Essex Fells Borough: Wildfire Hazard Potential

N

0 0.07 0.15 0.3 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

7.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Borough of Essex Fells, climate change is likely to have the following impacts:

- Increased heavy rainfall events are likely to contribute to flooding in the Borough.

7.2.5 Risk Assessment Summary

- After severe streambank erosion threatened a major sewer line along Pine Brook Creek, the Borough repaired the damages and conducted stabilization measures. This was funded by the Borough for a cost of roughly $300,000. Future storms and flooding events still threaten this critical infrastructure.
- The Borough has 16 wells and supplies water to 3-4 other towns in the area. The Borough has completed a $9,000,000 treatment facility. Better security is needed to protect the water supply, especially during a drought event.
- Recent storm events have resulted in severe rainfall which have overwhelmed a storm basin on Fells Manor. When the basin overflows, stormwater runs downhill to a major roadway. This can cause flooding. It is assumed that the basin may be undersized.
- The Borough has one repetitive loss property that needs to be addressed.

7.3 Jurisdictional Capability Assessment

The Borough of Essex Fells performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

7.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Borough of Essex Fells.

Table 7-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan 2018	Planning Board
Impact on Risk Reduction: Issues affecting community: Dying and old trees being lost on public and private lands. Has a goal to replace sugar maple and dogwood trees on public lands and encourage new plantings on private lands. Master plan notes extensive tree damage and power outage from significant weather events. Trees are 80 to 130 years old. Oak Lane, Wootton Road, Fells Road, Oldchester Road, and Beechtree Lane. Goal to establish procedures to regularly address environmental issues.			
Capital Improvement Plan	Yes	Capital Budget	Administration
Impact on Risk Reduction: Borough does not have a formal strategic plan, but capital budget is revised annually to account for present need.			
Stormwater Management Plan	Yes	Stormwater Management Plan	OEM
Impact on Risk Reduction: Sets stormwater management standards for new construction.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan	OEM
Impact on Risk Reduction: Sets standards for preventing pollution at construction sites.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Borough of Essex Fells to prepare for, respond to, and recover from hazard events.

Table 7-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan provides procedures for emergency response to natural and non-natural hazard events. The EOP is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Continuity of Operations Plan, October 2024	Office of Emergency Management
Impact on Risk Reduction: Provides guidance to maintain continuity of operations in the event of a disaster event.			
Evacuation Plan	Yes	Evacuation Plan	Office of Emergency Management
Impact on Risk Reduction: Identifies pathways and procedures for evacuation.			
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	THIRA	Office of Emergency Management
Impact on Risk Reduction: Identifies threats from hazards.			
Public Health Plan	Yes	Public Health Plan	Office of Emergency Management
Impact on Risk Reduction: Would guide response during a disease outbreak event.			
Disaster Debris Management Plan	Yes	Disaster Debris Management Plan	Office of Emergency Management
Impact on Risk Reduction: Guides the removal of large amounts of debris follow disaster events.			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Borough of Essex Fells.

Table 7-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 103, Construction Codes, Uniform	Building & Zoning Department
Impact on Risk Reduction: The building code requires that construction takes into account hazard risk and is built to withstand reasonable hazard risk.			
Zoning or Land Use Regulations	Yes	Chapter 170 Land Development	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: The purposes of the Land Development ordinance related to hazard mitigation in this chapter are as follows: • To plan and guide the appropriate use of development of all land in a manner which will promote the public health, safety, morals and general welfare; • To secure safety from fire, flood, panic and other natural and man-made disasters; • To provide adequate light, air and open space; • To ensure that land development does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole; • To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, maintenance of the character of neighborhoods, preservation of the environment and quality of life; • To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies; • To provide sufficient space in appropriate locations for a variety of residential, recreational, and other uses and open space, both public and private, according to their respective environmental requirements; • To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities and routes which will result in congestion or blight; • To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land; • To regulate the location of buildings and establish standards of development; to establish building lines and the location of buildings designed for residential and other uses within such lines and to fix reasonable standards to which buildings or structures shall conform; • To minimize losses and damages to public and private property due to inundation caused by floodwaters and storm runoff; • To restrict structures and land uses which increase flood heights, velocities, erosion and siltation; • To prevent an increase in volume and rate of surface runoff due to development; • To prevent further unwise development in floodplains, thus reducing future expenditures for protective measures; • To preserve, protect and enhance the natural environment of the floodplain; • To maintain the useful life of water detention and retention areas by preventing sedimentation; • To prevent dangers to life and property from flooding resulting from excessive water runoff and clogging of drainage structures; • To preserve the recreational use of water bodies and enhance water quality by preventing stagnation;			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
• To prevent pollutants from entering streams, rivers and potable water supplies; • To reduce public expenditures for repair of public facilities resulting from soil erosion and sedimentation; To preserve, protect and enhance the potable water supply for the Borough and surrounding municipalities by maintaining adequate recharge areas to allow for natural percolation of water into the aquifers.			
Subdivision Regulations	Yes	Subdivision Regulations	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: Sets standards for the subdivision of land to prevent overcrowding.			
Site Plan Regulations	Yes	Chapter 170 Land Development	Planning Board
Impact on Risk Reduction:			
Stormwater Regulations	Yes	Chapter 241 Stormwater Management	Department of Public Works
Impact on Risk Reduction: The Stormwater Management regulations prohibit illicit connections, improper disposal of waste, and retrofitting of existing storm drain inlets.			
Floodplain Regulations	Yes	Chapter 142 Floodplain Management	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines. D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22.			
Environmental Protection Regulations	Yes	Chapter 172 Landscaping and Tree Removal Registration; Chapter 228 Soil Removal and Relocation; Chapter 269 Trees; Chapter 281 Water Emergencies	Administration
Impact on Risk Reduction: Chapter 172 requires registration by individuals or companies engaged in landscaping and tree removal is to ensure that they are cognizant of the Borough's regulations concerning the Borough's stormwater protection, noise, quality of life, tree protection, and vegetative waste disposal regulations. Chapter 228 states that no owner, person, firm, or corporation shall excavate, and remove or cause, allow, permit, or suffer to be removed, any soil from off any land in the Borough, unless and until a permit for such soil removal has first been issued by the Planning Board of the Borough Chapter 269 states that the preservation, maintenance, protection and planting of trees aids in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
the removal of pollutants from the air and assists in the generation of oxygen; provides a buffer and screen against noise and pollution; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil subsequent to construction or grading; provides a haven for birds and other wildlife and otherwise enhances the environment; protects and increases property values; preserves and enhances the Borough's physical and aesthetic appearance; and generally protects the public health and safety as well as the general welfare. Chapter 281 allows the mayor to proclaim an emergency in the potable water resources of the Essex Fells water system requiring the taking of such measures for the conservation of water for domestic and sanitary uses and for fire protection.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

7.3.2 Administrative and Technical Capabilities

The table below summarizes the Borough of Essex Fells' departments, boards, and committees that contribute to risk reduction.

Table 7-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board is authorized to adopt bylaws governing its procedural operation. It shall also have the following powers and duties: A. To make and adopt from time to time and amend a Master Plan for the physical development of the Borough which in the Board's judgment bears essential relation to the planning of the Borough; B. To administer the provisions of the Land Subdivision Ordinance of the Borough ; C. To participate in the preparation and review of programs or plans required by state or federal law or regulations; D. To assemble data on a continuing basis as part of a continuous planning process; E. If authorized by the governing body, to annually prepare a program of municipal capital improvement projects projected over a term of six years, and amendments thereto, and recommend same to the governing body; F. To consider and make report to the governing body within 35 days after referral as to any proposed development regulations submitted to it, and also pass upon other matters specifically referred to the Planning Board by the Borough Council; G. Review of applications for approval of subdivision plats and/or site plans; H. To perform such other advisory duties as are assigned to it by ordinance or resolution of the governing body or other agencies or officers. The powers of the Zoning Board of Adjustment are as follows: Hear and decide appeals where it is alleged by the applicant that there is error in

Department / Board / Committee	Description and Role in Risk Reduction
	any order, requirement, decision or refusal made by an administrative official or agency; Hear and decide requests for interpretation of the map or provisions of Zoning, or for decisions upon other special questions upon which the Board is authorized to pass; Where the strict application of any regulation in the Zoning Ordinance would result in peculiar and exceptional practical difficulties to or exceptional and undue hardship upon the owner or developer of such property, grant, upon application or an appeal relating to such property, a variance from such strict application, so as to relieve such difficulties or hardships; Grant a variance to allow a structure or use in a district restricted against such structure or use in particular cases and for special reasons, but only by the affirmative vote of at least five members of the Board; The Board shall have the authority, in connection with any case, action or proceeding before it, to interpret and construe the provisions of this article, or any term, clause, sentence or word of this article, and the Zoning Map, in accordance with the general rules of construction, applicable to legislative enactments.
Planning Department	No
Public Works / Highway Department	Department of Public Works is responsible for: • Building Maintenance and Repairs • Parks & Ball Field Maintenance • Recycling Center • Snow Plowing • Street Sweeping • Holiday Decorations • Resident Requests and Complaints
Construction / Building / Code Enforcement Department	The Building & Zoning Department serves to assist Essex Fells residents and commercial contractors wishing to initiate construction within the Borough. The responsibilities of this office include compliance with all State rules and regulations regarding construction including code enforcement for the following: UCC of New Jersey, IBC of New Jersey, IRC of New Jersey, IFC International, Fire Code NSP, National Standard Plumbing Code and the NEC National Electric Code It is the duty of this office to issue permits and conduct inspections for new construction, repairs and renovations, additions, electric and gas service upgrades, demolition, roofing, siding, swimming pools, sheds, replacement of hot water heaters and removal of tanks, etc. The Essex Fells Water Department has 16 wells, with 3 water storage tanks, totaling 2.8 million gallons, various interconnections, booster pumping stations, and transmission and distribution facilities a treatment facility and a main pumping station. The Department supply drinking water not only the customers of Essex Fells, but supply the towns of Roseland, Caldwell, North Caldwell, and the Hilltop portion of Verona with drinking water. The Water Department every year undergoes various Capital Projects to upgrade and improve the Water system, from replacing residential meters, to replacing water mains, and wells.
Engineering Department	Included in Building & Zoning Department

Department / Board / Committee	Description and Role in Risk Reduction
Parks and Recreation Department	Recreation Department
Open Space Board / Committee	No
Environmental Board / Commission	No
Emergency Management / Public Safety Department	Essex Fells Police Department
Fire Department	Essex Fells has a Volunteer Fire Department.
Additional departments, boards, and committees	The Borough shares a Health Department with West Orange.

The table below summarizes the Borough of Essex Fells' staff with skills and expertise that contribute to risk reduction.

Table 7-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	No
Engineer	The Engineer is an outside contractor.
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	Engineering and Department heads are responsible for grant writing.
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	No
Staff that provide support to socially vulnerable populations	No
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Borough of Essex Fells.

Table 7-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Building Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Flood
How does your jurisdiction inventory land available for new development?	The Borough is built out and has no additional land available.
What percentage of your jurisdiction is available for new development?	The Borough is built out.

7.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Borough of Essex Fells.

Table 7-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	No history of use
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	No history of use
Community Development Block Grants (CDBG, CDBG-DR)	Yes	While accessible, the Borough does not generally meet grant qualifications.
Capital improvements funding	Yes	Finance Department
Open space acquisition programs	No	-
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Responsibility of Mayor and Council; Water and Sewer
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	No	-
Ability to incur debt through bonds	Yes	Mayor and Council; Borough has the ability to incur debt through General Obligation Bonds and Special Tax Bonds.
Other financial resources available for hazard mitigation	No	-

7.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Borough of Essex Fells.

Table 7-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Nixle, CodeRed
Public Information Officer	No
Website	The Borough maintains a website (https://www.essexfellsboro.com/) but information on hazards is limited.
Social media	X (formerly known as Twitter)
Public safety campaigns	No
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	No
Other outreach capabilities	No

7.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Borough of Essex Fells.

Table 7-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The Borough has adopted the NJDEP-recommended Flood Plain Management Ordinance and the Borough Engineer is names as the Flood Plain Manager. Applications are submitted for review prior to issuance of construction permits. Data is included on the Borough's Website. Inspections are performed as required by the Borough Engineer.
What local department is responsible for floodplain management?	The Borough Engineer serves as the Flood Plain Manager.
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	None that we are aware of.
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	Substantial Damage determination would be established by the Construction Official in conjunction with the Borough Engineer. This would be based upon visual inspections following an event.
Summarize the jurisdiction's Substantial Improvement procedures.	No established procedures exist.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	The Borough has recently completed the detailed study of North Branch of Foulerton's Brook, which effects approximately 43 residential properties. However, NJDEP has refused to reduce their per-foot application fee, despite the fact that this watercourse runs through the entire Borough. As such, we have performed the overall mapping and established the Floodway and Flood Hazard Area, but the DEP has not reviewed this information, other than the current review of the 50-acre limitation of tributary area (to confirm their limit of jurisdiction).

Source(s):

7.3.6 Community Classifications

Table 7-14 summarizes the Borough of Essex Fells' participation in community classification programs.

Table 7-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	No	-
Other Programs	No	
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

7.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Borough of Essex Fells has in place and will use to prepare for changes in risk due to climate change.

Table 7-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Increased heavy rainfall events are likely to contribute to flooding in the Borough.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	None
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not currently being accounted for.
How does the jurisdiction educate the public on potential climate change impacts?	No education is taking place currently.

7.3.8 Capability Assessment Summary

The Borough of Essex Fells' capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.

- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Borough of Essex Fells determined the following hazard capability effectiveness ratings.

Table 7-16. Borough of Essex Fells Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

7.3.9 Opportunities to Improve Capabilities and Integration

- The Fire Department lacks a website that can be used for public outreach and recruitment of additional staff.
- The Borough lacks a Substantial Damage Response Plan.
- The Borough will be required to develop a Watershed Improvement Plan by December 2027.

7.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Borough of Essex Fells were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Borough's reduction of risk through current capabilities.

The Borough of Essex Fells reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Borough discussed the following local factors that led to modifying the hazard rankings:

- The Borough agreed with the calculated hazard rankings.

The Borough of Essex Fells agreed upon the following hazard rankings.

Table 7-17. Borough of Essex Fells Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	Medium
Flood	Medium
Geologic	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

7.5 Jurisdictional Mitigation Strategy

7.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 7-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?* *Yes/No* *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Essex Fells-001	**Obtain backup power for critical facilities:** The Borough will work to obtain and install generators for the following: 1. Essex Fells Police and Borough Hall 2. Essex Department of Public Works 3. Essex Fells First Aid Squad 4. High Service/Low Service tanks.	Borough OEM	Complete. Generators have been installed at the Essex Fells Police and Borough Hall, Department of Public Works, and Water Department Building. Funding came from state grants. Essex Fells does not have a First Aid Squad so this action does not apply.	No, action is complete.	-
2020-Essex Fells-002	**Upgrade security system for water utility:** The Borough will install 25 replacement doors for 16 water utility facilities.	Borough OEM, Water Utility	No Progress	Yes	Continue water supply security enhancements. The Borough has 16 wells and supplies water to 3-4 other towns in the area. The Borough has completed a $9m treatment facility. Better security is needed to protect the water supply, especially during a drought event. This will include installing cameras and fencing at the Borough's wells.
2020-Essex Fells-003	**Auxiliary power for water utility:** Purchase and install a backup generator and necessary electrical components.	Borough OEM, Water Utility	Complete. A generator was installed at the Water Department Building. Funding came from state grants.	No, action is complete	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Essex Fells-004	**Work with utility companies to trim problem trees:** The Borough will keep records of public concerns for tree locations that would be likely to have falling branches near utility lines. The Borough will relay this information to utility companies who will address the problem.	Borough OEM, PSE&G	Complete	No, action is complete	-
2020-Essex Fells-005	**Increase all-hazards education and outreach:** Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what they can do in the way of mitigation and preparedness, including flood insurance. This program will include brochures, flyers, website: • Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. • Including natural hazard risk and risk reduction	Borough Supervisor's Office	In Progress. Outreach efforts continue to be expanded and revamped as new needs and opportunities are presented. A new fire department website is needed.	Yes	A new fire department website is needed to help recruit new staff to support the Borough's fire and wildfire capabilities.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	information through social media channels and email blast systems. Posting of flyers and other readily available NFIP informational materials at Borough hall or distributing at regular civic meetings.				
2020-Essex Fells-006	**Upgrade Fells Road Pump and Fells:** The Borough will repair the pump and investigate what options exist to prevent the chamber from freezing and implement the desired action.	Public Works	Complete	No, action is complete	-
2020-Essex Fells-007	**Mitigate flooding at Devon Road and Forest Way:** The Borough will conduct a drainage study of Devon Road and Forest Way to determine the causes of flooding and possible actions to reduce flooding. The Borough will then implement the desired actions.	Engineering	Complete	No, action is complete	-
2020-Essex Fells-008	**Update Flood Damage Prevention Ordinance to include freeboard:** The Borough will update the FDPO to include the state mandated freeboard requirement.	FPA	Complete	No, action is complete	-

7.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Borough of Essex Fells identified the following mitigation efforts completed since the last HMP:

- After identifying many fallen trees across Pine Brook Creek that were contributing to snags that increased flooding and erosion risk, the Borough hired a contractor to remove the fallen trees. A drone survey was completed to keep track of trees along the waterway that can be compared following storm and flood events to identify new fallen trees and snags.
- After severe streambank erosion threatened a major sewer line along Pine Brook Creek, the Borough repaired the damages and conducted stabilization measures. This was funded by the Borough for a cost of roughly $300,000.
- In fall 2024, Bells Road by Forest Way was elevated by 2.5 feet after repeated flooding.

7.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Borough of Essex Fells identified the following issues that require mitigation.

- After severe streambank erosion threatened a major sewer line along Pine Brook Creek, the Borough repaired the damages and conducted stabilization measures. This was funded by the Borough for a cost of roughly $300,000. Future storms and flooding events still threaten this critical infrastructure.
- The Borough has 16 wells and supplies water to 3-4 other towns in the area. The Borough has completed a $9,000,000 treatment facility. Better security is needed to protect the water supply, especially during a drought event.
- Recent storm events have resulted in severe rainfall which have overwhelmed a storm basin on Fells Manor. When the basin overflows, stormwater runs downhill to a major roadway. This can cause flooding. It is assumed that the basin may be undersized.
- The Fire Department lacks a website that can be used for public outreach and recruitment of additional staff.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has one repetitive loss property, but other properties may be impacted by flooding as well.

7.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Borough of Essex Fells' proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 7-19. Borough of Essex Fells 2025 Mitigation Actions by Hazard Addressed

Project Number	*Project Name*	*Disease Outbreak*	*Drought*	*Earthquake*	*Extreme Temperature*	*Flood*	*Geological Hazards*	*Severe Weather*	*Severe Winter Weather*	*Wildfire*
2025-Essex Fells-01	Pine Brook Creek Sewer Line Protections					X		X	X	
2025-Essex Fells-02	Water System Protections		X							
2025-Essex Fells-03	Fells Manor Storm Basin Upsizing					X		X	X	
2025-Essex Fells-04	Fire Department Website									X
2025-Essex Fells-05	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-Essex Fells-06	Watershed Improvement Plan	X	X		X	X				
2025-Essex Fells-07	Repetitive Loss Mitigation					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 7-20. Borough of Essex Fells 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Essex Fells-01	Pine Brook Creek Sewer Line Protections	1	1	1	1	0	0	1	0	1	1	1	0	1	1	10	High
2025-Essex Fells-02	Water System Protections	1	1	1	1	1	0	0	0	1	0	1	0	1	0	8	Medium
2025-Essex Fells-03	Fells Manor Storm Basin Upsizing	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Essex Fells-04	Fire Department Website	1	1	1	1	1	1	0	0	1	0	1	1	1	1	11	High
2025-Essex Fells-05	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Essex Fells-06	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Essex Fells-07	Repetitive Loss Mitigation	1	1	1	1	0	1	1	0	1	1	1	1	0	1	10	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Essex Fells-01: Pine Brook Creek Sewer Line Protections

Lead Agency:	Public Works	
Supporting Agencies:	OEM, Engineer	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	After severe streambank erosion threatened a major sewer line along Pine Brook Creek, the Borough repaired the damages and conducted stabilization measures. This was funded by the Borough for a cost of roughly $300,000. Future storms and flooding events still threaten this critical infrastructure.	
Description of the Solution:	The Borough will conduct a stream stabilization study to determine future risk to the sewer line and potential mitigation activities. A monitoring program will be established to track streambank erosion. Cost-effective measures will be implemented.	
Estimated Cost:	Low for monitoring program, TBD for potential mitigation measures.	
Potential Funding Sources:	HMGP, FMA (for activities benefiting NFIP-insured structures), BRIC, municipal funds	
Implementation Timeline:	6 months for monitoring program, 5 years for additional actions	
Goals Met:	2, 6	
Benefits:	Reduction in streambank erosion, protection of critical sewer line	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	The sewer line is critical infrastructure that will be protected.	
Impact on Capabilities:	The streambank erosion monitoring program will establish a new capability.	
Climate Change Considerations:	Climate change is likely to result in stronger storm and flood events that will result in additional erosion. This action will reduce streambank erosion risk.	
Mitigation Category:	Property Protection, Natural Resource Protection, Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Relocate sewer line	Sewer line cannot be relocated.
	Install bulkheading	Bulkheading may be undercut and increase erosional rates. Full study is needed.

2025-Essex Fells-02: Water System Protections

Lead Agency:	Water Department	
Supporting Agencies:	OEM	
Hazard(s) of Concern:	Drought	
Description of the Problem:	The Borough has 16 wells and supplies water to 3-4 other towns in the area. The Borough has completed a $9,000,000 treatment facility. Better security is needed to protect the water supply, especially during a drought event.	
Description of the Solution:	The Borough will install security cameras and fencing at the Borough's wells.	
Estimated Cost:	Medium	
Potential Funding Sources:	Municipal funds	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6	
Benefits:	This action will protect the Borough's water supply and the water supply of neighboring communities.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will protect critical water infrastructure from tampering.	
Impact on Capabilities:	This action will protect the Borough's water distribution capabilities.	
Climate Change Considerations:	Climate change is likely to result in an increase in drought events that strain water resources. This action will protect critical water infrastructure.	
Mitigation Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Hire security officers to guard locations	Costly
	Put wells inside security structures	Costly

2025-Essex Fells-03: Fells Manor Storm Basin Upsizing

Lead Agency:	Fire Department	
Supporting Agencies:	OEM	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Flood	
Description of the Problem:	Recent storm events have resulted in severe rainfall which have overwhelmed a storm basin on Fells Manor. When the basin overflows, stormwater runs downhill to a major roadway. This can cause flooding. It is assumed that the basin may be undersized.	
Description of the Solution:	The Borough Engineer will complete an engineering survey of the Fells Manor storm basin determine the proper size necessary to provide stormwater capacity. The Borough DPW will complete the necessary upsizing for the storm basin.	
Estimated Cost:	Medium	
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2	
Benefits:	Overall flooding will be reduced, which will result in less frequency of road closures and reduced damage occurring to culverts and roadways during severe events. Businesses are likely to remain in place if they are able to remain open, or re-open sooner following a flood.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Neighboring roadways are less likely to flood and will remain open. Access to health and medical facilities will be maintained, both for healthcare workers and the population who requires treatment for injuries and illness.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in more frequent and severe rainfall events. This action upsizes culvert sizes to meet changing stormwater needs as the result of climate change.	
Mitigation Category:	Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Remove storm basin	Storm basin cannot be removed as it will increase flooding
	Raingardens	Raingardens are unlikely to be able to absorb enough stormwater to prevent flooding during severe rainfall events.

2025-Essex Fells-04: Fire Department Website

Lead Agency:	Fire Department	
Supporting Agencies:	OEM	
Hazard(s) of Concern:	Wildfire	
Description of the Problem:	The Fire Department lacks a website that can be used for public outreach and recruitment of additional staff.	
Description of the Solution:	The Fire Department will develop a new website that includes education and outreach materials. The website will also be used to recruit new staff.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	1 year	
Goals Met:	3, 4	
Benefits:	This action will better educate the public to reduce the risk of wildfire and increase enrollment of new staff.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will support the Borough's firefighting lifelines.	
Impact on Capabilities:	This action will increase the Borough's education and outreach capabilities. Increased recruitment of staff will increase the Borough's wildfire fighting capabilities.	
Climate Change Considerations:	Climate change is likely to increase drought and extreme heat events that could contribute to more frequent and severe wildfire events.	
Mitigation Category:	Public Education and Awareness, Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Increase fire outreach in existing avenues	While outreach would increase, it may not be seen as the most reliable source as it is not coming from the Fire Department.
	Explore increasing mutual aid from neighboring towns for firefighting services	This would strain the resources for other towns and increase response times.

2025-Essex Fells-05: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	OEM, Building Department, Public Works, Administration
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Essex Fells-06: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Essex Fells-06: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has one repetitive loss property, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Borough will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

7.6 Jurisdictional Hazard Mitigation Team

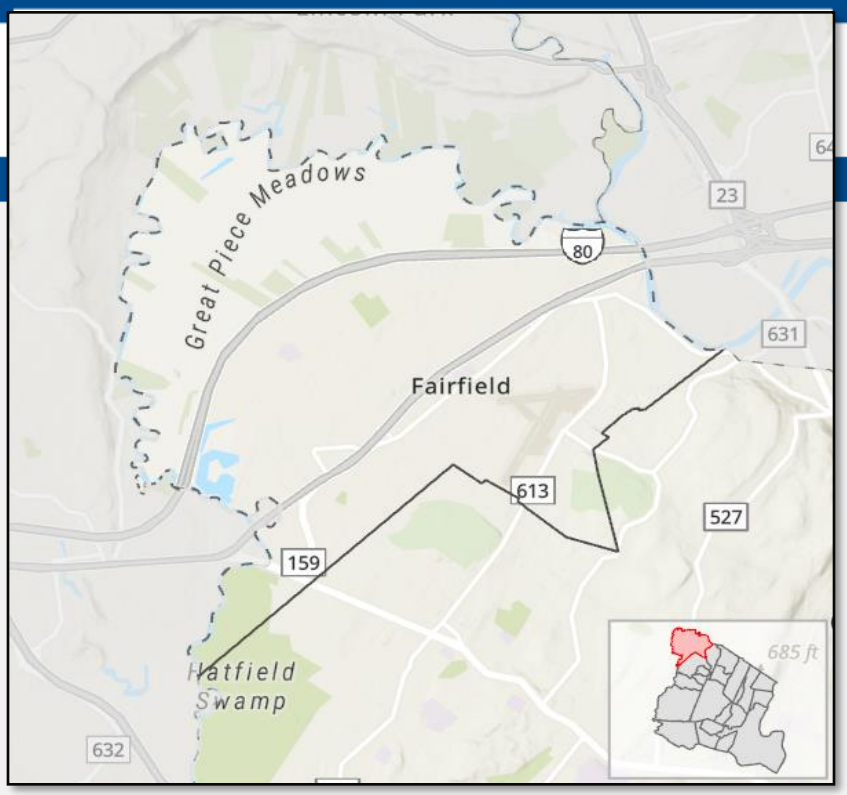
Table 7-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Jim Egan, OEM Director	Name and Title:	Captain Paulo Gomes, Deputy Coordinator/Essex Fells Police
Address:	255 Roseland Avenue, Essex Fells, NJ 07021	Address:	255 Roseland Avenue, Essex Fells, NJ 07021
Phone Number:	973-518-3011	Phone Number:	973-202-9314
Email:	jimegan103@gmail.com	Email:	pgomes@essexfellspd.org
NFIP Floodplain Administrator			
Name and Title:	Mike Petry, Engineer		
Address:	255 Roseland Avenue, Essex Fells, NJ 07021		
Phone Number:	973-303-8873		
Email:	mikepetry@petryengineering.com		

Table 7-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Jim Egan, OEM Coordinator	Attended annex support meeting, contributed to mitigation strategy, reviewed draft annex
Greg James Deputy OEM Coordinator	Attended annex support meeting, contributed to mitigation strategy

Township of Fairfield



POPULATION STATISTICS

7,712
TOTAL POPULATION (2023 ACS)

0.03%
Change in population since 2010 Census

3,003
TOTAL HOUSEHOLDS

AT RISK POPULATION

2,397
Population Over 65

467
Population Under 5

1,152
Living With Disability

42
Households Without Vehicle

541
People Renting Homes

POVERTY AND LANGUAGE

350
Households Below Poverty Level

565
Population With English as 2nd Language

POPULATION AND BUSINESSES

28,278
Daytime Population

2,008
Total Businesses

3,506
Total Employees

FLOOD VULNERABILITY

4,221
Number of People in 1% SFHA

1766
Number of Buildings in 1% SFHA

15
Community Lifelines in 1% SFHA

8 Township of Fairfield

8.1 Jurisdictional Profile

The Township of Fairfield is located in the extreme northwestern portion of Essex County in northern New Jersey. It is bordered by the Borough of Lincoln Park to the north, the Township of Wayne to the east, the Borough of North Caldwell and the Townships of West Caldwell and East Hanover to the south, and the Township of Montville to the west (FEMA 2020).

The Passaic River forms most of the Township's northern boundary and flows primarily from west to east. At Two Bridges there is a confluence with the Pompton River. The river continues to flow directly east thru portions of Wayne and into Little Falls (Township of Fairfield 2023).

Fairfield Township is a Mayor-Council form of government under the New Jersey Faulkner Act (Small Municipality Plan "C"). The Mayor exercises executive power of the municipality, appoints department heads with Council approval, prepares the annual budget, and has a vote, but no veto. The Council exercises the legislative power of the municipality and approves the appointment of department heads (Township of Fairfield 2025).

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

8.2 Jurisdictional Risk Assessment

The following sections assess the Township of Fairfield's risk to the hazards of concern identified for the 2025 HMP update.

8.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Fairfield's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 8-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Although the County was impacted, the municipality did not report significant local impacts.
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage	Although the County was impacted, the municipality did not report significant local impacts.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Although the County was impacted, the municipality did not report significant local impacts.
December 18-24, 2023	Flooding	Extremely heavy rainfall associated with a strong coastal storm overspread northeast New Jersey during the evening of December 19th and continued through the early morning hours of September 20th. Rainfall totals ranged from 3-5" inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Local State of Emergency Declared, township experienced approximately $150,000 in coast associated with this event
January 8-11, 2024	Flooding	Extremely heavy rainfall associated with Winter Storm Finn overspread northeast New Jersey during the evening of January 9th and continued through the early morning hours of January 10th. Rainfall totals ranged from 4-6+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Local State of Emergency Declared, township experienced approximately $150,000 in cost associated with this event

Source: FEMA 2024; NOAA NCEI 2025

8.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

Portions of Fairfield are impacted with flooding problems. The risk flooding changes with each event, at various times the river has caused flooding which varies within the same neighborhood. When the Township experiences a flood event every resident's is affected in one way or another since bridges roads and may be closed and power failures and service interruptions may occur (Township of Fairfield 2023).

At-risk properties in the Township of Fairfield are shown on FEMA flood mapping, and the mapping adequately addresses flood risk for the Township.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Fairfield.

Table 8-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
1,045	$1,412,900	$348,231,000	2,127	$70,863,699	274	105

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Zero structures in the Township have been declared substantially damaged in prior flood events.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 8-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Essex County Airport	Transportation	X
Fairfield Delta Gas Station	Energy	X
Ralstons Sunoco Gas Station-Fairfield	Energy	X
Valero Gas Station-Fairfield	Energy	X
Fairfield Volunteer Fire Department Station 2	Safety and Security	X
Medicare Of Fairfield	Health and Medical	X
Fairfield Sewer Pump Station	Water Systems	X
Fairfield Sewer Pump Station	Water Systems	X
Fairfield Sewer Pump Station	Water Systems	X
Fairfield Sewer Pump Station	Water Systems	X
Adlai E. Stevenson Elementary School	Safety and Security	X
Banyan School	Safety and Security	X
Glenview Academy	Safety and Security	X
The Gramon School	Safety and Security	X
The Gramon School Fairfield	Safety and Security	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

8.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Fairfield, including major residential/commercial/industrial development and major infrastructure development.

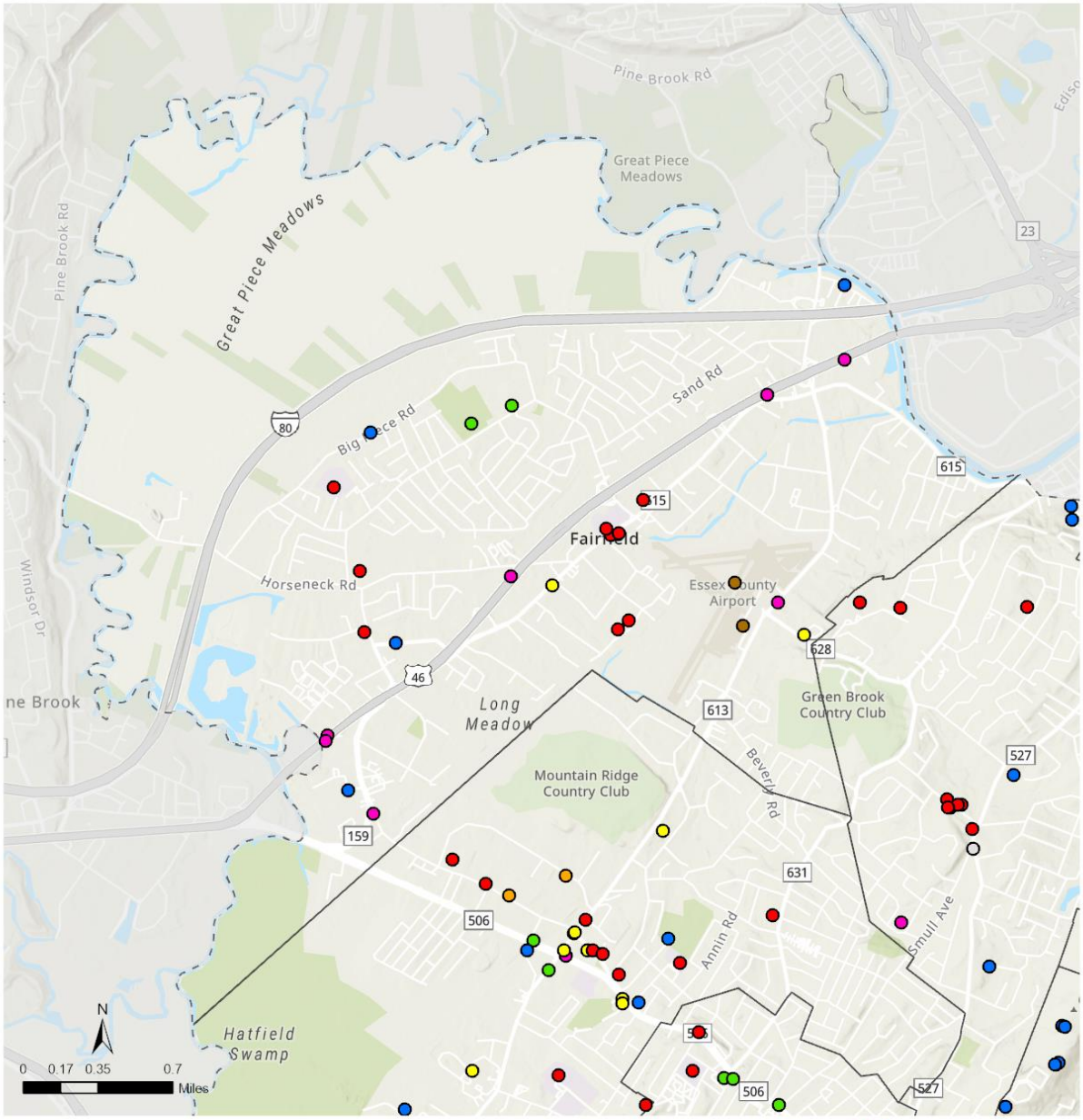
Table 8-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
Fairkings	Residential	99	1 Murray Court	Airport Overlay Zone	Complete 2020
Kingsbridge #1	Residential	36	264 Passaic Ave	Airport Overlay Zone	Complete 2021
Kingsbridge#2	Residential	39	6 Kingsbridge Rd	Airport Overlay Zone	Complete 2024
FOH Fairfield	Residential	25	129 Fairfield Road	Floodplain	Under Construction
170 Fairfield Road	Residential	28	170 Fairfield Road	Airport Overlay Zone	Complete 2023
Kingsbridge #3	Residential	39	8 Fairfield Road	Airport Overlay Zone	Under Construction

8.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Fairfield that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 8-1. Township of Fairfield Community Lifelines

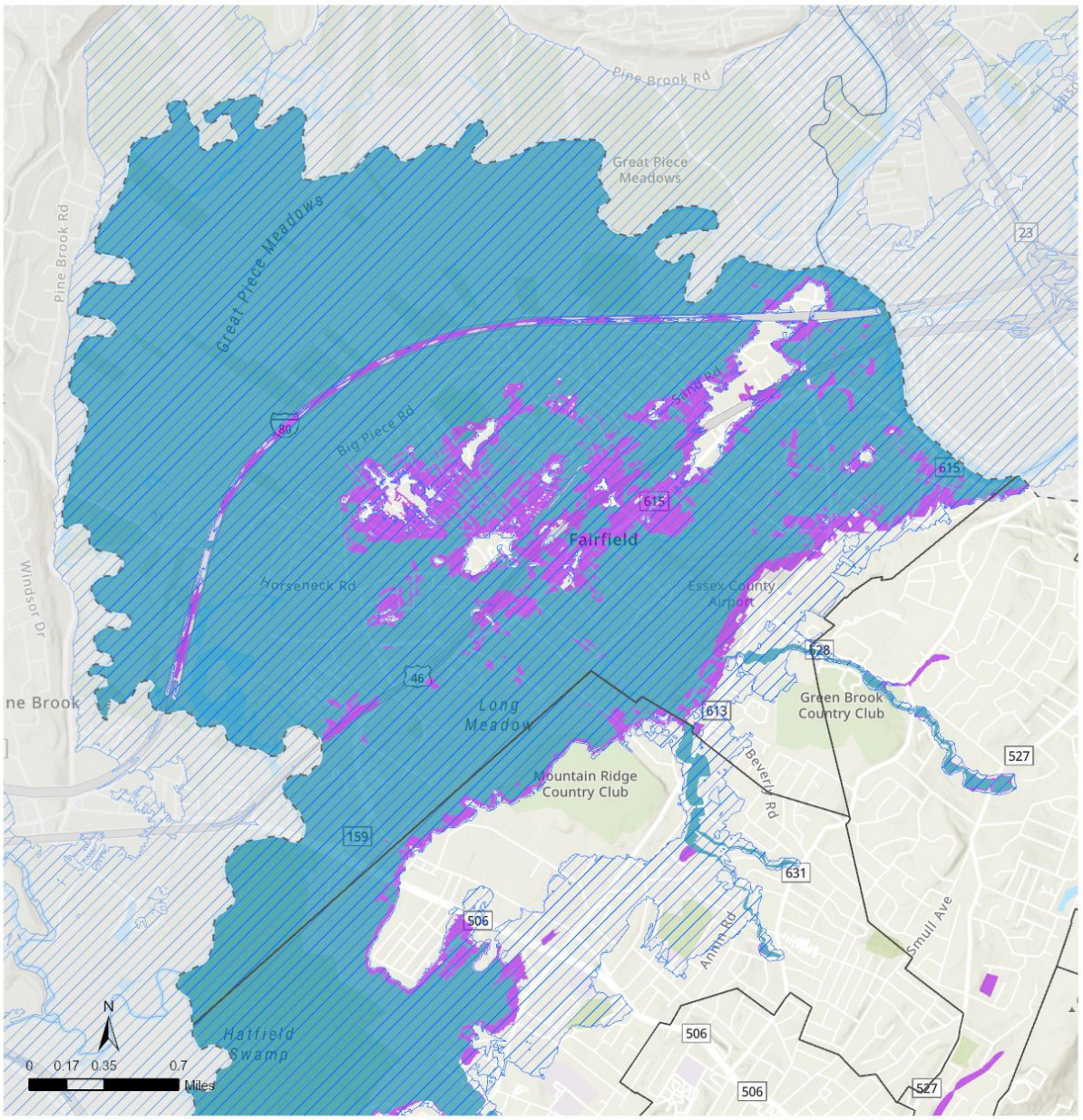


Fairfield Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 8-2. Township of Fairfield Flood-Related Hazards

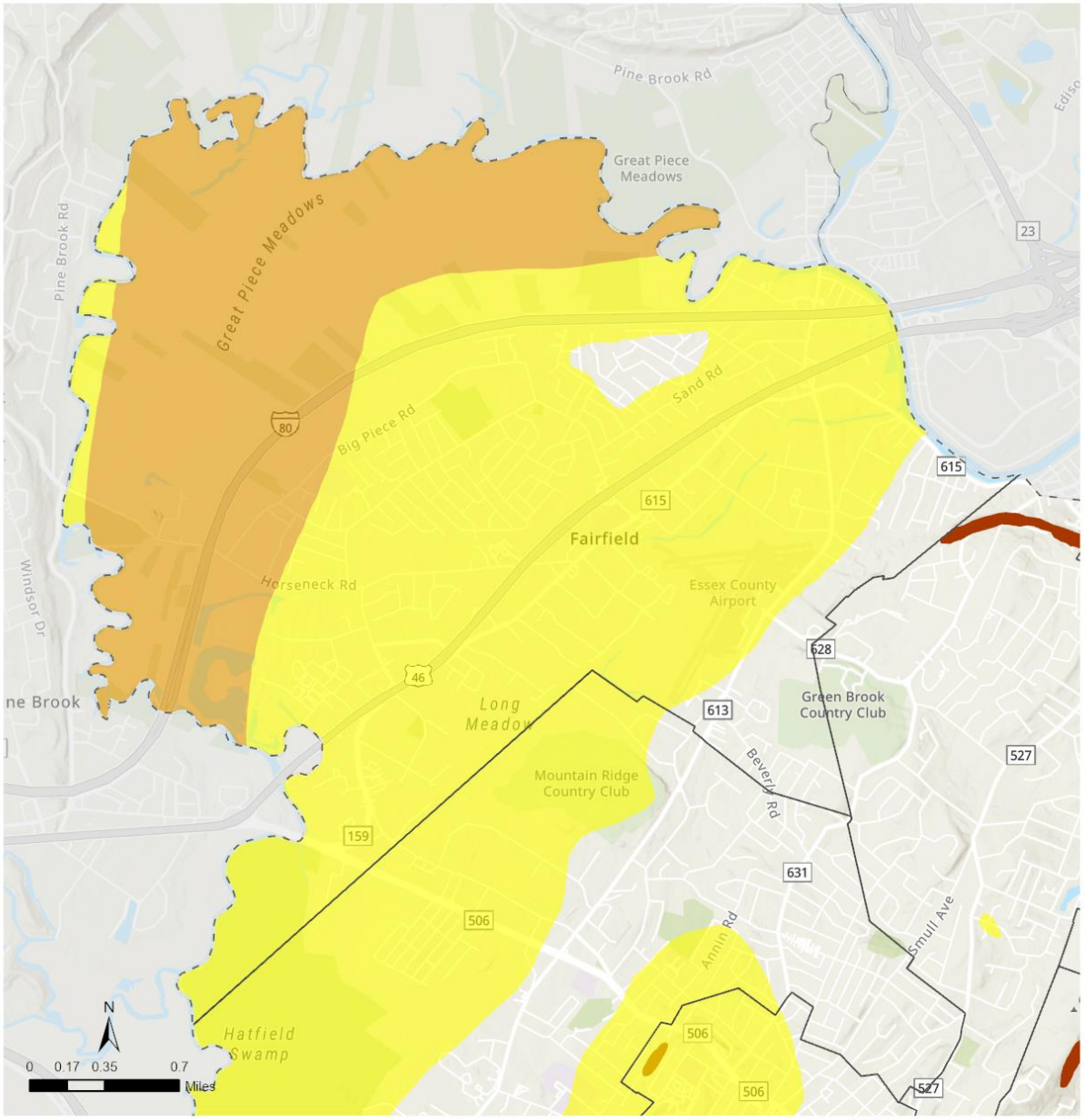


Fairfield Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 8-3. Township of Fairfield Geological Hazards



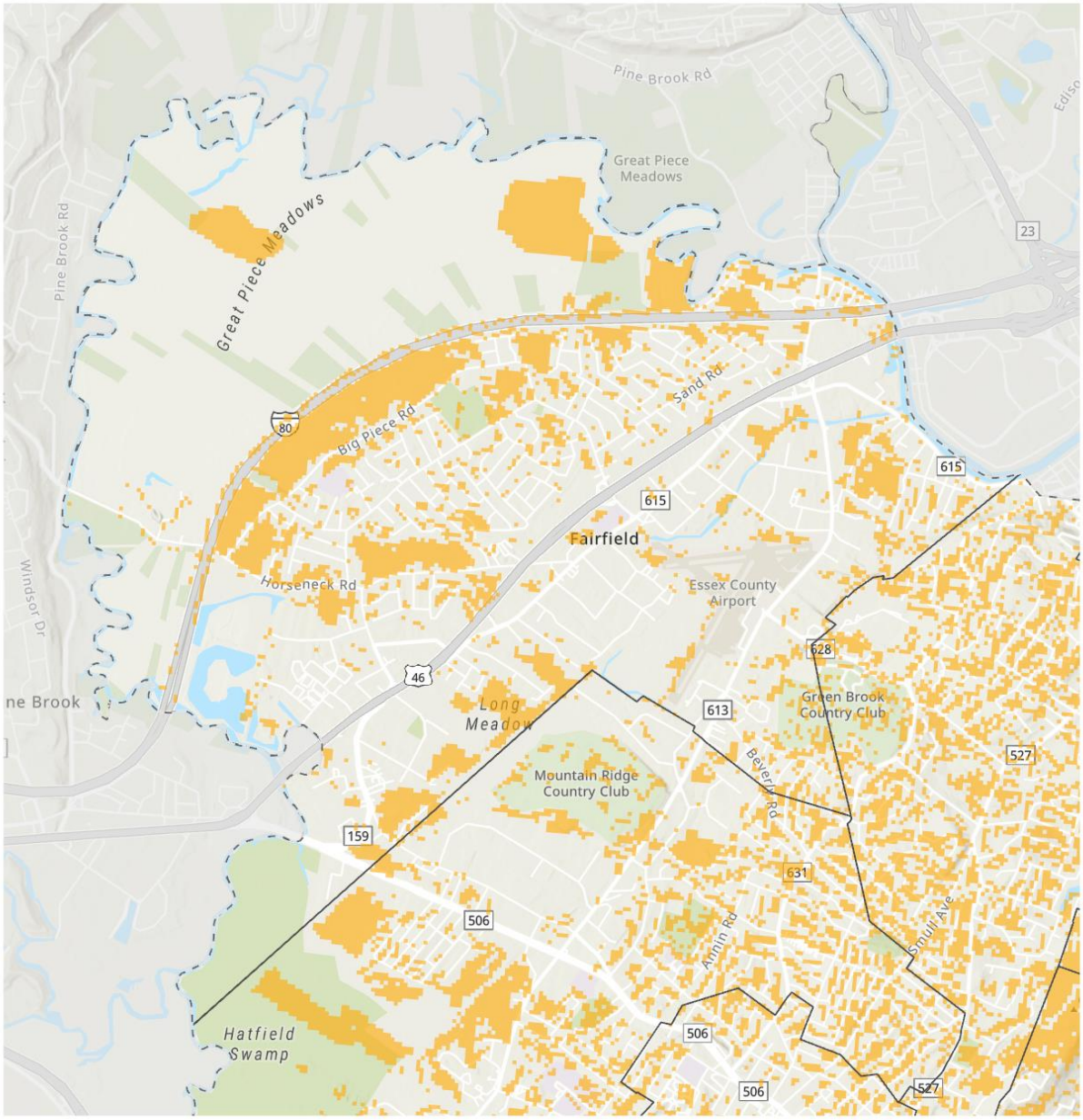
Fairfield Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 8-4. Township of Fairfield Wildfire Hazard



Fairfield Township: Wildfire Hazard Potential

N

0 0.17 0.35 0.7 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

8.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of Fairfield, climate change is likely to have the following impacts:

- Increase in precipitation is leading to impacts on the Township's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Township.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Township and will require new construction and redevelopment to elevate to the New Jersey Design Flood Elevation (DFE) (Rutgers University 2025).

8.2.5 Risk Assessment Summary

- The Township experiences stormwater and flash flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township, which leads to flooded structures, closed roadways, and disruption in continuity of operations.
- Numerous pump stations are located in the 1-percent floodplain and experience flood-related damages and impacts.
- Floodprone properties throughout the Township are in need of mitigation, either through elevation or acquisition.

8.3 Jurisdictional Capability Assessment

The Township of Fairfield performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume 1, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

8.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of Fairfield.

Table 8-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan	Planning Board
Impact on Risk Reduction: Master Plan Reexaminations in 2005, 2012 and 2022. The reexamination reports both had goals of ensuring that traffic circulation and safety issues are affirmatively addressed on a local and regional scale. The reexamination also highlights flood risk in the Passaic River Basin as a major concern and suggests larger lots/impervious surface limits and creating a flood overly district as possible methods to minimize flood risk. The plan notes potential methods of impervious area management. The plan suggests the creation of a flood hazard mitigation plan. The plan suggests the township consider implementation of a Low Impact Development Ordinance.			
Capital Improvement Plan	No	-	-
Impact on Risk Reduction:			
Stormwater Management Plan	Yes	Fairfield MSWP, Aug 22, 2024	Engineering
Impact on Risk Reduction: The Township's plan identifies several strategies in reducing flood risk as it relates to stormwater. This includes improving stormwater infrastructure, implementing runoff control measures, protecting and restoring floodplains, and community education and outreach programs.			
Stormwater Pollution Prevention Plan	Yes	Fairfield SPPP, October 15, 2023	Engineering
Impact on Risk Reduction: The plan reduces risk by implementing public education and outreach regarding stormwater, identifies unauthorized discharges into the stormwater systems, requires new development to have proper stormwater management systems in place to prevent flooding, and implements community-wide practices to manage stormwater and reduce flood risk.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Open Space and Recreation Plan Element, July 26, 2000	Planning Board
Impact on Risk Reduction: Master Plan Reexaminations in 2005, 2012 and 2022. The reexamination reports both had goals of ensuring that traffic circulation and safety issues are affirmatively addressed on a local and regional scale. The reexamination also highlights flood risk in the Passaic River Basin as a major concern and suggests larger lots/impervious surface limits and creating a flood overly district as possible methods to minimize flood risk. The plan notes potential methods of impervious area management. The plan suggests the creation of a flood hazard mitigation plan. The plan suggests the township consider implementation of a Low Impact Development Ordinance.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Fairfield to prepare for, respond to, and recover from hazard events.

Table 8-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to disaster events. The Plan is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of Fairfield.

Table 8-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 10 Building and Housing	Building Department
Impact on Risk Reduction: There is hereby established in the Township of Fairfield a State Uniform Construction Code Enforcing Agency entitled "Building Department," consisting of a Construction Official, Building, Electrical, Fire Protection and Plumbing Subcode Officials and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency.			
Zoning or Land Use Regulations	Yes	Chapter 45 Zoning	Zoning Officer
Impact on Risk Reduction: The provisions of this chapter shall be held to be minimum requirements adopted for the promotion of public health, safety, morals, and general welfare. Among other purposes, the provisions of this chapter are intended to provide for adequate light, air and convenience of access; to lessen congestion in the streets; to secure safety from fire and other dangers; to avoid undue concentration of population and to prevent the overcrowding of land or buildings by regulating			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
and limiting the location, use and extent of use of buildings and of land and the height, number of stories and bulk of buildings wherever erected; to limit and determine the size of yards, courts and other open spaces; to regulate the density of population; and to conserve the value of property and encourage the most appropriate use of land throughout the Township of Fairfield.			
Subdivision Regulations	Yes	Chapter 42 Land Subdivision	Planning Board
Impact on Risk Reduction: The purpose of this chapter shall be to provide rules, regulations and standards to guide land subdivision and site development in the Township in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.			
Site Plan Regulations	Yes	Chapter 42 Land Subdivision	Planning Board
Impact on Risk Reduction: Chapter 42 requires subdivision plats and site plans to be submitted for review by the Planning Board.			
Stormwater Regulations	Yes	Chapter 21 Streams, Water Courses, Catch Basins, Street Stormwater Sewer Inlet and Drainage Ditches;	Building & Zoning
Impact on Risk Reduction: Chapter 21 sets requirements and restrictions on illicit connections, improper disposal of waste, fertilizer application, private storm drain inlet retrofitting, salt storage, and permits to protect the stormwater system from damage and prevent stormwater quality issues.			
Floodplain Regulations	Yes	Chapter 23 Flood Management Regulations	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: 1. Protect human life and health. 2. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. 3. Manage the alteration of natural floodplains, stream channels and shorelines; 4. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. 5. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. 6. Contribute to improved construction techniques in the floodplain. 7. Minimize damage to public and private facilities and utilities. 8. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. 9. Minimize the need for rescue and relief efforts associated with flooding. 10. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. 11. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. 12. Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	yes	Chapter 22 Protection of Trees; Chapter 44 Environmental Impact Statement	Township Engineer; Planning Board, Board of Adjustment, Environmental Commission
Impact on Risk Reduction: Chapter 22 sets requirements for the removal of trees. The Township finds that the unregulated and uncontrolled destruction and removal of trees upon lots and tracts of lands within the Township has resulted in increased soil erosion;			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
has decreased the fertility of the soil; has created dust and mosquito-breeding places; and has caused depreciation in property values and impaired the stability and value of real estate, with the result that there has been and will be, in the future, a detriment to the public health and welfare which requires the passage of this section. Chapter 44 requires an Environmental Impact Statement to permit the Fairfield Township Planning Board, Board of Adjustment and Environmental Commission to assess the impact of a proposed project upon the environment, particularly with respect to land, water, air, solid wastes, aquatic and terrestrial wildlife, social and economic life, and aesthetics.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

8.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Fairfield's departments, boards, and committees that contribute to risk reduction.

Table 8-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Fairfield Township Planning Board serves two primary functions: • To make a master plan of growth and development, natural resources, transportation, housing, etc. identifying specific geographic zones and delineating the permitted types of development in each zone consistent with New Jersey State statutes. This includes drafting, holding hearings, and making recommendations to the Township Council on the adoption of Zoning Ordinances • The Planning Board hears development applications for permitted uses and makes recommendations regarding the applications to ensure both state law and community standards are met. The purpose of the Zoning Board of Adjustment is to allow special exceptions to the Zoning Ordinance. These exceptions are allowed where the literal enforcement of the provisions of the Zoning Ordinance does not permit any reasonable use of the property.
Planning Department	-
Public Works / Highway Department	The Public Works Department consists of three departments (Roads, Fleet, and Water & Sewer). Responsibilities include: • Assisting other Township Departments as needed. • Collecting and disposing of leaves every fall. • Conducting a catch basin cleaning program that includes annually inspecting and cleaning catch basins, as needed. • Conducting a curb repairs Spring through the Summer. • Conducting a street sweeping program from April through October. • Conducting a year-round road and pothole repair program. • Plowing all Township roads including cleaning snow from public-owned sidewalks and municipal facilities. • Hydrant maintenance, service connections, meter readings, water sampling • Water main repairs

Department / Board / Committee	*Description and Role in Risk Reduction*
	• Maintenance of sanitary sewers and lift stations Maintaining all Township owned vehicles and equipment
Construction / Building / Code Enforcement Department	The Building Departments missions are: • To encourage innovation and economy in construction and to provide requirements for construction and construction materials consistent with nationally recognized standards. • To permit to the fullest extent feasible to use of modem technical methods, devices, and improvements, including premanufactured systems, consistent with reasonable requirements for the health, safety, and welfare of occupants or users of buildings and structures. To eliminate restrictive, obsolete, conflicting, and unnecessary construction regulations that tend to unnecessarily increase construction costs or retard the use of new materials, products, or methods of construction, or provide preferential treatment to types or classes of materials or products or methods of construction.
Engineering Department	The Fairfield Engineering Department has several responsibilities including: • Planning, design, implementation, and inspection of various public works projects, i.e., road improvements, water and sewer improvements and drainage improvements. • Receives, reviews, and processes Planning Board and Board of Adjustment applications. • Issue permits for sidewalk repairs, curb repairs, grading permits, driveway expansions, tree removal, and road openings. Administers the Township's recycling program.
Parks and Recreation Department	The Recreation Department oversees the wide variety of parks from small neighborhood parks to large multi-use parks.
Open Space Board / Committee	-
Environmental Board / Commission	Environmental Commission
Emergency Management / Public Safety Department	The Office of Emergency Management is responsible for response to hazard events and the update of the Emergency Operations Plan.
Fire Department	The mission of the Fairfield Fire Prevention Bureau is to preserve and enhance the quality of life for the citizens and visitors within the Township of Fairfield, through the application of comprehensive fire and hazard prevention programs. We strive to raise public awareness of fire safety considerations, through various educational programs offered to both our residential and commercial communities. In addition, we provide comprehensive inspection programs that identify and eliminate fire hazards and investigate reported fires or explosions occurring within the township that involve the loss of life or serious injury or cause destruction or damage to property.
Additional departments, boards, and committees	-

The table below summarizes the Township of Fairfield's staff with skills and expertise that contribute to risk reduction.

Table 8-9. Technical/Staffing Capabilities

Staff	*Description and Role in Risk Reduction*
Planner	Engineering Department
Engineer	Engineering Department
Stormwater Officer	-
Resilience / Sustainability Officer	-
Grant Writer	Present in Engineering Department and Fire Department.
Staff with benefit / cost analysis expertise	-
Staff trained in conducting substantial damage determinations	-
Staff trained in GIS	Engineering Department
Staff that provide support to socially vulnerable populations	-
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the Township of Fairfield.

Table 8-10. Development and Permitting Capabilities

Development and Permitting Procedure	*Comment*
What department or outside agency is responsible for issuing development permits?	Engineering Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain and Airport Hazard Overlay Zones
How does your jurisdiction inventory land available for new development?	Estimated from tax map and zoning map
What percentage of your jurisdiction is available for new development?	10%

8.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Fairfield.

Table 8-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	The Township has applied for and received pre-disaster funding for structural elevations/acquisitions and generators.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has applied for and received pre-disaster funding for structural elevations/acquisitions and generators.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	-
Capital improvements funding	Yes	-
Open space acquisition programs		Essex County Recreation and Open Space Trust Fund: The Trust Fund can be used for: • Acquisition of lands for recreation and conservation purposes. Development of lands acquired for recreation and conservation purposes.

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
		• Maintenance of lands acquired for recreation and conservation purposes. • Acquisition of farmland for farmland preservation purposes. • Historic preservation of historic properties, structures, facilities, sites, areas or objects, and the acquisition of such properties, structures, facilities, sites, areas, or objects for historic preservation purposes.
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Granted by local Sewer and Water Ordinance
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	-
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	Yes	Emergency Response Cost Recovery: The County may recover all costs reasonably incurred by the County, its employees, agents and contractors in connection with an emergency response action, including the overtime costs of appropriately deployed emergency response personnel, costs incurred by the County in the recovery of these costs, and the costs of expendable items.

8.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Fairfield.

Table 8-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Nixle, Notify Me®
Public Information Officer	-
Website	The Township website (https://www.fairfieldnj.org/) has information on stormwater management, winter safety, fire safety, and flood protection information
Social media	YouTube
Public safety campaigns	-
Newsletters	-
Hazard education programs for schools	-
Outreach to socially vulnerable populations	-
Other outreach capabilities	-

8.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Fairfield.

Table 8-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Fairfield's Floodplain Administrator is a licensed professional engineer and certified floodplain manager.
What local department is responsible for floodplain management?	Engineering Department
Are any staff certified floodplain managers (CFMs)?	Yes
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Records are maintained of substantially damaged properties.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	Yes
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	29
How many properties have been mitigated (elevation or acquisition)?	7 homes elevated in 2024
Summarize the jurisdiction's Substantial Damage determination procedures.	The Floodplain Manager evaluates the value of necessary repairs compared to the current value of the structure. Determinations are made following FEMA procedures and the Township Floodplain Ordinance.
Summarize the jurisdiction's Substantial Improvement procedures.	The Floodplain Manager evaluates the value of the proposed improvements compared to the current value of the structure. Determinations are made following FEMA procedures and the Township Floodplain Ordinance.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

8.3.6 Community Classifications

Table 8-14 summarizes the Township of Fairfield's participation in community classification programs.

Table 8-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	Class 6	10/15/2019
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-

Program	Participation Status / Classification	Date Classified
Sustainable Jersey Municipal Certification	Participating by not certified	N/A
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): FEMA 2024a; NWS n.d.; NFPA 2024; Sustainable Jersey 2024

8.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Fairfield has in place and will use to prepare for changes in risk due to climate change.

Table 8-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Increased river levels during times of longer precipitation
What information does the jurisdiction use to understand potential climate change impacts?	Monitor River levels of the Passaic River. Understanding areas affected by moderate to major flooding and seeing how this effects new areas.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Continue to monitor changes in flood patterns.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Our OEM, and township engineers.
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Using mitigation grant programs.
How does the jurisdiction educate the public on potential climate change impacts?	Social media and community meetings

8.3.8 Capability Assessment Summary

The Township of Fairfield's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Fairfield determined the following hazard capability effectiveness ratings.

Table 8-16. Township of Fairfield Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

8.3.9 Opportunities to Improve Capabilities and Integration

- The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations.
- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.

8.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Fairfield were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Fairfield reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the remainder of the calculated hazard rankings.

Table 8-17. Township of Fairfield Hazard Rankings

Hazard	Hazard Ranking
Disease Outbreak	Medium
Drought	Medium
Earthquake	Medium
Extreme Temp	High
Flood	High
Geologic (Landslide)	Low

Hazard	*Hazard Ranking*
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Medium

8.5 Jurisdictional Mitigation Strategy

8.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 8-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Fairfield-001	**Buyout properties located on Camp Lane, Riveredge Dr, Horseneck Rd, and Park Ave:** Buyout properties located on Camp Lane, Riveredge Dr, Horseneck Rd, and Park Ave	Engineering Department	In Progress	Yes – include in the 2025 HMP	Properties are bought out when funding is available
2020-Fairfield-002	**Establish a community resilience committee/ advisor:** The Township will establish a community resilience committee/ advisor.	Township	No Progress	No – due to staffing and budgets, cannot be achieved at this time	-
2020-Fairfield-003	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to flood-prone property owners, including RL/SRL property owners, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding (high risk areas).	Floodplain Administration	Ongoing Capability	Yes – include in the 2025 HMP	16 RL/SRL properties are in the process of being elevated through a grant from the DCA. As a participant in the Community Rating System, the Township send outreach to the owners of repetitive loss properties every year.
2020-Fairfield-004	**Power line mitigation:** Conduct study to determine if specific areas have more occurrences of downed power	Engineering	No Progress	No – due to staffing and budgets, cannot be achieved at this time	-

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
	lines than others, and work to bury power lines or focus tree trimming program on these areas.				
2020-Fairfield-005	**Winter storm response improvements:** Purchase new equipment and determine if hiring additional staff is possible. Enact mutual aid agreements with surrounding communities for winter storm cleanup.	DPW	Ongoing Capability	No – part of the Township's annual budget and equipment is purchased accordingly	-
2020-Fairfield-006	**Drainage study for Horseneck Road, Two Bridges Road, and Camp Lane:** Conduct a drainage study to determine if flooding is primarily caused by stormwater runoff or riverine cresting. Implement drainage solutions, including drainage basins and increased sewer capacity to carry excess stormwater away from these locations.	Engineering	No Progress	No - Camp Lane flooding is due to regional flooding form the Passaic River. Horsenck Rd and Two Bridges are the purview of the Essex County DPW.	-
2020-Fairfield-007	**Drainage study for flash flooding prone roadways:** Conduct a drainage study to determine the cause of stormwater flooding. Implement drainage solutions, including drainage basins and increased sewer capacity to carry excess stormwater away from these locations. Additional options may be to perform frequent	Engineering	Ongoing Capability	Yes – include in the 2025 HMP	Drainage investigations and mitigations are completed on a as-needed and ongoing process by the Engineering Department.

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
	maintenance on the surrounding sewer systems to ensure they are functioning properly and free of debris and blockages.				
2020-Fairfield-008	**Conduct outreach to Essex County Airport:** Educate property owners on flood risk and options for mitigation. Work with owners to develop applications for grant funding to help them obtain funding for mitigation measures.	Floodplain Administrator, property owner	No Progress	No - Flood mitigation at the Essex County Airport is the purview of the ECIA.	-
2020-Fairfield-009	**Flood study and mitigation of Volunteer Fire Department Station 2:** Conduct a study to determine if Volunteer Fire Department Station 2 is protected against impacts from flooding. If determined to be vulnerable, floodproof the structure to ensure the pump remains functional during an event.	Engineering	No Progress	No - Outreach is performed in conjunction with CRS requirements.	Floodproofing of the structure will be evaluated when/if the firehouse is reconstructed.
2020-Fairfield-010	**Conduct outreach to Medicare of Fairfield:** Educate property owners on flood risk and options for mitigation. Work with owners to develop applications for grant funding to help them obtain funding for mitigation measures.	Floodplain Administrator, property owner	No Progress	No - Outreach is performed in conjunction with CRS requirements.	-
2020-Fairfield-011	**Flood study and mitigation of pump stations:** Conduct a study to determine	Engineering	Ongoing Capability	Yes – include in the 2025 HMP	Upgrades to increase resilience and reliability of

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
	if pump stations are protected against impacts from flooding. If determined to be vulnerable, floodproof the structure to ensure the pump remains functional during an event.				the Township Pump Stations are completed as part of normal operations.
2020-Fairfield-012	**Conduct outreach to school boards:** The floodplain administrator will educate property owners on flood risk and options for mitigation. Work with owners to develop applications for grant funding to help them obtain funding for mitigation measures.	Floodplain Administrator, school boards	No Progress	No – part of the CRS program	-
2020-Fairfield-013	**Conduct outreach to flood prone gas stations:** The floodplain administrator will educate property owners on flood risk and options for mitigation. Work with owners to develop applications for grant funding to help them obtain funding for mitigation measures.	Floodplain Administrator, private property owners	No Progress	No - Gas stations are subject to regular inspections by NJDEP. Outreach would be redundant.	-

8.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Fairfield identified the following mitigation efforts completed since the last HMP:

- 16 RL/SRL properties are in the process of being elevated through a grant from the DCA (funded through FEMA FMA 2019 grant).
- Since 2005, 12 homes have been elevated through FEMA FMA and HMGP funding.
- Since 2011, 23 have been acquired through FEMA HMGP, RFC, SRL, and FMA funding.

8.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Fairfield identified the following issues that require mitigation.

- The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The Township experiences stormwater and flash flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township, which leads to flooded structures, closed roadways, and disruption in continuity of operations.
- Numerous pump stations are located in the 1-percent floodplain and experience flood-related damages and impacts.
- Floodprone properties throughout the Township are in need of mitigation, either through elevation or acquisition.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations.
- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.

8.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Fairfield's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 8-19. Township of Fairfield 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Fairfield Twp-01	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-Fairfield Twp-02	Drainage study for flash flooding prone roadways					X		X		
2025-Fairfield Twp-03	Flood study and mitigation of pump stations					X		X		
2025-Fairfield Twp-04	Floodprone Property Acquisitions					X		X		
2025-Fairfield Twp-05	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Fairfield Twp-06	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Fairfield Twp-07	Watershed Improvement Plan	X	X		X	X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 8-20. Township of Fairfield 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Fairfield Twp-01	Disaster Debris Management Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High
2025-Fairfield Twp-02	Drainage study for flash flooding prone roadways	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Fairfield Twp-03	Flood study and mitigation of pump stations	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Fairfield Twp-04	Floodprone Property Acquisitions	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High
2025-Fairfield Twp-05	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	0	1	1	1	1	1	1	0	0	11	High
2025-Fairfield Twp-06	Substantial Damage Response Plan	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-Fairfield Twp-07	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Fairfield Twp-01: Disaster Debris Management Plan

Lead Agency:	Township OEM and DPW	
Supporting Agencies:	Township Council	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 3, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

2025-Fairfield Twp-02: Drainage study for flash flooding prone roadways

Lead Agency:	Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Township experiences stormwater and flash flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township, which leads to flooded structures, closed roadways, and disruption in continuity of operations.
Description of the Solution:	Conduct a drainage study to determine the cause of stormwater and flash flooding. Implement drainage solutions, including drainage basins and increased sewer capacity to carry excess stormwater away from these locations. Additional options may be to perform frequent maintenance on the surrounding sewer systems to ensure they are functioning properly and free of debris and blockages.
Estimated Cost:	Staff time for study; $100,000+ for improvements
Potential Funding Sources:	Municipal budget, Capital Improvement Plan, FEMA HMGP and BRIC
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater flowing and increase capacity in the stormwater system, decreasing flooding.
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood
Impact on Future Development:	Any new development in this area will benefit from improvements
Impact on Critical Facilities/Lifelines:	Community lifelines in the area will benefit from the improvements
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	Current problem continues
Elevate all homes and roads	Costly; not feasible; flooding will still happen and cause damage
Above ground detention	No available space in the Township for this type of project

2025-Fairfield Twp-03: Flood study and mitigation of pump stations

Lead Agency:	Engineering	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Numerous pump stations are located in the 1-percent floodplain: Madison Road Sewer Pump Station, Riveredge Drive Sewer Pump Station, Big Piece Road Sewer Pump Station, Ray Place Sewer Pump Station. They all experience impacts from flooding. Mitigation measures are needed to protect each pump station.	
Description of the Solution:	Upgrades to increase resilience and reliability of the Township Pump Stations are completed as part of normal operations. However, additional measures are needed to provide protection to the pump stations. The Township will complete a study to determine if pump stations are protected to the 1-percent flood. If they are not, the structures will be floodproofed to ensure each station remains functional during an event.	
Estimated Cost:	$15,000/pump station	
Potential Funding Sources:	FEMA HMGP and BRIC, Municipal budget	
Implementation Timeline:	2 years	
Goals Met:		
Benefits:	Reduction in flood damage and exposure to pump stations; continuity of operations	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	The pump stations are community lifelines in the Township	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to these events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Relocate pump stations to areas outside of floodplain	Not feasible and land is not available to relocate
	Portable flood walls	Need to be deployed before each flood event; time consuming for setting up

2025-Fairfield Twp-04: Floodprone Property Acquisitions

Lead Agency:	Engineering Department	
Supporting Agencies:	Property Owners	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The areas of Camp Lane, Riveredge Dr, Horseneck Rd, and Park Ave are subject to frequent flooding which has caused significant damage to homes in these areas of the Township.	
Description of the Solution:	Working with the property owners in these areas of the Township, the Township will develop a FEMA grant application and BCA to apply for and obtain funding to acquire these properties. Once acquired, the Township will demolish the structures and restore the land to open space.	
Estimated Cost:	$400,000/property	
Potential Funding Sources:	FEMA FMA (for activities benefiting NFIP-insured structures) and HMGP, NJDEP Blue Acres	
Implementation Timeline:	5 years	
Goals Met:		
Benefits:	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	
Impact on Socially Vulnerable Populations:	If any of the homeowners are socially vulnerable, they will no longer be vulnerable to flood damages	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will eliminate damages to these structures.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate homes	Due to the frequency of flooding and damages to these homes, elevation is not appropriate
	Elevate roadways	Homes will still be vulnerable to flooding and damages

2025-Fairfield Twp-05: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administration	
Supporting Agencies:	Property Owners	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 274 repetitive loss properties and 105 severe repetitive loss property, but other properties may be impacted by flooding as well.	
Description of the Solution:	Currently, 16 RL/SRL properties are in the process of being elevated through a grant from the DCA. As a participant in the Community Rating System, the Township send outreach to the owners of repetitive loss properties every year. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).	
Estimated Cost:	Staff time for outreach; $1 million+ for mitigation measures	
Potential Funding Sources:	Outreach - municipal budget; Mitigation - FEMA FMA or HMGP, NJDEP Blue Acres	
Implementation Timeline:	3 to 5 years	
Goals Met:	1, 2, 4, 7	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Fairfield Twp-06: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Fairfield Twp-07: Watershed Improvement Plan

Lead Agency:	Township Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), FMA(for activities benefiting NFIP-insured structures), BRIC, HMGP, Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

8.6 Jurisdictional Hazard Mitigation Team

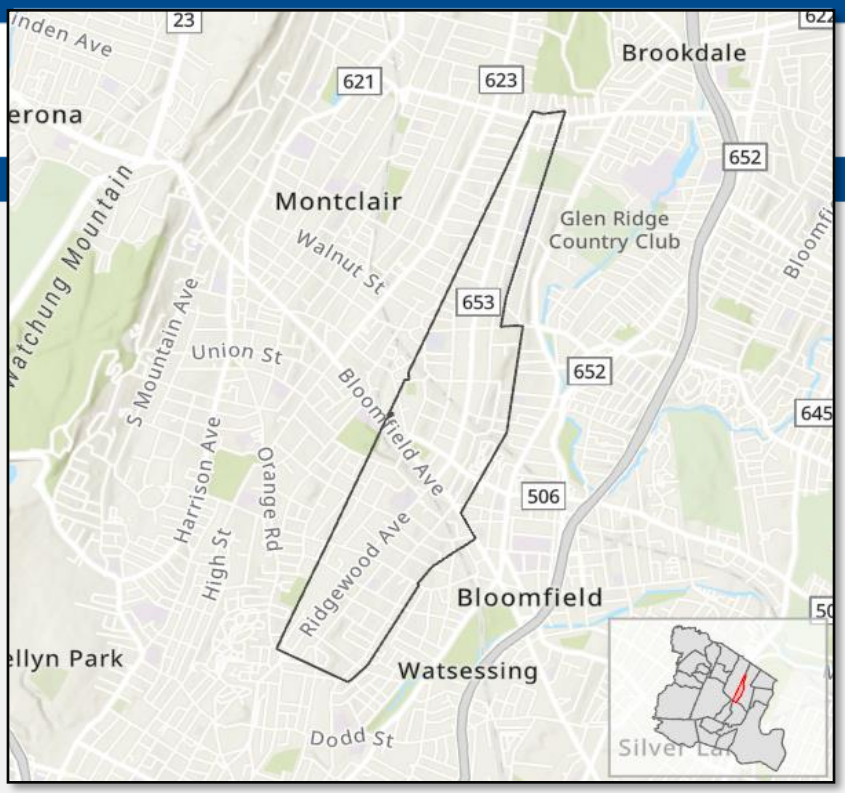
Table 8-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	RJ Casendino, Lieutenant/OEM Coordinator	Name and Title:	James Gasparini, Township Manager/Business Administrator
Address:	230 Fairfield Road Fairfield, NJ 07004	Address:	230 Fairfield Road Fairfield, NJ 07004
Phone Number:	973-227-1400	Phone Number:	973-227-1400
Email:	rcasendino@fairfieldnj.org	Email:	administration@fairfieldnj.org
NFIP Floodplain Administrator			
Name and Title:	Steve Bury, Engineer		
Address:	230 Fairfield Road Fairfield, NJ 07004		
Phone Number:	973-882-2700		
Email:	sbury@fairfieldnj.org		

Table 8-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Steve Bury, Engineer	Provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
RJ Casendino, Lieutenant/OEM Coordinator	Served as the primary point of contact for the Township's annex and participated on the Essex County HMP Planning Partnership; attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
James Gasparini, Township Manager/Business Administrator	Served as the alternate point of contact for the Township's annex

Borough of Glen Ridge



POPULATION STATISTICS

7,827
TOTAL POPULATION (2023 ACS)

0.04%
Change in population since 2010 Census

2,488
TOTAL HOUSEHOLDS

AT RISK POPULATION

1,050
Population Over 65

419
Population Under 5

389
Living With Disability

44
Households Without Vehicle

116
People Renting Homes

POVERTY AND LANGUAGE

74
Households Below Poverty Level

282
Population With English as 2nd Language

POPULATION AND BUSINESSES

5,949
Daytime Population

162
Total Businesses

3,740
Total Employees

FLOOD VULNERABILITY

97
Number of People in 1% SFHA

31
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

9 Borough of Glen Ridge

9.1 Jurisdictional Profile

The Borough of Glen Ridge is a small, suburban community located in the north-central part of Essex County. It borders on three other municipalities, the Township of Bloomfield to the east, the City of East Orange to the south and the Township of Montclair to the west and north. Glen Ridge contains an area of approximately 1.4 square miles and is elongated in shape. It is 3.1 miles long in a north-south direction, following the ridgeline of the Watchung Mountains. The Borough is only 15 miles west of Manhattan and 5 miles northwest of downtown Newark (Borough of Glen Ridge 2003).

The Borough was originally settled as a community containing both homes and industry. The Borough was incorporated in 1895. In 1909, the Borough prepared a guide to the development of Glen Ridge with the assistance of John Nolen, a distinguished pioneer in the field of city planning. The general goals established in that report provided the framework for development of the Borough as a residential community of primarily single family homes (Borough of Glen Ridge 2003).

Glen Ridge today is almost completely developed, although infill redevelopment has selectively occurred along Bloomfield Avenue. Over the years, the Borough has developed as primarily a residential community with a very limited business area. The residential land use pattern is unique in that several major streets, including Ridgewood Avenue, Forest Avenue, and Douglas Road contain fine examples of post and pre-Victorian era housing. In order to preserve this historic residential character, the majority of the community has been designated a historic district and is listed on both the State and National Registers of Historic Places (Borough of Glen Ridge 2003).

The Borough of Glen Ridge is governed under the borough form of New Jersey municipal government and consists of a mayor and a borough council. The council is comprised of six members all elected at large to serve three-year terms. Two seats come up for election each year. The mayor is elected directly by the voters to a four-year term of office (Borough of Glen Ridge 2025).

Mitigation priorities for the Borough is reducing the impact of flooding in the community. To date, the Borough implemented the following:

- Installation of Benson St stormwater system
- Installation of Sherman Ave stormwater system
- Debris removal along Toney's Brook
- Catch basin and storm drain cleaning prior to expected severe weather events
- Floodproofing of Borough Hall basement - Channel 36/Library Storage Room

For information on population statistics, refer to Volume I Section 3.3 (Population and Demographics).

9.2 Jurisdictional Risk Assessment

The following sections assess the Borough of Glen Ridge's risk to the hazards of concern identified for the 2025 HMP update.

9.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Borough of Glen Ridge's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Borough experienced during hazard events since the last hazard mitigation plan update.

Table 9-1. Hazard Event History Since 2020

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Although the County was impacted, the municipality did not report significant local impacts.
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Thomas Street was washed out and needed to be repaired. Debris in roadway. Had to backfill washouts. Some trees down that had to be removed. Damage to Community Pool fence that required repairs and regrade parking lot, had to repair gazebo in the Glen, replace “little free libraries and newly planted trees that were washed away. Backfilled along Toney’s Brook retaining wall. OT and equipment use incurred by DPW
Jan 31-Feb 2, 2021	Snow	Over 20 inches during event	DPW overtime, no losses or damage
July 6, 2021	Storm	Rain and win	Damage to vehicles, power outages, downed trees
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Thomas Street was washed out and needed to be repaired. Debris in roadway. Had to backfill washouts. Some trees down that had to be removed. Damage to Community Pool fence that required repairs and regrade parking lot, had to repair gazebo in the Glen, replace “little free libraries and newly planted trees that were washed away. Backfilled along Toney’s Brook retaining wall. OT and equipment use incurred by DPW
April 8, 2022	Storm	Major rain and flooding reported at following intersections: RWA & Baldwin,	Closed intersections

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		RWA Post Office, RWA & Woodland Ave, Midland Ave - Adams to Carteret area	
August 18, 2024	Storm	localized flooding over the Clark Street Bridge, the bridge by the pool, uplifted sidewalks and stones throughout the street; flooding under the Hillside Avenue bridge, RWA & Baldwin, RWA & Cambridge (cars flooded and left in the roadway due to the flooding)	Damage to street infrastructure
Sept 9, 2024	Storm	Localized street flooding	Closed intersections; damage to sidewalks on Clark St
Sept 17, 2024	Storm	Localized street flooding	Damage to yard and sidewalk on Clark St (source of Sept 9 storm damage) Toney's Brook wall continues to be scoured as the bottom in the channel

Source: FEMA 2024; NOAA NCEI 2025

9.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. The Borough indicated that the FEMA flood maps do not adequately address flood risk in the Borough. Identified areas outside of the mapped floodplain that are prone to flooding include Clark Street, Hillside Avenue, Edgewood Avenue, and Maolis Avenue. No known structures in the Borough have been declared substantially damaged in prior flood events.

The Borough participates in the National Flood Insurance Program (NFIP). The following table summarizes the NFIP statistics for Borough of Glen Ridge.

Table 9-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
42	$42,004	$12,524,000	33	$201,549	2	0

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 9-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
No community lifelines located in the floodplain		

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

9.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Borough of Glen Ridge, including major residential/commercial/industrial development and major infrastructure development.

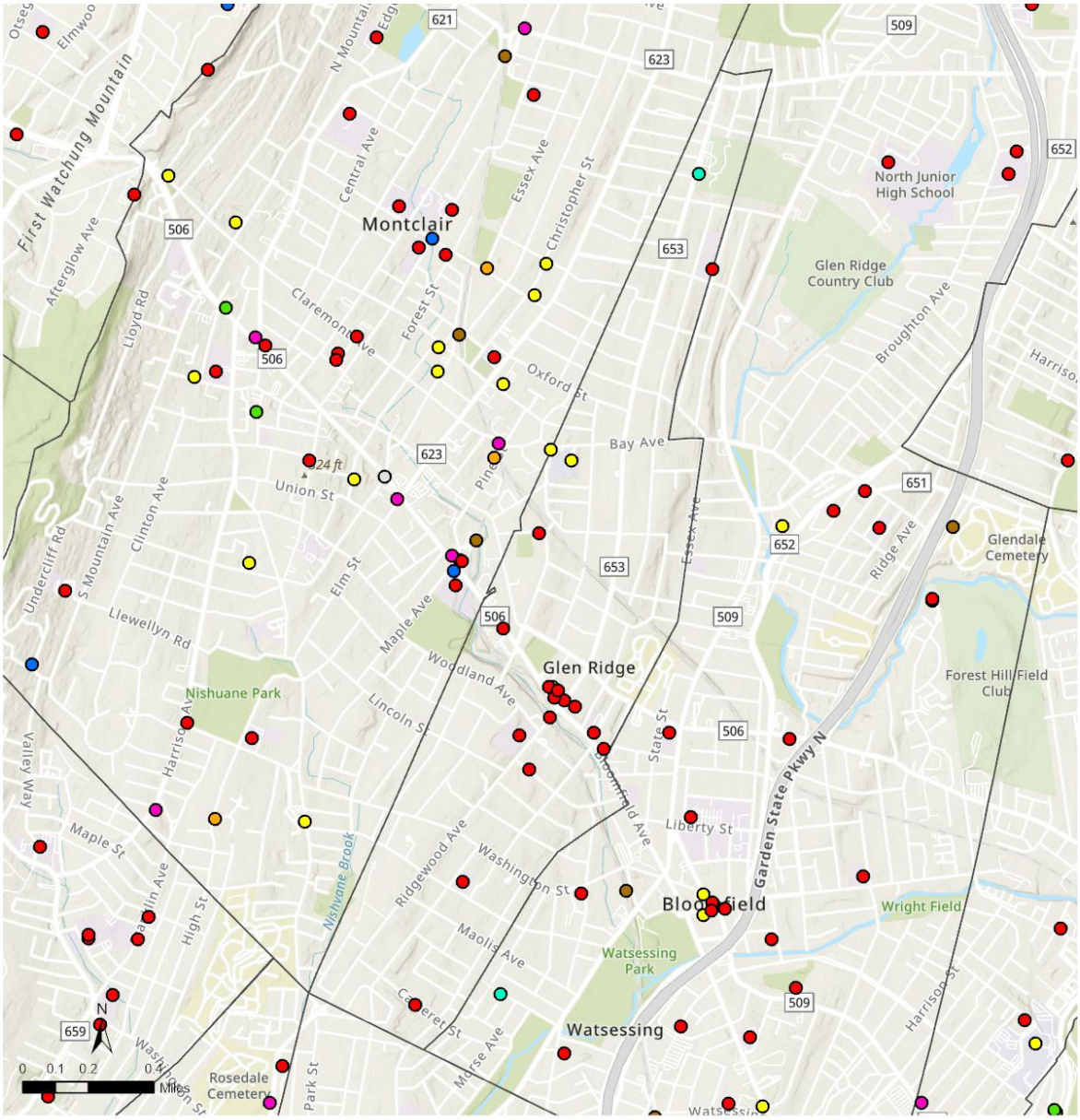
Table 9-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Clarus Glen Ridge	Residential	110	277 Baldwin St.	N/A	2021

9.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Borough of Glen Ridge that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 9-1. Borough of Glen Ridge Community Lifelines

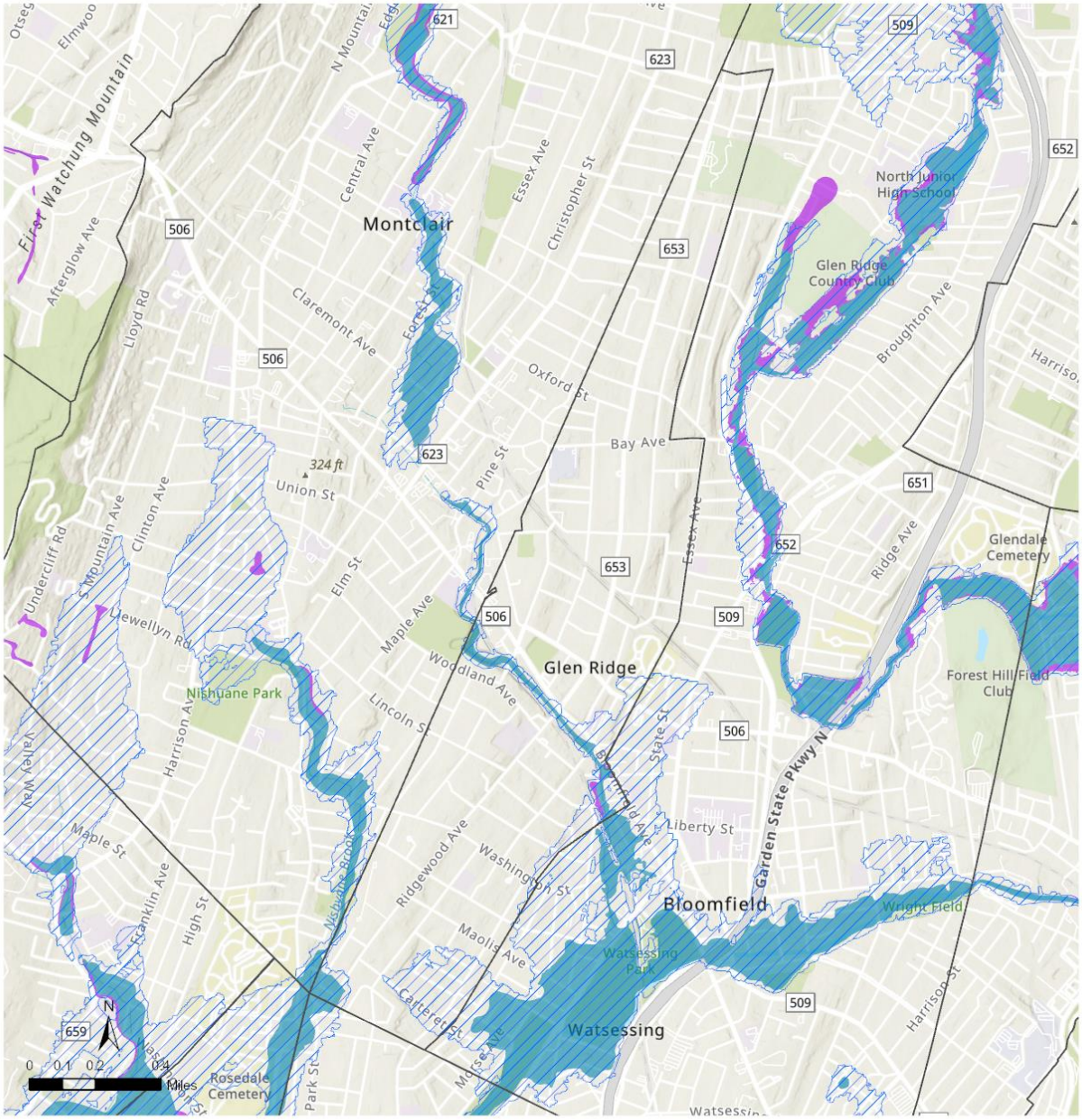


Glen Ridge Borough: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 9-2. Borough of Glen Ridge Flood-Related Hazards

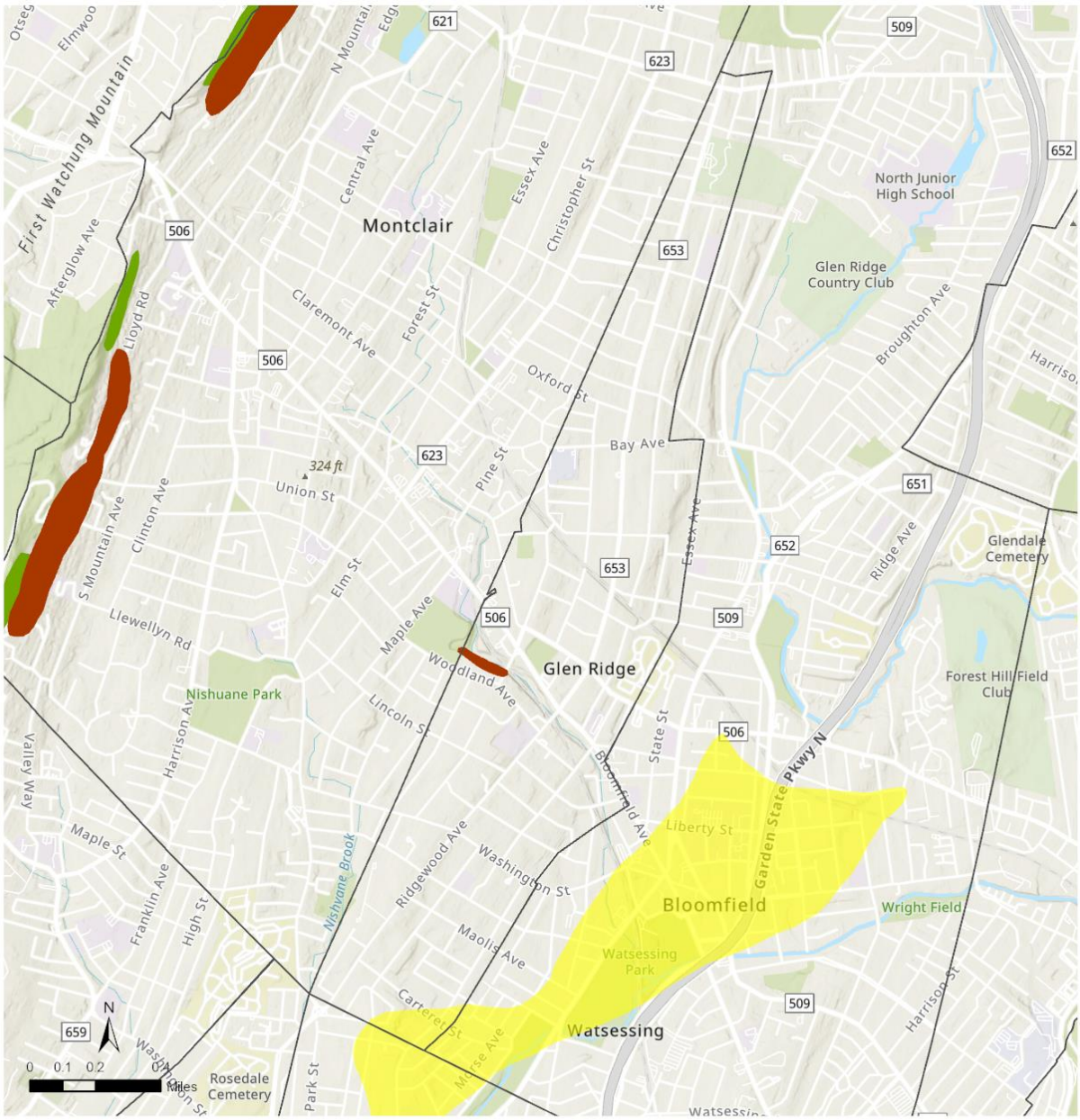


Glen Ridge Borough: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 9-3. Borough of Glen Ridge Geological Hazards



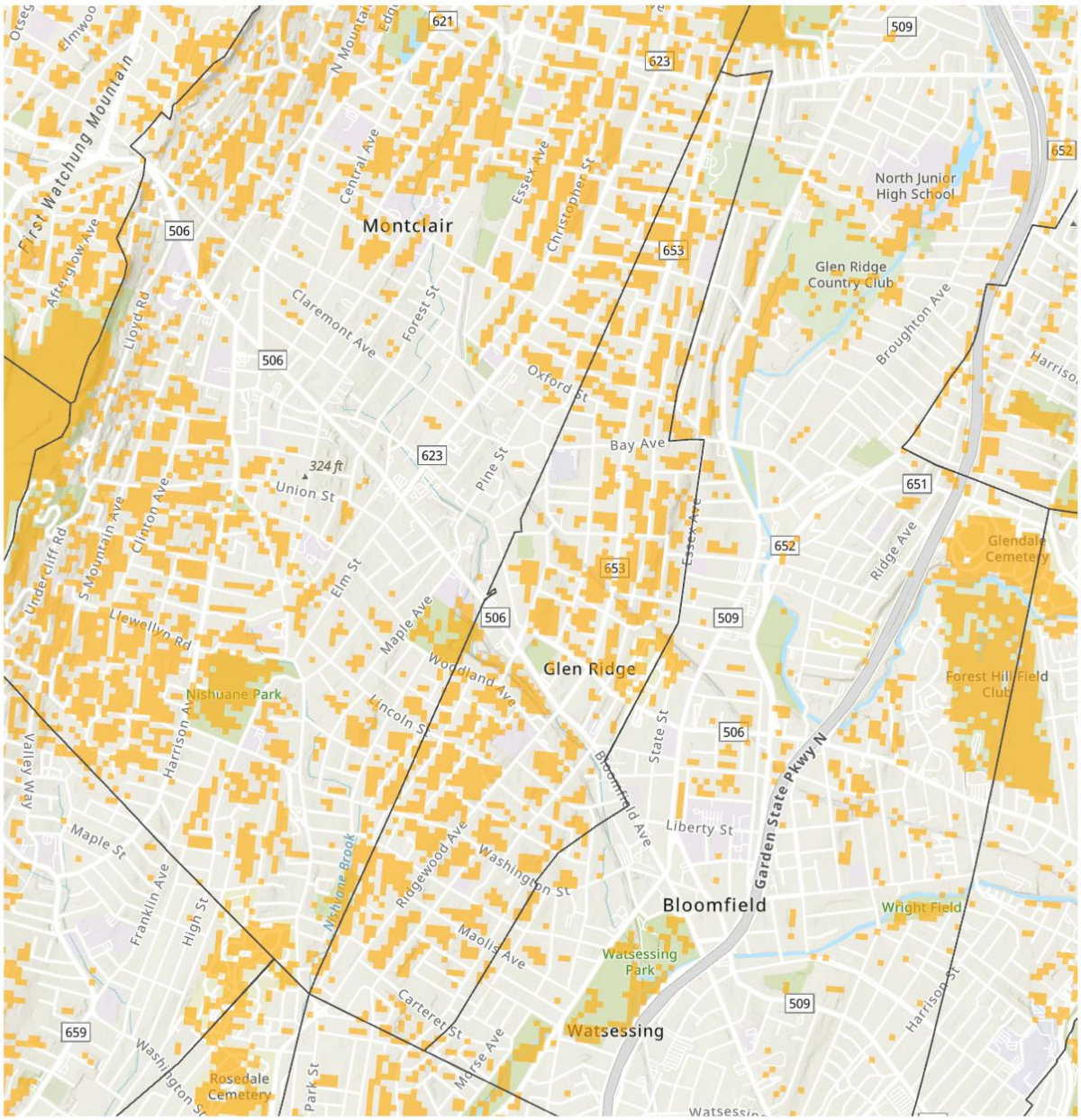
Glen Ridge Borough: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 9-4. Borough of Glen Ridge Wildfire Hazard



9.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Borough of Glen Ridge, climate change is likely to have the following impacts:

- Increased extreme temperature events.
- Increased flooding associated with heavy downpour events.

9.2.5 Risk Assessment Summary

- There are several borough-owned facilities that do not have a source of backup power. In the event of a power outage, these facilities cannot function properly and provide essential services to the community.
- The Borough needs to extend the Midland Avenue stormwater system. Flooding during major storm events have resulted in damages in this area of the Borough. The Borough has a plan in place; however, funding is needed to make improvements and expand the current system.
- A section of a wall along Toney's Brook got compromised as a result of heavy rain. The Borough added gabion bags into the Brook to reinforce the wall; however, this is not a permanent solution. Additional work needs to be done to reinforce the wall.
- A stream study is needed to identify projects and a maintenance plan for Toney's Brook.
- The Borough uses the train station as a shelter to serve as a heating/cooling center and charging station for long-term power outages. It also serves as an active train station, community center, and senior center and identified as a community lifeline for the Borough.
- During rain events, pooling along Snowden near Toney's Brook occurs. This leads to road closures, damages, and road inundations. The Borough needs to complete a study to determine the source of flooding, identify projects to alleviate flooding, and implement projects.
- Frequent flooding events have resulted in damages in the Midland Avenue area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.

9.3 Jurisdictional Capability Assessment

The Borough of Glen Ridge performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities

- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

9.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Borough of Glen Ridge.

Table 9-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan, 2020	Planning Board
Impact on Risk Reduction: The 2020 Master Plan Reexamination identified goals that including: promote a balanced variety of residential, commercial, recreational, public, and conservation land uses; and continue to improve community facilities and services that maintains the quality of life for residents. The plan promotes consistency between plans, including the zoning code and surrounding municipalities. It looks at several different elements: land use; housing; community facilities; parks, recreation, and open space; circulation; utility service; historic preservation; sustainability; and compatibility with other planning efforts. The sustainability element has objectives related to climate change (reducing greenhouse gas emissions and reduce dependency on fossil-fuel vehicles), preserving and enhancing water quality, minimizing change to natural systems, and control excess runoff.			
Capital Improvement Plan	Yes	Annual Budget	Administration
Impact on Risk Reduction: The Borough's Capital Improvement Plan is part of the annual budget and can be used to allocate funding for mitigation actions.			
Stormwater Management Plan	Yes	Stormwater Management Plan	Engineer
Impact on Risk Reduction: The Borough's plan identified strategies to address stormwater related impacts. The plan addresses groundwater recharge, stormwater quantity, and stormwater duality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acre of land. One of the goals of the plan is to reduce flood damage including damage to life and property. While it was stated that it is not economically feasible to provide 100-year flood structural protection, the Borough should provide flood protection against more frequent, low magnitude storm events where possible. If a developer is given a variance to exceed the maximum allowable percent imperviousness, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Plan, 2018	Engineer
Impact on Risk Reduction: The plan was completed on January 15, 2018 by the municipal engineer. The plan states that the Borough ensures all new			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
residential development and redevelopment projects are subject to the Residential Site Improvement Standards for stormwater management. The Borough's planning and zoning boards ensures compliance before issuing subdivision or site plan approvals. The Borough provides informational brochures on stormwater management and best management practices. The Public Works Department monitors all their roads and streets for erosion problems. Once identified, a repair schedule will be developed. The Borough has developed an annual catch basin cleaning program to maintain function and efficiency. The SPPP will be updated in 2025.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Parks, Open Space, and Recreation Element Reexamination, 2020	Planning Board
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Tree Hazard and Health Assessment Inventory, 2022	Shade Tree Commission
Impact on Risk Reduction: The Shade Tree Commission regulates, plants, cares and controls shade and ornamental trees and woody shrubs on the streets and public access areas of the Borough. This allows for activities such as travel, active and passive recreation, and flood control. The Tree Hazard and Health Assessment Inventory for the entire Borough was finished in 2022 and the system is being updated to reflect planting locations and tree removals. The town's objective is to keep the inventory current to utilize as a management tool.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Borough of Glen Ridge to prepare for, respond to, and recover from hazard events.

Table 9-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides the emergency response to disaster events. The Plan is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	Yes		Public Works
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Borough of Glen Ridge.

Table 9-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 15.04 Building Code	Planning & Development Department
Impact on Risk Reduction: The "Basic Building Code" (Fourth Edition, 1965), published by the Building Officials Conference of America, Inc., is adopted as the building code of the borough of Glen Ridge, in the county of Essex, for the regulation and control of the construction, reconstruction and repair of buildings and structures as herein provided.			
Zoning or Land Use Regulations	Yes	Title 17 Zoning	Planning & Development Department
Impact on Risk Reduction: The purpose of this title is to encourage the most appropriate use of land throughout the municipality; to conserve and stabilize the value of property; to prevent the overcrowding of land and buildings; to avoid undue concentration of population; to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to facilitate adequate provisions for water, sewerage, schools, parks and other public requirements; to provide adequate open spaces for light and air; and to accomplish such other projects and purposes of zoning as are now and may be hereinafter set forth in the enabling legislation. For this purpose, this title designates, regulates, and restricts the location and use of buildings, structures and land for residence, nonresidence, and other purposes and the height, number of stories and size of buildings and other structures hereafter erected or altered; regulates and determines the size of yards and other open spaces; and regulates and limits the density of population.			
Subdivision Regulations	Yes	Title 16 Subdivisions	Planning & Development
Impact on Risk Reduction: It is the intent and purpose of this title: A. To encourage action to guide the appropriate use or development of all lands in the borough in a manner which will promote the public health, safety, morals, and general welfare; B. To secure safety from fire, flood, panic and other natural and manmade disasters; C. To provide adequate light, air and open space; D. To ensure that the development of the borough does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole; E. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment; F. To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies; G. To provide sufficient space in appropriate locations for a variety of residential, recreational, commercial and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens; H. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight; I. To promote a desirable visual environment through creative development techniques and good civic design and arrangements;			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
J. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land; K. To encourage planned unit developments which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site; L. To encourage senior citizen community housing construction; M. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land; and N. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources.			
Site Plan Regulations	Yes	Chapter 16.24 Subdivision and Site Plan Review	Planning Board
Impact on Risk Reduction: Prior to the subdivision or resub-division of land and prior to the issuance of a construction permit, zoning permit or certificate of occupancy for any development, an application shall be submitted to and approved by the planning board in accordance with the requirements of this chapter, except that subdivision or individual lot applications for detached one- or two-family dwelling unit buildings shall be exempt from site plan review and approval.			
Stormwater Regulations	Yes	Chapter 13.24 Stormwater Regulations	
Impact on Risk Reduction: The purpose of this chapter is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 15.28 Flood Damage Regulations	Floodplain Administrator
Impact on Risk Reduction: Updated in 2023 to meet FEMA/NJDEP requirements. The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: 1.Protect human life and health. 2.Prevent unnecessary disruption of commerce, access, and public service during times of flooding. 3.Manage the alteration of natural floodplains, stream channels and shorelines. 4.Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. 5.Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. 6.Contribute to improved construction techniques in the floodplain. 7.Minimize damage to public and private facilities and utilities. 8.Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. 9.Minimize the need for rescue and relief efforts associated with flooding. 10.Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. 11.Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
12.Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 12.28 Shade Trees	Shade Tree Commission
Impact on Risk Reduction: Chapter 12.28 requires the removal of dangerous privately owned trees while protecting shade trees from damage and removal.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Chapter 12.29 – Permits for the Removal of Trees on Private Property – establishes requirements for private and public tree removal and replacement in the Borough to reduce soil erosion and pollutant runoff, promote infiltration of rainwater into the soil, and protect the environment, public health, safety, and welfare.			

9.3.2 Administrative and Technical Capabilities

The table below summarizes the Borough of Glen Ridge's departments, boards, and committees that contribute to risk reduction.

Table 9-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board receives and hears applications for major and minor subdivisions, site plan approvals, conditional use applications, and bulk variances in conjunction with subdivision, site plan or conditional use applications, and appeals of Historic Preservation Commission decisions. The Planning Board is also responsible for preparing the Borough Master Plan under standards defined in the New Jersey Municipal Land Use Law. Each year, the Planning Board evaluates the variances granted by the Zoning Board of Adjustment to determine if there are emerging patterns of use that might require a change to the Master Plan or the Zoning Ordinances. When appropriate, the Planning Board makes recommendations to the Borough Council to change the Official Map and the Zoning Ordinances. It also participates in the preparation and review of programs and plans required by state and federal law. The Zoning Board of Adjustment is empowered to grant exceptions to the zoning ordinances in cases where the literal and rigid interpretation and enforcement of the zoning laws would impose a hardship.
Planning Department	The Planning & Building staff strive to provide professional advice and technical expertise to citizens, elected officials, appointed boards & commissions, and Borough departments in order to assist in development and the understanding of Borough development procedures.

Department / Board / Committee	Description and Role in Risk Reduction
Public Works / Highway Department	The Glen Ridge Department of Public Works is committed to providing infrastructure, maintenance and engineering services.
Construction / Building / Code Enforcement Department	The Building Department regulates construction activity in the Borough. Construction permits are required for all interior and exterior construction work on all structures. Homeowners should contact the Building Department for information regarding obtaining a permit prior to starting the project. All work that requires building, electrical, plumbing, and/or fire/tank inspections must be filed to the building department and reviewed for approval to receive a permit for the work. The Department also reviews and issues Certificates of Occupancy, manages work within the Borough's right-of-way and responds to Property Maintenance complaints.
Engineering Department	-
Parks and Recreation Department	Glen Ridge Parks and Recreation Department
Open Space Board / Committee	-
Environmental Board / Commission	Environmental Advisory Committee – The Committee has established, consistently maintained, and participated in the Go Glen Ridge Green website (www.goglenridgegreen.org/), provided funding for environmental film screenings, and have actively participated and promoted cleanups. The Mayor & Council reauthorized the Environmental Advisory as of the Living Green Team for the Borough on February 13, 2023. Membership includes a representative from Council, the Borough's Deputy Administrator, and residents. The Shade Tree Commission is charged with developing a flexible strategic plan, practical goals and defined steps to ensure that shade trees are planted, maintained and monitored over time. This commitment to healthy trees represents a long-term investment in the beauty, biodiversity and historic character of Glen Ridge.
Emergency Management / Public Safety Department	The Glen Ridge Office of Emergency Management coordinates all emergency response to disaster situations within the Borough.
Fire Department	Glen Ridge contracts emergency fire services with the Montclair Fire Department. The fire department consists of full-time paid staff. The department is comprised of four firehouses and eighty-five professional fire fighters. The M.F.D. maintains three engine companies and two ladder truck companies on duty every shift.
Additional departments, boards, and committees	The Historic Preservation Commission (HPC) is charged with conserving, protecting, enhancing, and perpetuating the landmarks, properties and improvements within the Glen Ridge Historic District. The District, comprising over 90 percent of Glen Ridge, runs roughly the entire length of the Borough.

The table below summarizes the Borough of Glen Ridge's staff with skills and expertise that contribute to risk reduction.

Table 9-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Borough Planner
Engineer	Borough Engineer
Stormwater Officer	Borough Engineer
Resilience / Sustainability Officer	-

Staff	Description and Role in Risk Reduction
Grant Writer	Deputy Administrator
Staff with benefit / cost analysis expertise	Borough Administrator and Deputy Administrator
Staff trained in conducting substantial damage determinations	-
Staff trained in GIS	Contract engineering firm
Staff that provide support to socially vulnerable populations	-
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the Borough of Glen Ridge.

Table 9-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Building Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	Mapping
What percentage of your jurisdiction is available for new development?	None

9.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Borough of Glen Ridge.

Table 9-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	The Borough has access to this funding but has not utilized in the past.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Used for post-disaster recovery
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Not eligible for infrastructure
Capital improvements funding	Yes	Capital improvements are identified and funded through the annual budget.
Open space acquisition programs	Yes	Not previously used for acquisition
Impact fees for developers of new homes	Yes	Utility fees (connection fees) for development and affordable housing fee for developers.
User fees for water, sewer, gas, or electric	Yes	Water and sewer is part of the Borough's taxes but not a separate bill.
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	-

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Ability to incur debt through bonds	Yes	Through general obligation bonds, special tax bonds, and private activity bonds
Other financial resources available for hazard mitigation	No	-

9.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Borough of Glen Ridge.

Table 9-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Nixle, email announcements, social media, municipal website, and outdoor message boards are used for public warnings.
Public Information Officer	Public Information Officer is located in the Police Department.
Website	www.glenridgenj.org
Social media	Facebook, YouTube, and X (formerly Twitter)
Public safety campaigns	Done through Social Media and Email
Newsletters	Done through Social Media and Email
Hazard education programs for schools	N/A
Outreach to socially vulnerable populations	Shared services with Bloomfield Public Health and Bloomfield Social Services
Other outreach capabilities	Borough TV station, local newspapers, postings on electronic sign boards, Glen Ridge Eco-Fair

9.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Borough of Glen Ridge.

Table 9-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit Review, inspections, engineering
What local department is responsible for floodplain management?	Engineering (consultant)
Are any staff certified floodplain managers (CFMs)?	No (consultant)
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Yes
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	None

Floodplain Administration	Comments
Summarize the jurisdiction's Substantial Improvement procedures.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

9.3.6 Community Classifications

Table 9-14 summarizes the Borough of Glen Ridge's participation in community classification programs.

Table 9-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Silver	October 17, 2023
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): FEMA 2024a; NWS n.d.; NFPA 2024; Sustainable Jersey 2024

9.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Borough of Glen Ridge has in place and will use to prepare for changes in risk due to climate change.

Table 9-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Increased intensity of storm events
What information does the jurisdiction use to understand potential climate change impacts?	NJDEP
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Stormwater Management Regulations

Adaptive Capacities	Comments
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	NA
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Capital Funding
How does the jurisdiction educate the public on potential climate change impacts?	Borough Announcements/Social Media

9.3.8 Capability Assessment Summary

The Borough of Glen Ridge's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Borough of Glen Ridge determined the following hazard capability effectiveness ratings.

Table 9-16. Borough of Glen Ridge Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

9.3.9 Opportunities to Improve Capabilities and Integration

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.

- The Township does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Township will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.
- The Township is working with Montclair and Bloomfield on Toney's Brook and associated watershed to address local flooding issues. Initial steps are identifying potential funding sources and flood mitigation strategies.

9.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Borough of Glen Ridge were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Borough's reduction of risk through current capabilities.

The Borough of Glen Ridge reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Borough discussed the following local factors that led to modifying the hazard rankings:

- The Borough agreed with the remainder of the calculated hazard rankings.

Table 9-17. Borough of Glen Ridge Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

9.5 Jurisdictional Mitigation Strategy

9.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 9-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-GLEN RIDGE-001	**Integrate HMP into Zoning Ordinance (Chapter 17):** During the next update of the zoning ordinance, the Borough will review the current HMP and incorporate natural hazard impact areas. This could include limiting the density of development in the floodplain and requiring undeveloped floodplains be kept as open space.	Borough Council, Planning and Development	Ongoing Capability – the Borough reviews the HMP prior to updates of municipal codes and plans to identify areas of integration.	No	-
2020-GLEN RIDGE-002	**Tow-Behind Generator:** A permanent generator at each facility is not necessary. The Borough will purchase a tow-behind generator to use at facilities without power.	Borough Engineer, Emergency Management	No Progress – the Borough has not purchased the generator	Yes – keep in the 2025 HMP	Keep action as worded
2020-GLEN RIDGE-003	**Generator for Borough Facility:** Purchase and install a generator to power these three facilities during a power outage. They will provide continuity of operations and services to the community.	Borough Engineer, Emergency Management	Complete – generator was purchased and installed at the borough facility – funded through the Borough's Capital Improvement Plan	No	-
2020-GLEN RIDGE-004	**Midland Avenue Stormwater System:** Improvement and extension of the stormwater system on Midland Ave.	NFIP Floodplain Administrator, Engineer	In Progress – the Borough is discussing funding mechanisms to proceed with making the improvements and extending the stormwater systems	Yes – keep in the 2025 HMP	Extending the stormwater system – Borough knows what needs to be done, just needs to secure funding to do so

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-GLEN RIDGE-005	**Toney's Brook Infrastructure Repair:** Create a maintenance program of retaining walls to bolster structural integrity as well as a maintenance program to ensure the area under the bridge at 710 Bloomfield Avenue is clear of debris.	NFIP Floodplain Administrator, Engineer	In Progress - Section of a wall got compromised as a result of a heavy rain event; the Borough added gabion bags into the brook to reinforce the wall on the water site More works needs to be done	Yes – keep in the 2025 HMP	Identify additional tasks that need to be implemented to make the necessary repairs, while working with the private property owner
2020-GLEN RIDGE-006	**Mitigate floodprone properties in the Borough:** Conduct outreach to 5 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Midland Avenue area that experience frequent flooding (high risk areas).	NFIP Floodplain Administrator	In Progress - FEMA flood maps only show the area along Toney's Brook as being in the floodplain (maybe homes along Clark St.?) Midland Ave. is not located in the floodplain but subject to stormwater flooding after heavy rains	Yes – keep in the 2025 HMP	-

9.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Borough of Glen Ridge identified the following mitigation efforts completed since the last HMP:

- None identified

9.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Borough of Glen Ridge identified the following issues that require mitigation.

- There are several borough-owned facilities that do not have a source of backup power. In the event of a power outage, these facilities cannot function properly and provide essential services to the community.
- The Borough needs to extend the Midland Avenue stormwater system. Flooding during major storm events have resulted in damages in this area of the Borough. The Borough has a plan in place; however, funding is needed to make improvements and expand the current system.
- A section of a wall along Toney's Brook got compromised as a result of heavy rain. The Borough added gabion bags into the Brook to reinforce the wall; however, this is not a permanent solution. Additional work needs to be done to reinforce the wall.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- A stream study is needed to identify projects and a maintenance plan for Toney's Brook.
- The Borough uses the train station as a shelter to serve as a heating/cooling center and charging station for long-term power outages. It also serves as an active train station, community center, and senior center and identified as a community lifeline for the Borough.
- During rain events, pooling along Snowden near Toney's Brook occurs. This leads to road closures, damages, and road inundations. The Borough needs to complete a study to determine the source of flooding, identify projects to alleviate flooding, and implement projects.
- Frequent flooding events have resulted in damages in the Midland Avenue area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a

disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.

9.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Borough of Glen Ridge's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 9-19. Borough of Glen Ridge 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards (Landslide)	Severe Weather	Severe Winter Weather	Wildfire
2025-Borough of Glen Ridge-01	Tow-Behind Generator			X	X	X		X	X	
2025-Borough of Glen Ridge-02	Midland Avenue Stormwater System					X		X		
2025-Borough of Glen Ridge-03	Toney's Brook Infrastructure Improvements					X		X		
2025-Borough of Glen Ridge-04	Watershed Improvement Plan					X		X		
2025-Borough of Glen Ridge-05	Substantial Damage Response Plan			X		X		X		
2025-Borough of Glen Ridge-06	Address stormwater infrastructure related to the intensity of storms					X		X		
2025-Borough of Glen Ridge-07	Train station generator				X			X	X	
2025-Borough of Glen Ridge-08	Feasibility study along Snowden to determine flooding causes and identify actions to reduce flooding					X		X		
2025-Borough of Glen Ridge-09	Midland Avenue Flooding					X		X		

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards (Landslide)	Severe Weather	Severe Winter Weather	Wildfire
2025-Borough of Glen Ridge-10	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Borough of Glen Ridge-11	Disaster Debris Management Plan					X		X		
2025-Borough of Glen Ridge-12	Floodplain Restoration with native species plantings along Toney's Brook					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9-20. Borough of Glen Ridge 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Borough of Glen Ridge-01	Tow-Behind Generator	1	1	1	1	1	0	0	1	1	1	0	1	1	0	10	Medium
2025-Borough of Glen Ridge-02	Midland Avenue Stormwater System	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	Medium
2025-Borough of Glen Ridge-03	Toney's Brook Infrastructure Improvements	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Borough of Glen Ridge-04	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-Borough of Glen Ridge-05	Substantial Damage Response Plan	1	1	1	1	1	0	0	0	1	1	0	1	0	0	8	Medium
2025-Borough of Glen Ridge-06	Address stormwater infrastructure related to the intensity of storms	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Borough of Glen Ridge-07	Train station generator	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-Borough of Glen Ridge-08	Feasibility study along Snowden to determine flooding causes and identify actions to reduce flooding	1	1	1	1	0	0	1	0	1	1	1	1	0	0	9	Medium
2025-Borough of Glen Ridge-09	Midland Avenue Flooding	1	1	1	1	0	0	1	0	1	1	1	1	1	0	10	Medium
2025-Borough of Glen Ridge-10	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	0	1	1	1	1	0	0	8	Medium
2025-Borough of Glen Ridge-11	Disaster Debris Management Plan	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Borough of Glen Ridge-12	Floodplain Restoration with native species plantings along Toney's Brook	1	1	1	1	0	0	1	0	1	1	1	0	0	1	9	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Borough of Glen Ridge-01: Tow-Behind Generator

Lead Agency:	Borough Engineer, Emergency Management	
Supporting Agencies:	Borough DPW and Council	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	There are several borough-owned facilities that do not have a source of backup power. In the event of a power outage, these facilities cannot function properly and provide essential services to the community.	
Description of the Solution:	A permanent generator at each facility is not necessary. The Borough will purchase a tow-behind generator to use at facilities without power. Having a portable power source will allow the Borough to use the generator at facilities that need a backup power source.	
Estimated Cost:	$50,000	
Potential Funding Sources:	FEMA HMGP; Capital Improvement; Borough Budget	
Implementation Timeline:	1-3 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	This action results in protection of a critical facility that could support future development.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Microgrid	Costly and difficult to implement; not portable
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Borough of Glen Ridge-02: Midland Avenue Stormwater System

Lead Agency:	NFIP Floodplain Administrator, Engineer
Supporting Agencies:	DPW
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Borough needs to extend the Midland Avenue stormwater system. Flooding during major storm events have resulted in damages in this area of the Borough. The Borough has a plan in place; however, funding is needed to make improvements and expand the current system.
Description of the Solution:	Once funding is secured, the Borough will begin extend and improving the stormwater system along Midland Avenue. These improvements will reduce flooding and flood damage in the Borough and will allow the system to function properly during rain events.
Estimated Cost:	$250,000+
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater flooding and an increase in capacity in the stormwater system.
Impact on Socially Vulnerable Populations:	Stormwater upgrades will reduce flood damage throughout the Borough and all residents, including socially vulnerable populations
Impact on Future Development:	Provides protection from stormwater flooding on future development
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.
Impact on Capabilities:	This action will increase the Borough's stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues Implement green infrastructure throughout the Borough / This can reduce stormwater flooding but does not address infrastructure and necessary improvements Elevate all homes and roads / Costly; not feasible; stormwater flooding will occur and cause damage

2025-Borough of Glen Ridge-03: Toney's Brook Infrastructure Improvements

Lead Agency:	NFIP Floodplain Administrator, Engineer
Supporting Agencies:	DPW, Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	A section of a wall along Toney's Brook got compromised as a result of heavy rain. The Borough added gabion bags into the Brook to reinforce the wall; however, this is not a permanent solution. Additional work needs to be done to reinforce the wall.
Description of the Solution:	The Borough will create a maintenance program of retaining walls to bolster structural integrity as well as a maintenance program to ensure the area under the bridge at 710 Bloomfield Avenue is clear of debris. Additionally, the Borough will incorporate native species to help restore the surrounding floodplains of the Brook to encourage capture and absorption of stormwater. The Borough will also identify any additional cost-effective tasks that need to be implemented to make potential improvements to level of protection and the necessary repairs, while working with the private property owners.
Estimated Cost:	$50,000+
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	High
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	Future development/redevelopment along the Brook will be protected from these improvements.
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	This action will establish a new maintenance program to inspect and service the retaining wall
Climate Change Considerations:	Climate change has led to an increase in the frequency and severity of heavy rainfall events that have caused damages to the retaining wall of Toney's Brook. This action will result in improvements to the structure to meet modern and future runoff needs.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
CRS Category:	N/A
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues Convert the Brook to an underground channel / Costly. Underground channeling is not a feasible option. Buyout property owners in areas where flooding has occurred. / Property owners are currently unwilling to be bought out.

2025-Borough of Glen Ridge-04: Watershed Improvement Plan

Lead Agency:	Borough Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Borough of Glen Ridge-05: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.	
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan	
Goals Met:	2, 5	
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.	
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements.	
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.	
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.	
Impact on Capabilities:	This action improves disaster recovery capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**

	No Action	Current problem continues
	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Borough of Glen Ridge-06: Address stormwater infrastructure related to the intensity of storms

Lead Agency:	Borough Engineering and DPW
Supporting Agencies:	Bloomfield and Montclair for the study and project implementation; NJDEP for permitting and procedures
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Toney's Brook Watershed extends into Bloomfield, Glen Ridge, and Montclair. Within this area, Toney's Brook and its tributaries become inundated during periods of heavy rain and excessive stormwater runoff. While Glen Ridge is implementing work within the municipality (refer to action 2025-Borough of Glen Ridge-03), a multi-jurisdictional approach is needed since impacts are occurring outside of the Borough as well. Bloomfield, Glen Ridge, and Montclair will complete a study of the watershed to identify areas in needed of capacity increase to reduce stormwater flooding, protecting critical infrastructure, and increasing water quality of the brook. Because Toney's Brook flows through various municipalities, a regional study and implementation project is needed to reduce flooding impacts in all three municipalities.
Description of the Solution:	Together with Bloomfield and Montclair, a feasibility study of Toney's Brook and its watershed will be completed to identify problem areas, flood sources, and identify projects and maintenance plans. Once the study is complete and projects are identified, the three municipalities will apply for funding to implement projects that focus on increasing stormwater capacity, reducing stormwater flooding, and protecting critical infrastructure. In addition, maintenance procedures will be identified in the study and implemented as projects are complete. Lastly, the municipalities will coordinate with NJDEP as portions of the brook are outside of their jurisdiction.
Estimated Cost:	$250,000+
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Borough Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater flooding and an increase in capacity in the stormwater system.
Impact on Socially Vulnerable Populations:	Stormwater upgrades will reduce flood damage throughout the Borough and all residents, including socially vulnerable populations
Impact on Future Development:	Provides protection from stormwater flooding on future development
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.
Impact on Capabilities:	This action will increase the Borough's stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Implement green infrastructure throughout the Borough	This can reduce stormwater flooding but does not address infrastructure and necessary improvements
Elevate all homes and roads	Costly; not feasible; stormwater flooding will occur and cause damage

2025-Borough of Glen Ridge-07: Train station generator

Lead Agency:	Borough Engineer, Emergency Management
Supporting Agencies:	Borough DPW and Council
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	The Borough uses the train station as a shelter to serve as a heating/cooling center and charging station for long-term power outages. It also serves as an active train station, community center, and senior center and identified as a community lifeline for the Borough.
Description of the Solution:	Purchase and install a generator at the train station. This will provide continuity of operations and allow the Township to provide services to the municipality during power outages, including heating/cooling center, shelter, and charging center.
Estimated Cost:	$100,000+
Potential Funding Sources:	FEMA HMGP; Capital Improvement; Borough Budget
Implementation Timeline:	1-3 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Provides a safe place to go to during power outages where residents can charge electronics and be protected from extreme temperature events.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a community lifeline during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Microgrid	Costly and difficult to implement.
Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Borough of Glen Ridge-08: Feasibility study along Snowden

Lead Agency:	Borough Engineering and DPW	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	During rain events, pooling along Snowden near Toney's Brook occurs. This leads to road closures, damages, and road inundations. The Borough needs to complete a study to determine the source of flooding, identify projects to alleviate flooding, and implement projects.	
Description of the Solution:	The Borough will complete a feasibility study along Snowden to determine flooding causes and identify actions to reduce flooding. Once projects are identified, the Borough will begin working on making improvements and upgrades to reduce flooding.	
Estimated Cost:	Medium	
Potential Funding Sources:	EPA Water Infrastructure and Resiliency, NJDEP CWSRF, FEMA HMGP and BRIC, Capital Improvement, Borough Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads along Snowden	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Borough of Glen Ridge-10: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administration
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages in the Midland Avenue area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.
Description of the Solution:	Conduct outreach to 2 floodprone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Midland Avenue area that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	Municipal Budget for outreach, FEMA FMA and HMGP for mitigation measures
Implementation Timeline:	3 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Borough of Glen Ridge-11: Disaster Debris Management Plan

Lead Agency:	Borough OEM and DPW	
Supporting Agencies:	Borough Council	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 3, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

9.6 Jurisdictional Hazard Mitigation Team

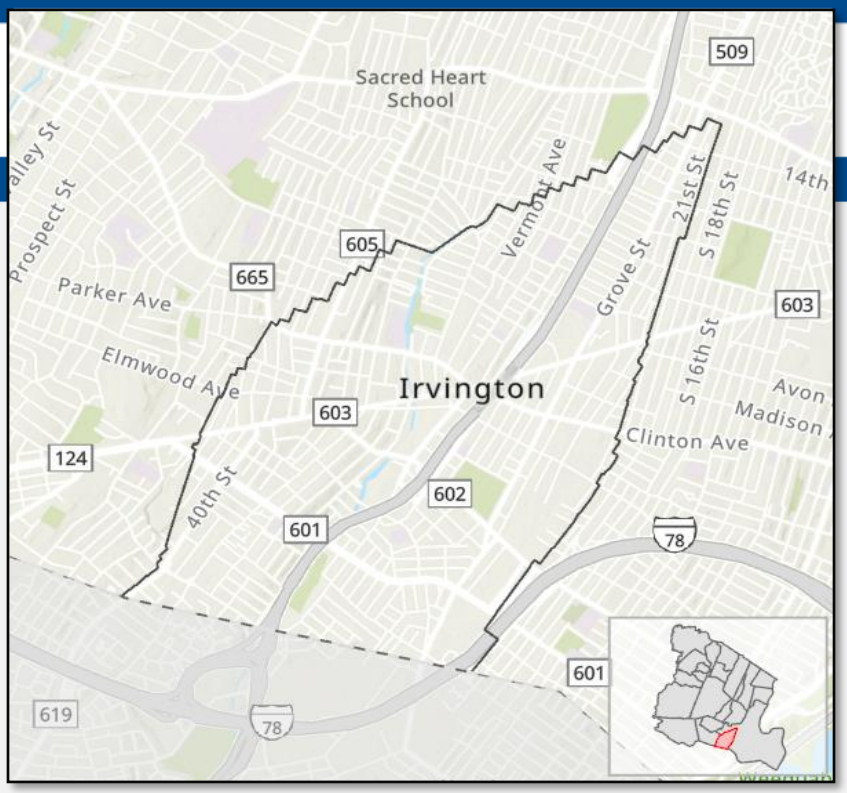
Table 9-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Erik DeLine, Deputy Administrator, Director of Planning	Name and Title:	Michael Zichelli, Borough Administrator
Address:	825 Bloomfield Avenue, Room 101 Glen Ridge, New Jersey 07028	Address:	825 Bloomfield Avenue Glen Ridge, New Jersey 07028
Phone Number:	973-748-8400 ext 240	Phone Number:	973-748-8400
Email:	eideline@glenridgenj.org	Email:	mpzichelli@glenridgenj.org
NFIP Floodplain Administrator			
Name and Title:	Paul Ferriero, Engineer		
Email:	pferriero@boswellengineering.com		

Table 9-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Dean Gnardelis, Deputy OEM Coordinator	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Erik DeLine, Deputy Administrator, Director of Planning	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Ann Marie Morrow, OEM Coordinator	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP

Township of Irvington



POPULATION STATISTICS

60,334
TOTAL POPULATION (2023 ACS)

0.11%
Change in population since 2010 Census

22,166
TOTAL HOUSEHOLDS

AT RISK POPULATION

7,477
Population Over 65

4,232
Population Under 5

6,974
Living With Disability

649
Households Without Vehicle

15,585
People Renting Homes

POVERTY AND LANGUAGE

6,080
Households Below Poverty Level

8,723
Population With English as 2nd Language

POPULATION AND BUSINESSES

42,138
Daytime Population

1,079
Total Businesses

28,050
Total Employees

FLOOD VULNERABILITY

221
Number of People in 1% SFHA

39
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

10 Township of Irvington

10.1 Jurisdictional Profile

The Township of Irvington has a total land area of 2.930 square miles of which 2.928 square miles is land and 0.002 square miles is water. The bordering communities are the Township of Maplewood to the West, City of Newark to the east, Township of South Orange Village to the northwest, and Union and Hillside in Middlesex County to the southwest. The Elizabeth River cuts through the Township and passes Civic Square and Clinton Cemetery. The Garden State Parkway runs southwest to northeast through the Township.

The area now known as the Township of Irvington has significant ties to the Revolutionary War when it was known as Clinton Township and later Camptown. What was known as Camptown in 1834 included Irvington, Maplewood, and parts of Newark and South Orange. The name of the Township was changed after the iconic "Camptown Races" ballad written by Stephen Foster in 1850 was published. In order to avoid any association with the song, the name of the Township was changed to Irvington in honor of the author Washington Irving. In 1874, New Jersey approved the political area to be known as the Village of Irvington. On March 2, 1898, Irvington was incorporated as a Town, replacing Irvington Village.

The Township has a large Hispanic population and one of the largest concentration of Haitian immigrants in the state. The Township translates outreach materials in Spanish and Haitian Creole to reach these populations.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

10.2 Jurisdictional Risk Assessment

The following sections assess the Township of Irvington's risk to the hazards of concern identified for the 2025 HMP update.

10.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Irvington's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 10-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Although the County was impacted, the municipality did not report significant local impacts.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Although the County was impacted, the municipality did not report significant local impacts.
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Although the County was impacted, the municipality did not report significant local impacts.

10.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

The areas along the Elizabeth River, particularly in the area between the border with the City of Newark and Chancellor Avenue, are prone to flooding in the Township.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Township of Irvington.

Table 10-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
50	$69,214	$14,096,000	153	$1,781,649	17	1

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.
Repetitive Loss and Severe Repetitive Loss data current as of 1/9/2025.

There are no known structures within the Township that have been declared substantially damaged in prior flood events.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 10-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex 2025; FEMA 2020

10.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Irvington, including major residential/commercial/industrial development and major infrastructure development.

Table 10-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Twenty First Redevelopment LLC	Mixed-Use	8 single family homes, 16 units of workforce residential housing in 8 in-fill 3 over 1 duplex structures, mixed-use structure comprised of a 5,000-sf community development, recreational center with 27 residential units on the three upper stories, neighborhood playground and the community garden, three-story mixed-use, mixed income building consisting of 105 residential units and approximately	Blocks 144-147	N/A	Currently In Process pending planning and zoning approvals

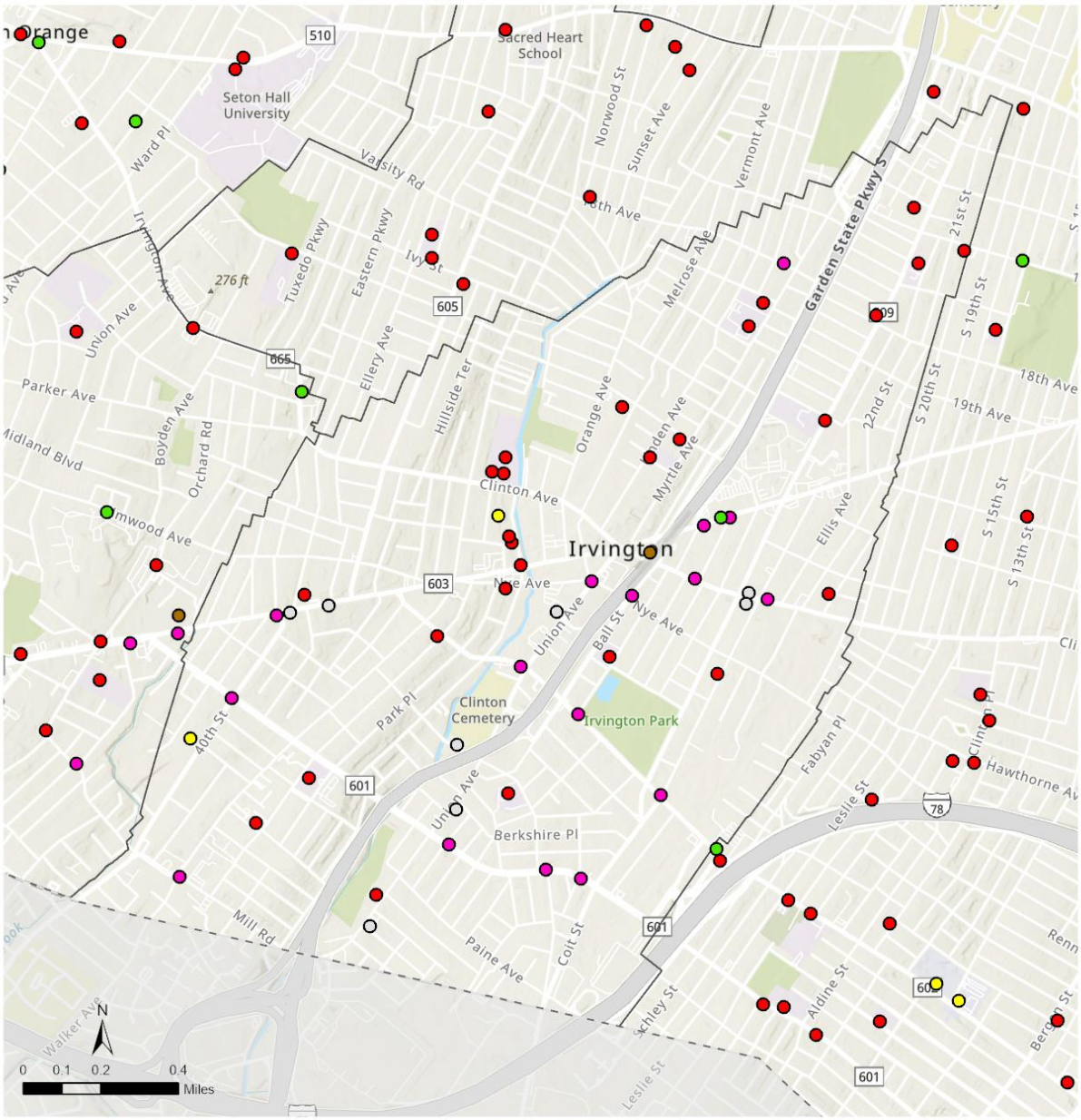
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
		1,000 sf of retail space, 44 units of workforce residential housing in 22 in-fill 3 over 1 duplex structures, three-story residential building consisting of 42 residential units			
ZM 9-13 Madison Avenue	Multifamily residential building	18 units	Block 166, Lots 20-22	N/A	Currently In Process pending agreement executions
General Hospital Phase I	Multifamily residential building	114 units	Block 324, Lots 1.05	N/A	Complete
LRF2 NJ Coit Street, LLC	Industrial	77,000 square foot industrial building	Block 187 Lot 3, 32 and Block 189 Lot 1	N/A	Active Building
508-534 Chancellor Avenue	Commercial	Four-story U-shaped self-storage facility	Block 187, Lots 2.01 and 2.0	N/A	Complete
130 Ellis Avenue	Residential	40 units	Block 162, Lots 5-7	N/A	Complete
722 Chancellor	Residential	56 units	Block 299, Lot 20	N/A	Complete
General Hospital Phase II	Residential (Senior Housing)	96 units	Block 324, Lots 1.10-107	N/A	Complete
Crown Village	Residential	30 affordable residential units, 4 multifamily residential buildings containing a total of 287 units	Block 112, Lot 1&4, Block 160, Lots 1-5, 8-11, &14-17	N/A	Currently In Review/Deliberations
1127-1135 Stuyvesant Ave	Mixed-Use	18 residential units & 588 sq. ft of commercial space	Block 359, Lot 7&8	N/A	Complete
21st Street Urban Renewal LLC	Mixed-Use	156 residential units, 10,354 square feet of ground floor commercial/retail space, 13,337 sf basement	Block 137, Lots 1, 2, 4, 5 and 25-31	N/A	In Process; pending Planning Board submission and PILOT application

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
		commercial space			
Masjid Waarith ud Deen	Commercial (House of Worship)	3 stories with a footprint of 3,217 square feet and a gross area of 9,651 square feet. The house of worship will also feature classrooms, offices, and multi-purpose space	Block 137, Lots 13-14	N/A	Commercial (House of Worship)
ZM – 61-79 22nd Street	Residential	62 units	Block 148, Lots 30, 31, 33, 34 & 35	N/A	In process; pending closing on property
Springfield Gateway Project	Residential	57 units	Block 162, Lots 15-17 & 19-25	N/A	In Process; pending Zoning Board submission
183 22nd St LLC	Residential	19 units	Block 149, Lot 28	N/A	In Process; pending Zoning Board submission

10.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Irvington that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 10-1. Township of Irvington Community Lifelines



Irvington Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

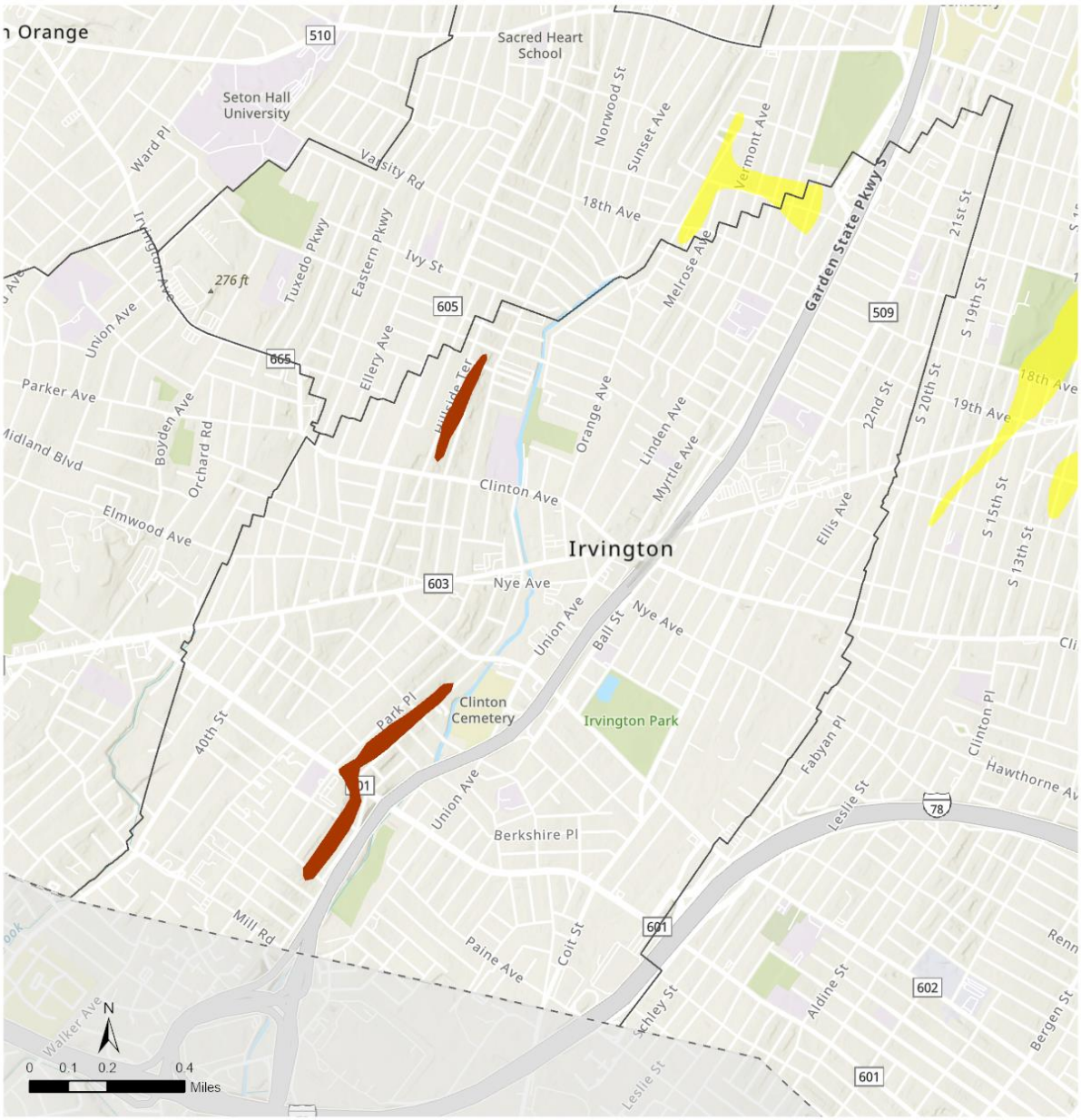
Figure 10-2. Township of Irvington Flood-Related Hazards

Irvington Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

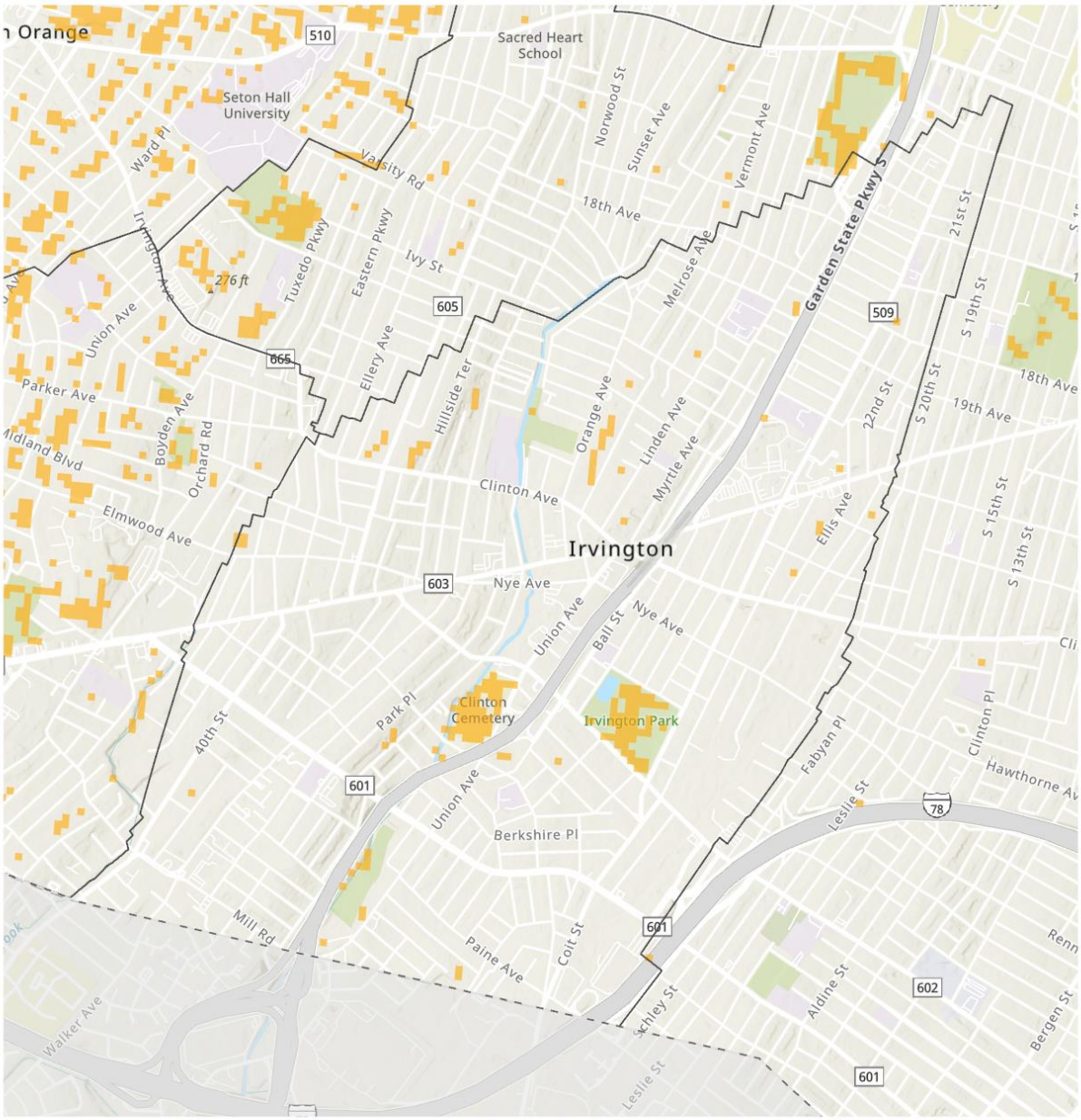
Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 10-3. Township of Irvington Geological Hazards



Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 10-4. Township of Irvington Wildfire Hazard



Irvington Township: Wildfire Hazard Potential

N

0 0.1 0.2 0.4 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

10.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Irvington, climate change is likely to have the following impacts:

- Heavy rainfall events are likely to result in increased flooding risks.

10.2.5 Risk Assessment Summary

- Flooding is a recurring issue along the Elizabeth River. A masonry flume has fallen into disrepair in many sections and the channel needs improvements. The original flume was built 100 years ago and is not designed to take into account modern levels of run off and heavy rainfall events.
- Flooding is a recurring issue along the Elizabeth River. A flood study is needed to identify current and future risk and develop potential mitigation actions.
- The Irvington Neighborhood Improvement Corporation (INIC) building is used as an emergency shelter and warming and cooling shelter. The INIC building lacks backup power.
- The Township's water distribution lines are outdated. Lead lines have been identified. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities. The Township has 17 repetitive loss properties and 1 severe repetitive loss properties.

10.3 Jurisdictional Capability Assessment

The Township of Irvington performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

10.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Irvington.

Table 10-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan 2022 Re-Examination Report	Planning Board
Impact on Risk Reduction: The Master Plan includes elements for land use, relationship to neighboring plans, housing, economic plan, utility service, circulation, community facilities, recreation/open space, and historic preservation. The utility service and recreation elements discuss flooding.			
Capital Improvement Plan	Yes	Capital Improvement Plan	Various Departments within the Township
Impact on Risk Reduction: The 2024 Capital Improvement Bond includes various projects that will impact risk reduction such as purchase of additional equipment for the Fire Department, Police Department and Public Works Departments, which will aid in response to events that may occur within the Township. Additionally, there is funding to repair the damages DPW Garage at Coit Street, again, providing better response to an event as well as some drainage projects that are funded under the bond.			
Stormwater Management Plan	Yes	Master Plan 2022 Re-Examination Report	Planning Board
Impact on Risk Reduction: The Stormwater Management Plan, as part of the Township's Master Plan, presents the overall plan for stormwater control within the township.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan	Township Engineer
Impact on Risk Reduction: As required by NJDEP regulations, this plan, prepared by the Township Engineer, outlines the township's response and response team members in the event of a flooding event.			
Floodplain Management Plan or Watershed Plan	No	Master Plan 2022 Re-Examination Report	Planning Board
Impact on Risk Reduction: This is included within the Stormwater Management Plan within the Township's Master Plan.			
Open Space Plan	Yes	Master Plan 2022 Re-Examination Report	Planning Board
Impact on Risk Reduction: This element is included within the Township's Master Plan and defines the plans for the use of the current open space within the township. This provides a limitation on future development and its impact on localized flooding.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction: No shoreline within the Township			
Community Forest Management Plan	Yes	Community Forestry Plan	Department of the Public Works
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
The implementation of a Community Forestry Plan prepared by a licensed forestry expert will assist the Township in maintaining its urban forest whish should assist in reducing risk from storms and severe weather conditions.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	Yes	Master Plan 2022, Transportation Element	Planning Board
Impact on Risk Reduction: The Master Plan includes input from Essex County so that the transportation network for this existing, fully developed municipality is reflected in both municipal and county plans. This allows for planning improvements within the existing infrastructure to promote better access.			
Economic Development Plan	Yes	Master Plan 2022, Transportation Element	Planning Board and Township's Department of Economic Development
Impact on Risk Reduction: Guides long term development and transportation infrastructure needs.			
Redevelopment Plans	Yes	Master Plan 2022,as well as Individual Redevelopment Plans	Planning Board and Township's Department of Community Development and Redevelopment Commission
Impact on Risk Reduction: Redevelopment plans are considered individually and assist in the logical redevelopment of challenged areas and neighborhoods, promoting logical and sustainable growth. This reduces the impact of critical events with respect to local flooding and infrastructure.			

The table below summarizes the emergency response and recovery plans that guide the Township of Irvington to prepare for, respond to, and recover from hazard events.

Table 10-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during disaster events. The Plan is updated every 2 years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	Yes	Township Evacuation Plan	Office of Emergency Management
Impact on Risk Reduction: In the event of a severe event, there is a marked plan for the mass evacuation of the population.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Public Health Plan	Public Health Department
Impact on Risk Reduction: Guides response during a disease outbreak event.			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Irvington.

Table 10-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 240 Construction Code, Uniform	Building Department
Impact on Risk Reduction: There is hereby established in the Town of Irvington a State Uniform Construction Code Enforcing Agency to be known as "Irvington Construction Code Agency," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency.			
Zoning or Land Use Regulations	Yes	Chapter 650 Zoning	Planning Board
Impact on Risk Reduction: The provisions of this chapter shall be held to be minimum requirements adopted for the promotion of the public health, safety, morals, and general welfare. Among other purposes, the provisions of this chapter are intended to provide for adequate light, air and convenience of access; to lessen congestion in the streets; to secure safety from fire and other dangers; to avoid undue concentration of population by regulating and limiting the use of land and the height and bulk of buildings wherever erected; to limit and determine the size of yards, courts and other open spaces; to regulate the density of population; and to conserve the value of property and encourage the most appropriate use of land throughout the Township of Irvington;			
Subdivision Regulations	Yes	Chapter 174 Subdivision and Site Plan Review	Planning Board

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Impact on Risk Reduction: The purpose of this chapter is to provide rules, regulations, and standards to guide land subdivision and site plan review in the Town of Irvington in order to promote the public health, safety, convenience, morals and general welfare. It shall be administered to ensure the orderly growth and development of the Town, the conservation, protection and proper use of land and adequate provisions for circulation, utilities, and services, and to achieve the purposes set forth in the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. Minor subdivision approval shall be deemed to be final approval of the subdivision, and the Chairman and Secretary of the Planning Board shall endorse their approval on the plat submitted.			
Site Plan Regulations	Yes	Chapter 174 Subdivision and Site Plan Review	Planning Board
Impact on Risk Reduction: The purpose of this chapter is to provide rules, regulations, and standards to guide land subdivision and site plan review in the Town of Irvington in order to promote the public health, safety, convenience, morals and general welfare. It shall be administered to ensure the orderly growth and development of the Town, the conservation, protection and proper use of land and adequate provisions for circulation, utilities, and services, and to achieve the purposes set forth in the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.			
Stormwater Regulations	Yes	Chapter 550 Stormwater Management	
Impact on Risk Reduction: The purpose of this article is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for green infrastructure, water quality, quantity, and groundwater recharge. This article requires dumpsters and other refuse containers that are outdoors or exposed to stormwater to be covered at all times and prohibits the spilling, dumping, leaking, or otherwise discharge of liquids, semi liquids, or solids from the containers to the municipal separate storm sewer system(s) operated by the Township of Irvington and/or the waters of the state so as to protect public health, safety and welfare. This article requires the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Township of Irvington so as to protect public health, safety and welfare. This Chapter was recently updated to reflect changes required by NJDEP.			
Floodplain Regulations	Yes	Chapter 313 Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22. This Chapter was recently updated to reflect changes required by US EPA/FEMA .			
Environmental Protection Regulations	Yes	Chapter 610 Trees	Administration
Impact on Risk Reduction: Chapter 610 includes regulations to protect trees and regulate where shade trees are to be planted.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

10.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Irvington's departments, boards, and committees that contribute to risk reduction.

Table 10-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	
Planning Department	The Irvington Office of Community Development and Planning's mission is to encourage economic growth throughout the Township by strengthening the Township's competitive position and facilitating investments that build capacity, create jobs, generate economic opportunity, grow the tax base, and improve quality of life. The organizational goal following from this mission statement is to create opportunities for economic development through (I) desirable business and housing growth, expansion, retention and attraction and (II) working to develop a climate conducive to maintaining a community of place for Irvington. Community Development and Planning performs three functions: • Planning and Zoning • Redevelopment Property Disposition

Department / Board / Committee	Description and Role in Risk Reduction
Department of Public Works	The Department of Public Works is responsible for the general management, operation and care of the infrastructure found in the Township's right-of-way including streets, alleys, parking lots, curbs, gutters, sidewalks, traffic signals, traffic signage, street striping, legend painting, curb painting, sanitary sewer system, storm sewer system, street lights, street sweeping, graffiti removal, public landscaping and tree trimming, right-of-way permits and inspections; general management operation and care of Township facilities and properties including electrical, carpentry, plumbing, air conditioning & heating systems, painting, janitorial, phone system; the purchase, maintenance and repair of the Township's vehicle fleet and equipment; review of development projects for public improvements, review of tentative and final subdivision, review and approval of waste management plans.
Construction / Building / Code Enforcement Department	The means available to the Building Department in the Enforcement of New Jersey Construction Code include the following: • The Building Department is responsible for the administration & supervision of the Building Code • The Building Apartment is designated as State Uniform Construction Code (UCC) Enforcement agency • The Building Department is supervised by the Division manager who shall be a licensed Construction Official & City employee in classified Civil Service • Processing/Issuing permits for construction renovations, and or alterations of any structure • Approval of all applications and/or permits • Preparing Certificate of Occupancy C/O • Preparing Continued Certificate of Occupancy's Monthly Reports/Deposits
Engineering Department	Engineering Division is responsible for the construction, repair and design of the township's infrastructure systems and public buildings and facilities. In that capacity, it operates as a service bureau for the various township departments that require these services. It is also responsible for site plan and subdivision review for land use applications. This includes review for stormwater control.
Parks and Recreation Department	The Department of Recreation provides year-round programs of wholesome recreational activities for all of the Township of Irvington's residents. The department also cooperates with other municipal departments as well as coordinates with other service / non-profit organizations in the furtherance of recreational and cultural activities, i.e., sports and performing arts.
Open Space Board / Committee	• Not applicable
Environmental Board / Commission	The Green Team's purpose includes: • Managing Irvington's participation in the Sustainable Jersey program. • Encouraging the Township staff to pursue sustainable practices where possible and implement the Township Committee's environmental goals. • At the recommendation of the Township Committee, work with the existing groups within the Township whose actions affect environmental issues to eliminate duplication and ensure that important tasks are covered. • Provide suggestions for further research and action to the Township Council.

Department / Board / Committee	Description and Role in Risk Reduction
	• At the direction of the Township Committee, provide advice and suggestions to the Township Planning Board, the Township Board of Adjustment and the Township Historic Preservation Commission to ensure that environmental issues are considered in their deliberations and actions. • Manage and organize various ad hoc environmental groups within the Township. • Solicit and evaluate environmental ideas and suggestions from the community. • Promote the causes of sustainability within the Township. Green Team Actions toward Sustainable Jersey certification.
Emergency Management / Public Safety Department	The Irvington Office of Emergency Management strives to protect, serve, and enhance the quality of life for all who reside, work, visit, or travel through the Township of Irvington. The Emergency Operations Center is an integral part of this overall commitment to service and provides a centralized, safe, secure, and technologically advanced platform from which critical incident response planning can be initiated. In this way, the Township of Irvington is well-positioned to meet the needs of its citizens in their times of need.
Fire Department	It is the mission of the Irvington Fire Department to save lives and protect property by the provision of a comprehensive fire protection program designed to deliver its prevention and suppression services efficiently and effectively, and in a manner consistent with proper risk management and all duty recognized standard operating procedures.
Additional departments, boards, and committees	The mission of the Department of Economic Development and Grants Oversight is to facilitate economic growth throughout the Township.

The table below summarizes the Township of Irvington's staff with skills and expertise that contribute to risk reduction.

Table 10-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Outside consultant
Engineer	Township Engineer, Engineering Division
Stormwater Officer	Township Engineer, Engineering Division
Resilience / Sustainability Officer	Not applicable
Grant Writer	Outside consultant
Staff with benefit / cost analysis expertise	Township Engineer, Engineering Division
Staff trained in conducting substantial damage determinations	Office of Emergency Management staff
Staff trained in GIS	Township Engineer
Staff that provide support to socially vulnerable populations	The Township of Irvington Department of Health and Senior Services is a local health department that offers a comprehensive array of public health prevention, promotion, and protection services and programs serving residents in the Township. The Irvington Neighborhood Improvement Corporation (INIC) has been designated as the premier social service agency to provide community resources and services for the Township of Irvington. INIC's mission is to

Staff	Description and Role in Risk Reduction
	address the needs of individuals and families at or below the poverty level. INIC receives funding for programs such as Social Services for the Homeless (SSH) and Temporary Assistance for Needy Families under the Community Service Block Grant (CSBG) through Essex County Division of Community Action. INIC receives funding from the Department of Housing and Urban Development (HUD) for a Transitional Housing Program for homeless families. Irvington Neighborhood Improvement Corporation provides assistance with the following services: • Emergency Relocation Assistance • Utility Assistance • Rental Assistance • Food Pantry • Soup Kitchen • Holiday Giveaways • Referrals (employment assistance, furniture, legal, substance abuse, maternal and mental health) • Cooling/Warming Station (during inclement weather)
Additional staff with skills and expertise that contribute to risk reduction	None

The table below summarizes development and permitting capabilities of the Township of Irvington.

Table 10-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Planning board
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain, Wetlands.
How does your jurisdiction inventory land available for new development?	Permitting
What percentage of your jurisdiction is available for new development?	Very minimal

10.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Irvington.

Table 10-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Yes - Department of Community Development
Capital improvements funding	Yes	Bond Ordinance adopted in November, 2024 and currently being implemented

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Open space acquisition programs	No	-
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Through Tax Collector
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Through Tax Assessor
Ability to incur debt through bonds	Yes	Through Municipal Council
Other financial resources available for hazard mitigation	No	-

10.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Irvington.

Table 10-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Reverse 911 and CodeRED, Air Raid Sirens
Public Information Officer	No
Website	The Township's website (https://irvingtonnj.gov/) provides public safety announcements
Social media	YouTube, Facebook
Public safety campaigns	Mayor's Office
Newsletters	Mayor's Office
Hazard education programs for schools	No
Outreach to socially vulnerable populations	Department of Health and Senior Services and Irvington Neighborhood Improvement Corporation
Other outreach capabilities	No

10.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Irvington.

Table 10-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Administration is by the Township Engineer, which is responsible for permit review, GIS mapping and preparation of Stormwater Control ordinances and plan review
What local department is responsible for floodplain management?	Township Engineer's Office
Are any staff certified floodplain managers (CFMs)?	None known

Floodplain Administration	Comments
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	None known
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	None known
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	None at the present time
How many properties have been mitigated (elevation or acquisition)?	None at the present time
Summarize the jurisdiction's Substantial Damage determination procedures.	Provided by the Township' s Office of Emergency Management (OEM)
Summarize the jurisdiction's Substantial Improvement procedures.	Provided by the Township' s Office of Emergency Management (OEM)
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown if this was ever done.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None known
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Yes, in that the NJDEP definition of "major development" and "major site plan" have been extended to include properties in excess of 5,000 square feet. The NJDEP requirement is 20,000, square feet.

10.3.6 Community Classifications

Table 10-14 summarizes the Township of Irvington's participation in community classification programs.

Table 10-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Bronze	February 28, 2022
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

10.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Irvington has in place and will use to prepare for changes in risk due to climate change.

Table 10-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Heavy rainfall events are likely to increase flood risk.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	No
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not underway
How does the jurisdiction educate the public on potential climate change impacts?	Not underway

10.3.8 Capability Assessment Summary

The Township of Irvington's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Irvington determined the following hazard capability effectiveness ratings.

Table 10-16. Township of Irvington Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

10.3.9 Opportunities to Improve Capabilities and Integration

- The Township lacks a Substantial Damage Response Plan
- The Township will be required to develop a Watershed Improvement Plan by December 2027.
- The Township requires additional emergency response equipment.

10.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Irvington were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Irvington reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township changed the hazard ranking for disease outbreak from low to medium, noting that the Township population consists of many vulnerable residents from historically underserved groups.
- The Township agreed with the remainder of the calculated hazard rankings.

The Township of Irvington agreed upon the following hazard rankings.

Table 10-17. Township of Irvington Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	High
Flood	Medium
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

10.5 Jurisdictional Mitigation Strategy

10.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 10-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Irvington-001	**Expand natural floodplain of the Brook:** The Township will identify the most flood prone properties along the Brook that would be most effective to purchase and return to natural floodplain function in order to reduce runoff into the Brook. The Township will then approach property owners and work to buyout properties. Properties that are bought out will be returned to natural floodplain function.	Engineering	No Progress, limited funding/staffing and lack of property owner interest.	Yes	Address through repetitive loss mitigation
2020-Irvington-002	**Lenox Avenue:** The township will work to buyout properties that are most flood prone and elevate properties that are not interested in buyout. Elevated properties will be elevated to the base flood elevation plus 1 foot. Properties that have been bought out will be restored to natural floodplain function to decrease runoff.	Engineering	No Progress, limited funding/staffing and lack of property owner interest.	Yes	Address through repetitive loss mitigation
2020-Irvington-003	**Drakes Lane:** The township will work to buyout properties that are most flood prone and elevate properties that are not interested in buyout. Elevated properties will be elevated to the base flood elevation plus 1 foot.	Engineering	No Progress, limited funding/staffing and lack of property owner interest.	Yes	Address through repetitive loss mitigation

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	Properties that have been bought out will be restored to natural floodplain function to decrease runoff.				
2020-Irvington-004	**Lincoln Place:** The township will work to buyout properties that are most flood prone and elevate properties that are not interested in buyout. Elevated properties will be elevated to the base flood elevation plus 1 foot. Properties that have been bought out will be restored to natural floodplain function to decrease runoff.	Engineering	No Progress, limited funding/staffing and lack of property owner interest.	Yes	Address through repetitive loss mitigation
2020-Irvington-005	**Campfield Street:** The township will work to buyout properties that are most flood prone and elevate properties that are not interested in buyout. Elevated properties will be elevated to the base flood elevation plus 1 foot. Properties that have been bought out will be restored to natural floodplain function to decrease runoff.	Engineering	No Progress, limited funding/staffing and lack of property owner interest.	Yes	Address through repetitive loss mitigation
2020-Irvington-006	**Backup Power for Town Hall/Library:** The township will research and purchase the proper sized generator to handle the capacity of the Town Hall and Library. The township will then install the generator and required hookups.	Engineering	No Progress.	Yes	The neighboring Police/Fire Station has backup power but in the event of an outage, Town Hall would be without power supply.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Irvington-007	**Study to identify corrective issues to concrete and masonry flumes:** Study to identify corrective issues to concrete and masonry flumes.	USACE, Engineering	In Progress. NJIT has agreed to undertake a study. The Township has also received a $5M grant to work on this effort from NJ DCA. This will include repair of the masonry plume and channel correction measures.	Yes	An additional $5M may be available to continue this work following the first phase.
2020-Irvington-008	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Brook, Drakes Lane, Lennox Avenue, and Lincoln Place area that experience frequent flooding (high risk areas).	NFIP Floodplain Administrator, supported by homeowners	In Progress. While no elevations or acquisitions have taken place, the Township has secured a $5M grant from NJ DCA to address flood control along the Brook which would reduce flood risk.	Yes	-
2020-Irvington-009	**Emergency response equipment:** The Township will purchase an additional fire engine and fire truck for the fire department, water response vehicles for OEM, an upgraded emergency	OEM	No Progress due to limitations in funding availability.	Yes	A new fire truck and engine has been identified for funding through the upcoming Capital Improvement Plan.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	communications system, and tandem dump trucks for debris removal.				

10.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Irvington identified the following mitigation efforts completed since the last HMP:

- None identified.

10.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Irvington identified the following issues that require mitigation.

- Flooding is a recurring issue along the Elizabeth River. A masonry flume has fallen into disrepair in many sections and the channel needs improvements. The original flume was built 100 years ago and is not designed to take into account modern levels of run off and heavy rainfall events.
- Flooding is a recurring issue along the Elizabeth River. A flood study is needed to identify current and future risk and develop potential mitigation actions.
- The Irvington Neighborhood Improvement Corporation (INIC) building is used as an emergency shelter and warming and cooling shelter. The INIC building lacks backup power.
- The Township's water distribution lines are outdated. Lead lines have been identified. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 17 repetitive loss properties and 1 severe repetitive loss property, but other properties may be impacted by flooding as well.
- The Township requires additional emergency response equipment.

10.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Irvington's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 10-19. Township of Irvington 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Irvington-01	Elizabeth River Flood Improvements					X		X	X	
2025-Irvington-02	NJIT Flood Study		X			X		X	X	
2025-Irvington-03	INIC Backup Power			X	X	X	X	X	X	
2025-Irvington-04	Water Distribution Line Replacement		X		X					X
2025-Irvington-05	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-Irvington-06	Watershed Improvement Plan	X	X		X	X				
2025-Irvington-07	Repetitive Loss Mitigation					X		X		
2025-Irvington-08	Emergency Response Equipment	X	X	X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 10-20. Township of Irvington 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Irvington-01	Elizabeth River Flood Improvements	1	1	1	1	1	1	1	1	1	1	1	0	0	1	12	High
2025-Irvington-02	NJIT Flood Study	1	1	1	1	1	1	1	1	1	1	1	0	0	1	12	High
2025-Irvington-03	INIC Backup Power	1	0	1	1	1	0	0	1	1	1	1	0	1	1	10	Medium
2025-Irvington-04	Water Distribution Line Replacement	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2025-Irvington-05	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Irvington-06	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Irvington-07	Repetitive Loss Mitigation	1	1	1	1	0	0	1	1	1	1	1	0	0	1	10	Medium
2025-Irvington-08	Emergency Response Equipment	1	1	1	1	1	0	0	1	1	1	1	0	0	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Irvington-01: Elizabeth River Flood Improvements

Lead Agency:	Engineer	
Supporting Agencies:	DPW	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	Flooding is a recurring issue along the Elizabeth River. A masonry flume has fallen into disrepair in many sections and the channel needs improvements. The original flume was built 100 years ago and is not designed to take into account modern levels of run off and heavy rainfall events.	
Description of the Solution:	Restore the masonry flume and conduct channel improvements.	
Estimated Cost:	$5 million for first phase of work, an additional $5 million available for continued work	
Potential Funding Sources:	NJ DCA grant	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 7	
Benefits:	Reduction in flooding along the Elizabeth River.	
Impact on Socially Vulnerable Populations:	Many socially vulnerable populations have been impacted by flooding from the River in the past. This action will protect all populations with exposure to flooding from the River.	
Impact on Future Development:	Future development/redevelopment will be protected from these improvements.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change has led to an increase in the frequency and severity of heavy rainfall events that have exceeded the design of the masonry flume. This action will result in improvements to the flume to meet modern and future runoff needs.	
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Move the River underground to prevent flooding	Underground channels are not a feasible option.
	Buyout property owners in areas where flooding has occurred.	Property owners are currently unwilling to be bought out.

2025-Irvington-02: NJIT Flood Study

Lead Agency:	NJIT
Supporting Agencies:	Engineer
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Flooding is a recurring issue along the Elizabeth River. A flood study is needed to identify current and future risk and develop potential mitigation actions.
Description of the Solution:	NJIT will conduct a flood study is needed to identify current and future risk and develop potential mitigation actions. Cost-effective actions will be implemented
Estimated Cost:	High
Potential Funding Sources:	NJIT
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4
Benefits:	Reduction in flooding along the Elizabeth River.
Impact on Socially Vulnerable Populations:	Many socially vulnerable populations have been impacted by flooding from the River in the past. This action will protect all populations with exposure to flooding from the River.
Impact on Future Development:	Future development/redevelopment will be protected from these improvements.
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change has led to an increase in the frequency and severity of heavy rainfall events.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Move the River underground to prevent flooding / Underground channels are not a feasible option.
	Buyout property owners in areas where flooding has occurred. / Property owners are currently unwilling to be bought out.

2025-Irvington-03: INIC Backup Power

Lead Agency:	OEM	
Supporting Agencies:	Engineer, Irvington Neighborhood Improvement Corporation, Public Works	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geologic Hazards, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Irvington Neighborhood Improvement Corporation (INIC) building is used as an emergency shelter and warming and cooling shelter. The INIC building lacks backup power.	
Description of the Solution:	The Engineer will determine the backup power capacity needs for the INIC and determine the proper sized generator for the building. OEM will oversee installation of a fixed mounted generator and necessary electrical components to supply backup power to the INIC building. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 6	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	As the premier social service agency for those below the poverty level and homeless families, the socially vulnerable populations that require sheltering are familiar with the facility. Backup power would support these populations.	
Impact on Future Development:	The INIC is likely to be rebuilt or refurbished in the future. Backup power is currently not funded in these plans. This action would provide backup power for the current and future versions of the facility.	
Impact on Critical Facilities/Lifelines:	The INIC is a lifeline facility. This action would protect the capabilities of this sheltering lifeline.	
Impact on Capabilities:	Backup power would protect the social vulnerability support capabilities offered by INIC and protect sheltering capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe weather events that require sheltering and also those events that are likely to disrupt power supply.	
Mitigation Category:	Emergency Services, Climate Resiliency, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Irvington-04: Water Distribution Line Replacement

Lead Agency:	NJ American Water	
Supporting Agencies:	Community Development	
Hazard(s) of Concern:	Drought, Wildfire, Extreme Temperature	
Description of the Problem:	The Township's water distribution lines are outdated. Lead lines have been identified. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities.	
Description of the Solution:	NJ American Water will update the Township's water distribution lines, replacing outdated lead lines with modern materials.	
Estimated Cost:	High	
Potential Funding Sources:	NJ American Water	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6, 7	
Benefits:	The water distribution system will be updated to remove lead lines. New lines will be less likely to leak and fail, protecting the water supply.	
Impact on Socially Vulnerable Populations:	Underserved communities will receive updated water supply lines.	
Impact on Future Development:	All future development/redevelopment will be serviced by updated water lines.	
Impact on Critical Facilities/Lifelines:	This action protects the water supply.	
Impact on Capabilities:	This action protects firefighting capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of droughts. Extreme temperature events may further stress the water infrastructure system.	
Mitigation Category:	Property Protection, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Have secondary water supply available for distribution in the event of failure of water lines	Unable to provide enough water supply for large events or firefighting
	Require homeowners to pay for water line replacements when completing other work	Not viable. Water lines for Township need to be done for full segments, not individual properties.

2025-Irvington-05: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	OEM, Building Department, Public Works, Administration
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action**: No Action **Evaluation**: -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Irvington-06: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Irvington-06: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 17 repetitive loss properties and 1 severe repetitive loss properties, but other properties may be impacted by flooding as well.	
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners	
Implementation Timeline:	3 years	
Goals Met:	1, 2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.	
Mitigation Category:	Structure and Infrastructure Project	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Irvington-06: Emergency Response Equipment

Lead Agency:	OEM	
Supporting Agencies:	Fire Department, Public Works	
Hazard(s) of Concern:	All Hazards	
Description of the Problem:	The Township requires additional Emergency response equipment.	
Description of the Solution:	The Township will purchase an additional fire engine and fire truck for the fire department, water response vehicles for OEM, an upgraded emergency communications system, tandem dump trucks for debris removal.	
Estimated Cost:	High	
Potential Funding Sources:	Municipal budget. A new fire truck and engine has been identified for funding through the upcoming Capital Improvement Plan.	
Implementation Timeline:	5 years	
Goals Met:	1, 2, 5, 7	
Benefits:	Increase emergency response capabilities	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often the first to need emergency response. This action will increase emergency response capabilities.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will increase the security and health lifeline capabilities.	
Impact on Capabilities:	This action will increase emergency response capabilities	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe weather events that require emergency response	
Mitigation Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Establish shared services with other municipalities	Unlikely to have enough capacity, slower response times
	Establish shared services with the County	Unlikely to have enough capacity, slower response times

10.6 Jurisdictional Hazard Mitigation Team

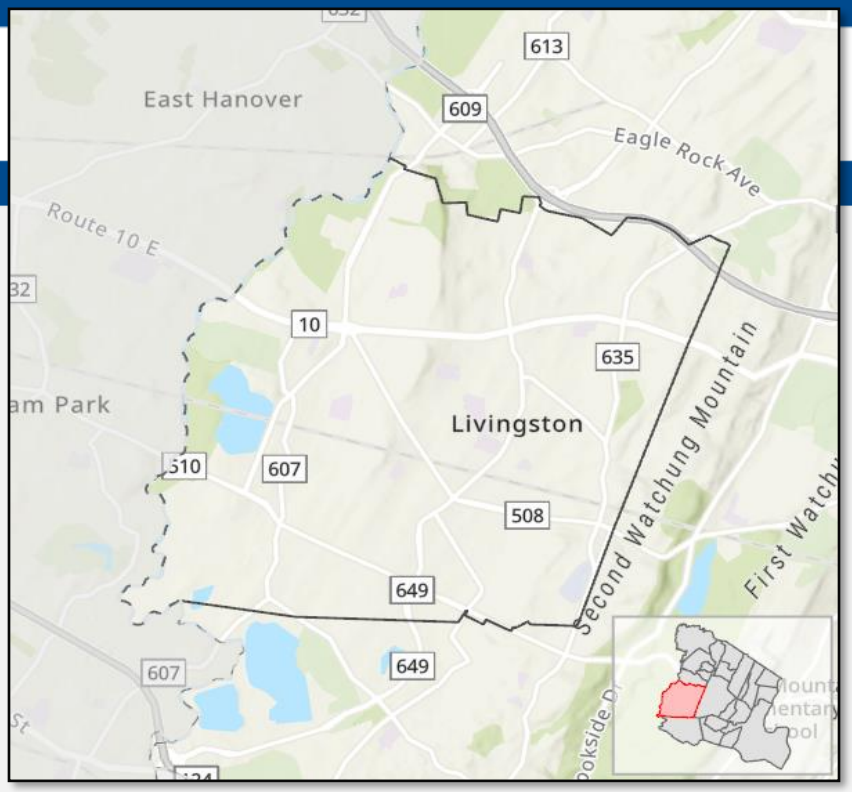
Table 10-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	John Brown, Deputy Director of Public Safety/OEM Coordinator	Name and Title:	Shazil Grisham, Account Clerk
Address:	1 Civic Square, Irvington, NJ 07111	Address:	1 Civic Square, Irvington, NJ 07111
Phone Number:	973-399-6555	Phone Number:	973-399-6667
Email:	jbrown@irvingtonnj.gov	Email:	sgrisham@irvingtonnj.gov
NFIP Floodplain Administrator			
Name and Title:	John Wiggins, Engineer		
Address:	1 Civic Square, Irvington, NJ 07111		
Phone Number:	973-399-6696		
Email:	jwiggins@irvingtonnj.gov		

Table 10-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
William Mulligan, Irvington Fire Department	Attended annex support meeting, contributed to mitigation strategy
John Wiggins, Engineer	Attended annex support meeting, contributed to mitigation strategy
John Brown, OEM Coordinator	Attended annex support meeting, contributed to mitigation strategy

Township of Livingston



POPULATION STATISTICS

31,128
TOTAL POPULATION (2023 ACS)

0.06%
Change in population since 2010 Census

10,425
TOTAL HOUSEHOLDS

AT RISK POPULATION

5,841
Population Over 65

1,533
Population Under 5

1,917
Living With Disability

141
Households Without Vehicle

1,341
People Renting Homes

POVERTY AND LANGUAGE

437
Households Below Poverty Level

3,064
Population With English as 2nd Language

POPULATION AND BUSINESSES

48,753
Daytime Population

1,555
Total Businesses

14,387
Total Employees

FLOOD VULNERABILITY

586
Number of People in 1% SFHA

204
Number of Buildings in 1% SFHA

1
Community Lifelines in 1% SFHA

11 TOWNSHIP OF LIVINGSTON

11.1 JURISDICTIONAL PROFILE

The Township of Livingston is located 21.9 miles west of New York City, providing easy commuting access for residents through public transportation or personal vehicle (Township of Livingston, 2014). The land area of Livingston Township encompasses 14.08 square miles with 13.77 square miles being land and 0.31 square miles being water. To the west is East Hanover and Florham Park in Morris County, to the east is the Township of West Orange, to the south is the Township of Millburn, and to the north is the Borough of Roseland.

Livingston Township is named for the first Governor of New Jersey, William Livingston, who had an integral role in the formation of the United States Constitution. Seven Hamlets, Teedtown, Northfield, Morehousetown, Cheapside, Washington Place, and Squiretown, resided in the area prior to coming together to create Livingston Township (Township of Livingston, 2014). The Council-Manager form of government was started in Livingston Township in 1957. The Town Council consists of five Livingston residents. From the members of the town council, the Mayor is chosen (Township of Livingston, 2014).

The Township has a large number of assisted living homes for the elderly and disabled. Township staff regularly communicate with these facilities prior to hazard events and occasionally provide assistance with relocation needs as necessary.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

11.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Township of Livingston's risk to the hazards of concern identified for the 2025 HMP update.

11.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Livingston's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 11-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20,2020 – May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Local Disaster Declaration.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest	No Local Declarations.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of ½ to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Local losses included DPW facility water damage, DPW equipment damage (water), debris removal expenses, minor infrastructure damages.
September 1-3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Vehicle losses – P.D., F.D., D.P.W. Flooding issues DPW facility, damage to tools and equipment, infrastructure "Roadway Repairs" roadway washouts, townwide debris removal, etc.

11.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

Low lying isolated areas outside the mapped floodplain are subject to flooding during short duration, high intensity storms when existing stormwater infrastructure is overwhelmed. This issue occurs throughout the Township.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Livingston.

Table 11-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
198	$249,647	$73,820,000	288	$2,720,274	14	2

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

To the Township's knowledge, no structures have been declared substantially damaged in the past.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is

required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 11-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Atlantic Ambulance Corporation	EMS	X

Source: Essex 2025; FEMA 2020

11.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of Livingston, including major residential/commercial/industrial development and major infrastructure development.

Table 11-4. Recent and Expected Future Development

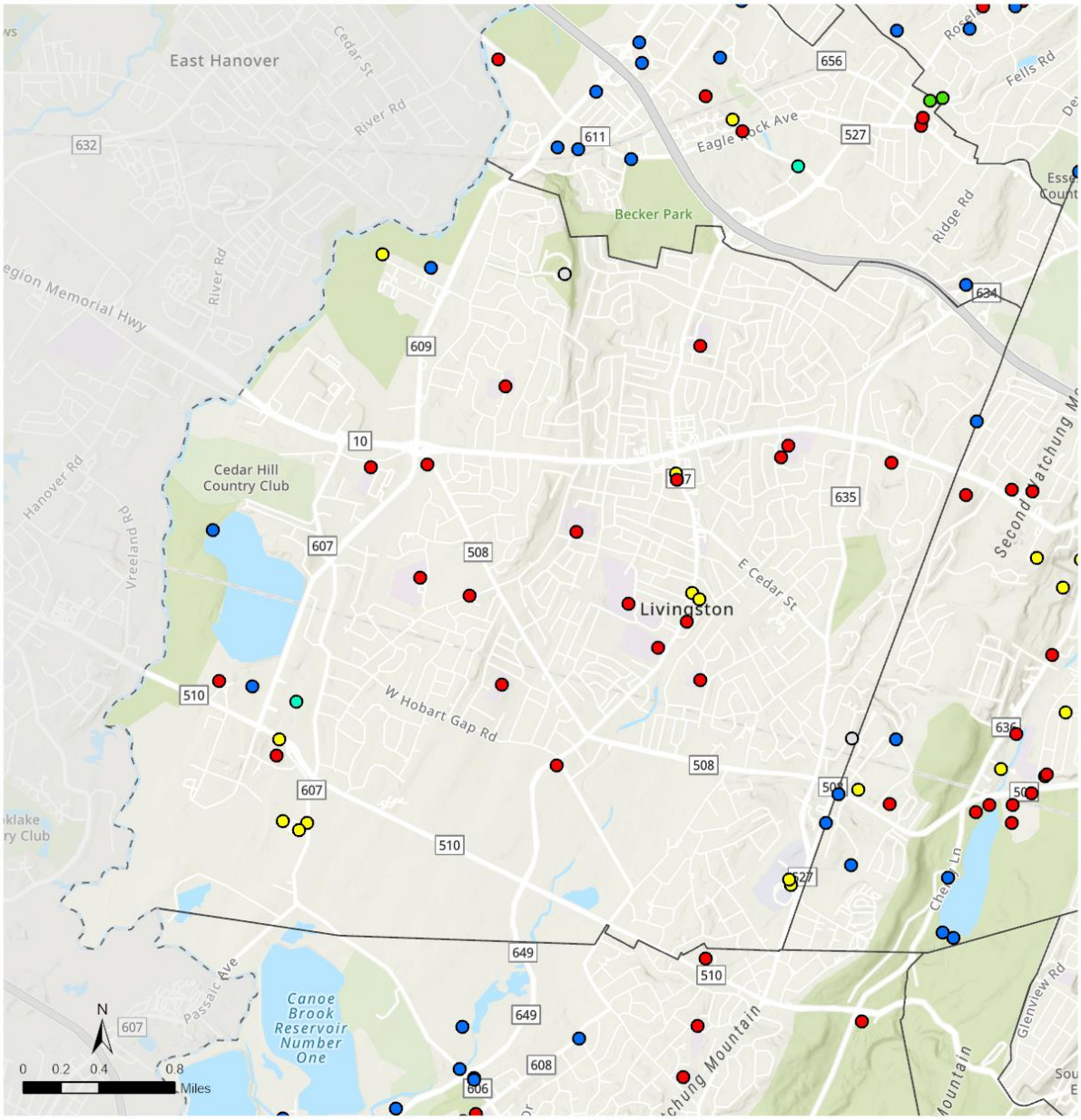
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Gibbs College-Okner Urban Renewal	Residential Multi-family	300 Units	630 Rt. 10 – Block 100; Lot 3.02		In Progress, Completion in 2025
Livingston Builders	Mixed Use	26 Units	531 South Livingston Avenue		In Progress, Completion in 2025
Highgate	Residential	221 Units	South Orange Avenue		To be completed in Fall 2025
Esplande Livana	Residential	120 Units	550 West Mount Pleasant		Approved, Construction to begin in 2025
Esplande Livana	Residential	160 Units	570 West Mount Pleasant		Approved, Construction to begin in 2025
Bottle King/Firehouse	Mixed Use	210 Units	45 South Livingston Avenue		Pending Approval
Metro YMCA	Commercial		304 South Livingston Avenue		Approved, Construction to begin in 2025
Brightview Senior Living	Senior Residential	150 Units	321 South Livingston Avenue, Block 3100; Lots 55 & 56		Approved, Construction to begin in 2025
Camelot	Multifamily	223	70 South Orange Avenue		In Progress for approval
Livingston Mall	Mixed Use				Redevelopment Plan Pending

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Summit Medical	Commercial				Approved, under construction

11.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Livingston that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 11-1. Township of Livingston Community Lifelines

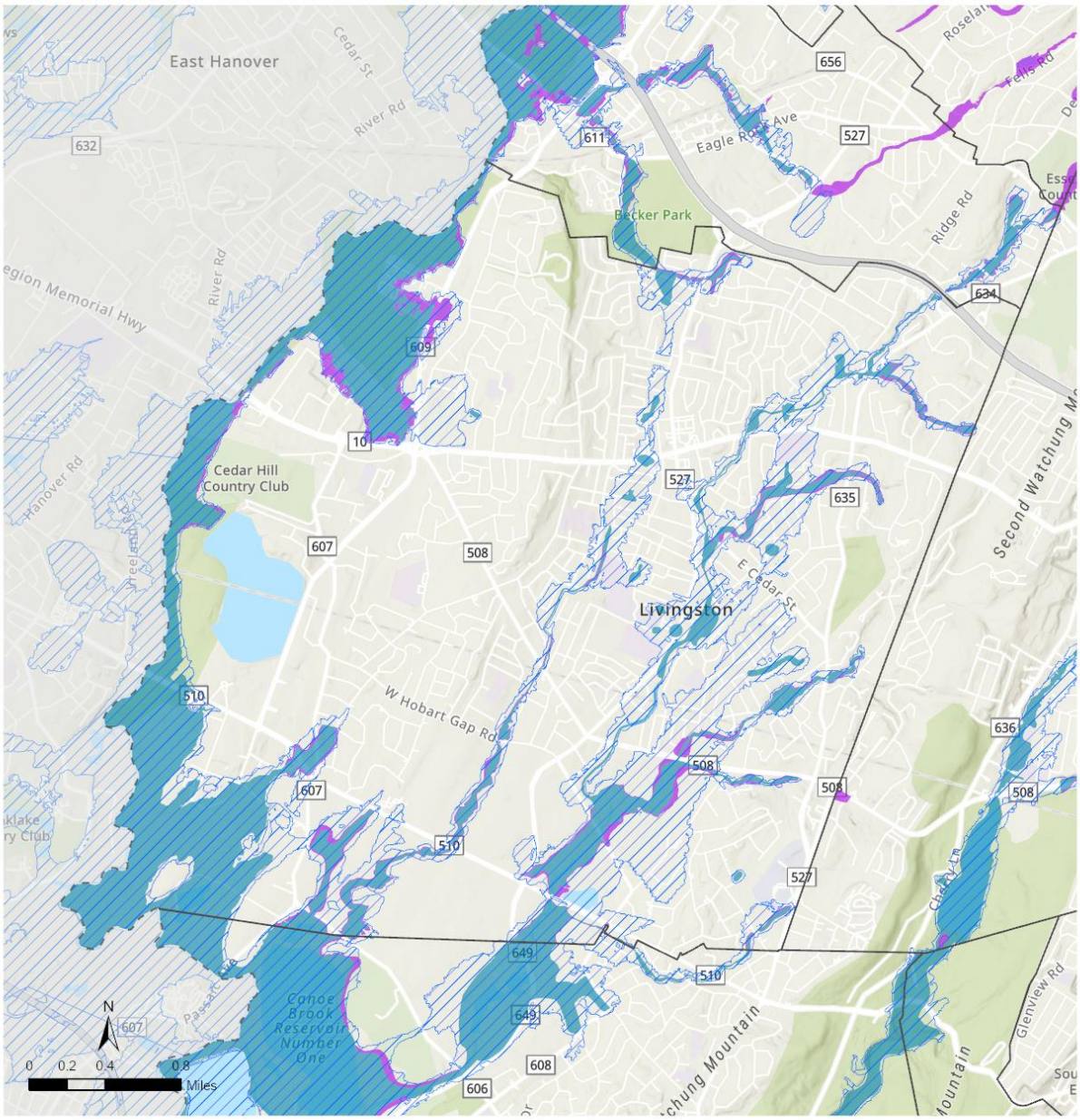


Livingston Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 11-2. Township of Livingston Flood-Related Hazards

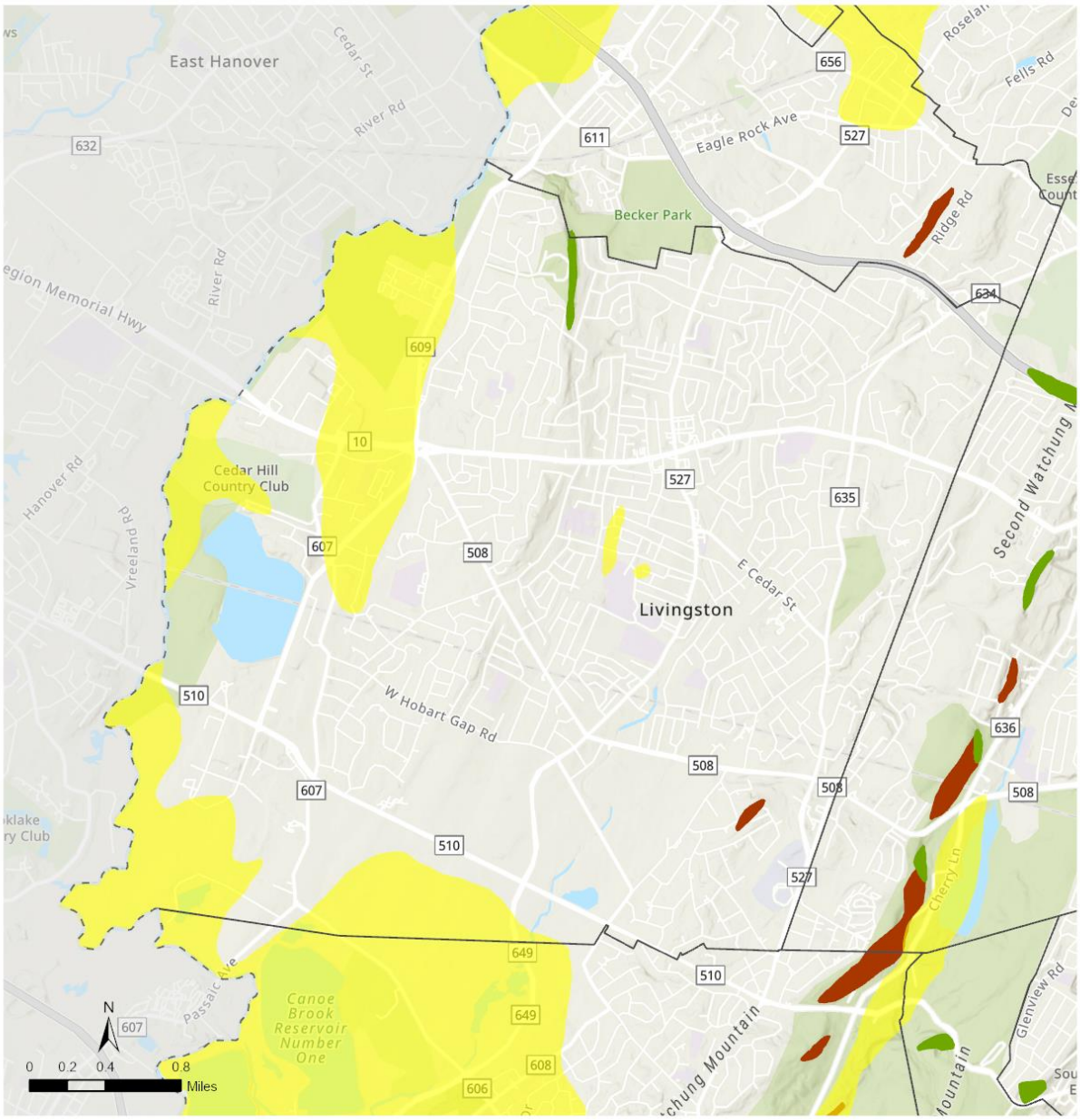


Livingston Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 11-3. Township of Livingston Geological Hazards



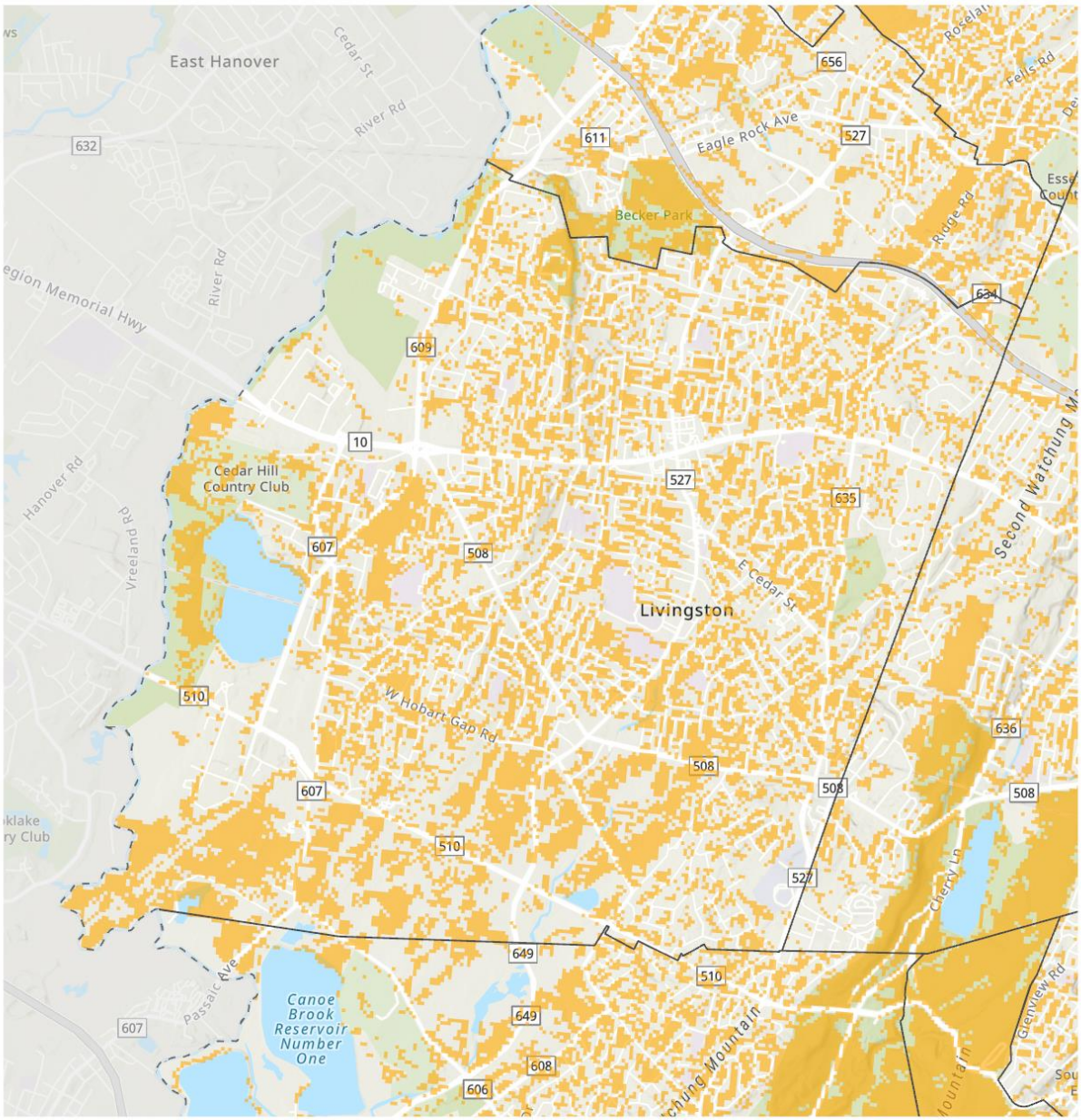
Livingston Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 11-4. Township of Livingston Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

11.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Livingston, climate change is likely to have the following impacts:

- Climate change is likely to result in increased heavy rainfall events that could cause flooding.

11.2.5 Risk Assessment Summary

- Canoe Brook, Cub Brook, and Slough Brook are degraded. Streambanks are eroded and collapsing, trees and debris have created snags, and excess sediment has filled channels. All of these factors have contributed to flooding. Residences have been impacted.
- The Department of Public Works Garage is located in the floodplain and has repetitively flooded. This results in damage to the garage, vehicles, and equipment. Flooding of the Garage also results in loss of emergency response and maintenance capabilities of the DPW.
- Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 14 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.

11.3 Jurisdictional Capability Assessment

The Township of Livingston performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

11.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Livingston.

Table 11-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Livingston Master Plan (Adopted April 2018)	Planning Board
Impact on Risk Reduction: The Master Plan includes sections for Land Use, Circulation, Utilities, Community Facilities, Recreation & Parks, Conservation Plan, Economic Plan, Historic Preservation Plan, and Stormwater Management Plan. The Plan guides the growth, development, preservation, and revitalization of the community and its quality of life and is periodically reexamined for its continuing applicability to the present and foreseen needs of the community.			
Capital Improvement Plan	Yes	Capital Improvement Plan	CFO
Impact on Risk Reduction: The Capital Improvement Plan is updated annually. Capital funding can be used for hazard mitigation projects.			
Stormwater Management Plan	Yes	Livingston Master Plan (Adopted April 2018). Stormwater Management Plan	Engineer
Impact on Risk Reduction: The Municipal Stormwater Management Plan documents the strategy for the Township of Livingston to address stormwater management primarily in new development and redevelopment projects that involve greater than one acre of disturbance. The MSWMP includes recommendations that extend strict stormwater management design and performance standards to new non-residential development. Stormwater management for new residential development is under the Residential Site Improvement Standards (RSIS) with additional requirements found in the Township's Lot Surface Drainage Ordinance adopted in 2008. These recommendations result in the Township meeting the requirements of the NJDEP Stormwater Management Rules as required by its New Jersey Pollutant Discharge Elimination System (NJPDES) Tier A Municipal Stormwater General Permit.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan	Engineer
Impact on Risk Reduction: Guides prevention of pollution caused by flooding at construction sites.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Livingston Master Plan (Adopted April 2018) section VIII – Recreation & Parks Plan	Planning Board
Impact on Risk Reduction: With tree-lined streets, a growing downtown district, and non-residential development located mostly along frequently traversed arterial roads, it is home to two county parks, a regional trail, and numerous municipal parks, trails, and recreation facilities. The Broad Goals of this Recreation & Parks Plan Element are: • To maintain safe and reliable facilities in an efficient and most effective manner. • Improve and expand the Township's parks, and both passive and active recreational facilities. • Encourage improvement and increased utilizations of County and State parks within the Township.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
• Develop recreational facilities that will incorporate American with Disabilities Act (ADA), accommodations for persons of all abilities both mentally and physically.			
Habitat Conservation Plan	Yes	Livingston Master Plan (Adopted April 2018) Section IX – Conservation Plan	Planning Board
Impact on Risk Reduction: The Section IX – Conservation Plan Element reviews the present and anticipated natural resource conservation needs of the community and the resources currently in place, and makes recommendations for maintenance, improvement, and expansion.			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	Yes	Livingston Master Plan (Adopted April 2018) Section V – Circulation Plan	Planning Board, Public Words, Engineering
Impact on Risk Reduction: The Master Plan has Section V, Circulation Plan. The focus of the Circulation Plan is in-town vehicle and pedestrian safety, parking, and bicycling.			
Economic Development Plan	Yes	Livingston Master Plan (Adopted April 2018) Section X – Economic Plan	Planning Board
Impact on Risk Reduction: The objective of this Economic Plan Element is to promote identification of business and occupational trends and actions of programs that will maintain or improve the business climate within the Township. Livingston is growing at a healthy pace and maintaining its place as a major influence in Essex County. This Economic Plan considers data for Essex County and Morris County as well as for the Township itself.			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Livingston to prepare for, respond to, and recover from hazard events.

Table 11-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Comprehensive Emergency Management Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Continuity of Operations Plan / Continuity of Government Plan	Yes	Comprehensive Emergency Management Plan	Office of Emergency Management
Impact on Risk Reduction: Continuity of Operations is an element of the Comprehensive Emergency Management Plan.			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Comprehensive Emergency Management Plan	Office of Emergency Management
Impact on Risk Reduction: The Public Health Plan is an annex of the Comprehensive Emergency Management Plan.			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Livingston.

Table 11-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 110 Construction Codes, Uniform	Building Department
Impact on Risk Reduction: There is hereby established within the Township a State Uniform Construction Code enforcing agency to be known as the "Municipal Enforcing Agency," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official, Elevator Subcode Official, Mechanical Subcode Official, and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency.			
Zoning or Land Use Regulations	Yes	Chapter 170 Land Use	Planning Board
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
It is the intent and purpose of Chapter 170 to: (1) Encourage action to guide the appropriate use or development of all lands in the Township in a manner which will promote the public health, safety, morals and general welfare. (2) Secure safety from fire, flood, panic and other natural and man-made disasters. (3) Provide adequate light, air and open space. (4) Ensure that the development of the Township does not conflict with the development and general welfare of neighboring municipalities. (5) Promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods and the entire municipality as well as the preservation of the environment. (6) Encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies. (7) Provide sufficient space in appropriate locations for a variety of residential, recreational, commercial and industrial uses and open space, both public and private, according to their respective environmental requirements. (8) Encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight. (9) Promote a desirable visual environment through creative development techniques and good civic design and arrangements. (10) Promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land. (11) Establish orderly and uniform procedures relating to land use and development regulation. The Township of Livingston has ordinances (Ordinance No. 7, 1987 and Ordinance No. 42, 1987) in place concerning the use of open space zoning or residential clusters. The ordinances are designed to preserve contiguous, open space and to provide desirable aesthetics while preserving natural resources such as wetlands. In exchange for dedicated open space, developers are allowed to build on smaller lots than in conventional zoning.			
Subdivision Regulations	Yes	Chapter 170 Land Use Article IX Subdivision Review, Site Plan Review, and Site Improvements	Planning Board
Impact on Risk Reduction: Chapter 170 sets filing, review, and approval procedures for subdivisions.			
Site Plan Regulations	Yes	Chapter 170 Land Use Article IX Subdivision Review, Site Plan Review, and Site Improvements	Planning Board
Impact on Risk Reduction: Chapter 170 sets filing, review, and approval procedures for site plans.			
Stormwater Regulations	Yes	Chapter 272 Storm Sewers	Engineer
Impact on Risk Reduction: Chapter 272 prohibits illicit connections and identifies prohibited discharges to protect stormwater quantity and quality.			
Floodplain Regulations	Yes	Chapter 170 Land Use Article X Flood Hazard Areas	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: (1) Protect human life and health. (2) Prevent unnecessary disruption of commerce, access, and public service during times of flooding. (3) Manage the alteration of natural floodplains, stream channels and shorelines;			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
(4) Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. (5) Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. (6) Contribute to improved construction techniques in the floodplain. (7) Minimize damage to public and private facilities and utilities. (8) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. (9) Minimize the need for rescue and relief efforts associated with flooding. (10) Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. (11) Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. (12) Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 130 Environmental Impact Statement; Chapter 210 Parks and Recreation Areas, Article II Parks and Recreation Areas; Chapter 260 Soil Removal; Chapter 306 Trees	Planning Board
Impact on Risk Reduction: Chapter 130 states that every application filed with the Planning Board for approval of a project, as the same is herein defined, shall be accompanied by an environmental impact statement. Chapter 210 Article II aims to protect certain areas of the Township, designated as nature preserves, from unsightly appearance, alteration, or deterioration. Chapter 260 states that no owner, developer, excavator, or other person shall move or cause, allow, permit or suffer to be moved, any soil from any land in the Township, until a soil permit shall have been issued. Chapter 306 aims to preserve the biomass and its benefits, and, in certain circumstances, to provide for replacement of trees that are removed or destroyed. Control of removal of trees, and requiring replacement plantings for trees removed, will mitigate noise, soil erosion, the buildup of atmospheric carbon dioxide and other pollutants, and protect natural habitat for wildlife and birds, provide shade, protect aesthetic and scenic beauty, and protect or enhance property values. The Township of Livingston has a tree ordinance (Ordinance No. 6-2004). The ordinance requires any property owner on a property of one acre or more who removes a tree to replace it with a tree of comparable size and quality. If it is impractical to replace the tree, then a donation must be made to the Township for tree planting and replacement.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Recognizing that a growing number of residents were interested in small alternative energy systems (i.e, solar and wind power installations), the Planning Board developed and presented to the Township Council in 2011 an ordinance to define the permitted uses and structures related to alternative energy systems. The ordinance covers issues such as setbacks, height and allowed noise levels, and maintenance issues. The ordinance covers both roof-mounted and ground-mounted installations. This became Ordinance No 32-2011, "Alternative Small Energy Systems, passed and adopted by the Township Council on 11/7/11. In developing and passing the ordinance, both the Planning Board and the Township Council made clear that this was not meant to be a limiting but an enabling			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
ordinance that would give residents the information they need to install wind and solar systems. The purpose was to establish wind and solar installations as an allowable energy system within the Township of Livingston.			

11.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Livingston's departments, boards, and committees that contribute to risk reduction.

Table 11-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Livingston Planning Board works to understand and enforce the Township's Master Plan as well as monitor capital improvements, conditional use, and the applications for new developments. Services include: • Review applications for development in Livingston • Maintain and revise the Master Plan • Monitor permitted activities and developments The Livingston Zoning Board works to ensure that any disputes that arise from any zoning ordinances are solved fairly. The Board also handles requests for interpretation of the zoning map or ordinances, and grant variances. Services include: • Handling disputes stemming from ordinances • Hear out appeals • Grant variances
Planning Department	The Livingston Planning Department works closely with residents and other infrastructure departments in order to ensure appropriate land development and redevelopment. The Department also reviews all construction and land usage in accordance with Township land ordinances. Services include: • Provide affordable housing information • Provide interpretation of development laws • Evaluate master plan • Review applications
Public Works / Highway Department	The Livingston Public Works Department is responsible for maintaining all public areas and town infrastructure. Services include: • Collect and dispose of approximately 38,000 cubic yards of leaves every fall • Conduct a catch basin cleaning program that includes annually inspecting and cleaning over 3,100 catch basins, as needed • Conduct a curb repair program from the spring through the summer • Conduct the metal recycling collection program • Conduct a street sweeping program from April through October • Conduct a year-round road and pothole repair program • Conduct a year-round tree trimming, removal and planting program • Maintain parks and athletic fields • Maintain sidewalks on Township property

Department / Board / Committee	Description and Role in Risk Reduction
	• Plow all Township roads and school parking lots, including cleaning snow from public-owned sidewalks and municipal facilities • Provide street sign maintenance • Respond to work orders generated as the result of citizen requests for service • Supervise an annual crack-sealing and microsurfacing program • Assist other departments as needed The Livingston Township Sewer Utility provides the community with wastewater collection and treatment. The Utility is responsible for the treatment of sewage generated by the town. It operates the sanitary systems for the community and works to ensure the cleanliness of wastewater.
Construction / Building / Code Enforcement Department	The Livingston Building Department provide information regarding local, state, and federal building codes. Services include: • Provide guidance to residents regarding proposed structures • Work closely with other departments to ensure appropriate use of land • Grant permits to residents for: • Fences and retaining walls • Raised decks and patios • Pools, spas, and hot tubs • Home construction, renovation, and additions • Tree removal
Engineering Department	The mission of the Engineering Department is to responsibly manage the improvement, maintenance, and operation of Township facilities and infrastructure. The Engineering Department oversees the construction activities within the Township Right-of-Ways to ensure the safety of the general public. This includes the construction, reconstruction, and maintenance of Township facilities including roads, utilities (water, storm and sanitary sewer), parks, buildings, and any other Township infrastructure. Some of the specific services of the Engineering Department are: • Design of infrastructure improvements by preparing plans and specifications for public bidding in accordance with all local, state, and federal standards. Funding for these projects is secured through capital funds and grants. • Issue road opening permits and inspections to ensure compliance with local standards. • Review applications submitted for approval to the Livingston Planning Board and Zoning Board of Adjustment. • Respond to requests from the public on a variety of requests and issue information on flood zones, permitting, and other engineering documents. • Ensure environmental compliance on all improvements to local, state, and federal requirements. This includes reviewing all residential and commercial development applications for compliance with floodplain, wetland, steep slope, and riparian buffer requirements. • Establish engineering standards for all improvements and maintain the Townships tax maps and Geographic Information System.

Department / Board / Committee	Description and Role in Risk Reduction
	• Supervise and provide support services to the Department of Public Works, Water Department, Sewer Department, and Water Pollution Control Facility. • Review and inspect applications for Lot Surface Drainage and Sump Pump ordinance compliance to ensure that adjoining properties are protected from runoff associated with new development. • Issue soil removal permits and inspections to ensure compliance with local standards. • Ensure compliance with state and federal Stormwater Management requirements. • Perform searches for public information in response to OPRA requests.
Parks and Recreation Department	Recreation & Senior Services Department
Open Space Board / Committee	The mission of the Township's Open Space Trust Committee is to investigate available properties in Livingston and make recommendations to the Township Council on the advisability of having the Trust purchase those properties for Open Space preservation or for conservation, recreation, or permanent preservation.
Environmental Board / Commission	The Livingston Environmental Commission (LEC) members study and make recommendations to the Township Council on issues relating to protecting, developing, or using the natural resources — including water resources and open space — located within the Township. The LEC reviews the potential environmental impacts of applications heard before the Planning Board and Zoning Board of Adjustment. The Livingston Green Team Committee manages the Township's participation in the Sustainable Jersey program. The Township is a Bronze Level community.
Emergency Management / Public Safety Department	The Office of Emergency Management provides leadership to prepare for any emergency situation that may occur with public health and safety as priorities.
Fire Department	The Livingston Fire Department works to safeguard the lives and property and enhance the quality of life of the residents of and visitors by responding to emergencies, providing fire safety education and training, enforcing fire prevention measures, and through public relations and personal contacts with residents.
Additional departments, boards, and committees	The mission of the Livingston Transportation Committee is to provide recommendations to the Township Council to support and improve the safety and mobility of people in town. The Vision 20/20 Committee's purpose is to create a long-term vision for the Township of Livingston that will improve the quality of life for the community, its residents, and businesses. The committee plans to accomplish this through a broad based community collaboration with all interested residents, township organizations, and businesses. Input from all members of the Livingston community is vital to the success of the Vision 20/20 process. Action areas to be addressed include: • Economic Development • Education • Environment & Open Space • Parks and Recreation • Public Safety

Department / Board / Committee	Description and Role in Risk Reduction
	• Senior Citizens • Transportation • Youth and Social Services

The table below summarizes the Township of Livingston's staff with skills and expertise that contribute to risk reduction.

Table 11-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Planning Department
Engineer	Engineering Department
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	All department heads submit grant applications
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	Planning and Engineering Departments
Staff that provide support to socially vulnerable populations	The Recreation & Senior Services Department is comprised of programming and services that encompass all community citizens, provides integrated and comprehensive services that promote the welfare of the community, the positive development of youth, support for older adults, and the strengthening of families. The Livingston Recreation and Senior Services offers a Senior Services Senior Transportation Program for: • residents 62 years of age and older, and • disabled residents 18 years of age and older
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of Livingston.

Table 11-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Building Department and Engineering Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	Vacant land analysis
What percentage of your jurisdiction is available for new development?	One percent.

11.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Livingston.

Table 11-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible to use
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible to use
Community Development Block Grants (CDBG, CDBG-DR)	No	-
Capital improvements funding	Yes	Through the Capital Improvements Plan.
Open space acquisition programs	No	-
Impact fees for developers of new homes	Yes	Available
User fees for water, sewer, gas, or electric	Yes	Available
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	No	-
Ability to incur debt through bonds	Yes	Through general obligation bonds
Other financial resources available for hazard mitigation	No	-

11.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Livingston.

Table 11-12. Development and Permitting Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	Livingston uses Smart911 combined with the RAVE Alert system as its Emergency Alert System. This allows Township employees to quickly alert residents to emergencies and town-wide situations, including severe storm warnings, road closures or water issues in the local area.
Public Information Officer	No
Website	The Township website has information on preparedness, how to prepare those with a disability for disaster, links to the Essex County Hazard Mitigation Plan, FEMA, how to make a Family Emergency Plan, winter storm preparation, etc. The website is supported by the Technology Committee.
Social media	Facebook, Instagram, X (formerly known as Twitter), YouTube
Public safety campaigns	No
Newsletters	No

Outreach Capability	Description and Role in Risk Reduction
Hazard education programs for schools	The Environmental Commission mentors the High School environmental group and allows for two high school students as non-voting members.
Outreach to socially vulnerable populations	Livingston Recreation and Senior Services works with seniors and has a special needs individuals sports league. The Office of Emergency Management provides guidance on how to prepare those with a disability for disaster. The Senior Advisory Committee advises the Township's Recreation & Senior Services Department on the needs of senior citizens, including issues and matters related to the Livingston Senior/Community Center and its senior programs and activities. The Committee represents Livingston senior citizens and makes recommendations and suggestions for senior programs and social activities that will maintain or improve senior citizens' quality of life." Livingston Advisory Committee for Disabilities (LACD) LACD) provides programs for people with special needs. All programs are free of charge. Livingston Committee for Diversity & Inclusion (LCDI) celebrates the cultural heritages and backgrounds of our residents and works to raise awareness in the community.
Other outreach capabilities	LTV is the community access television channel for Livingston, New Jersey. It can be found on cable television via Comcast (Channel 34) and Verizon (Channels 26 and 28). Additionally, LTV can now be found online at www.LivingstonTV.org, which provides a live stream of the cable channel plus numerous shows available to watch "on-demand." LTV is operated by the Livingston Public Broadcasting Committee -- a group of volunteers (adults and HS students) who recognize all the "good" that Livingston has to offer; have an interest in television programming, production, operations and marketing; and give their time toward promoting local information, entertainment, and education to all members of the Livingston community.

11.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Livingston.

Table 11-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The Township provides permit reviews of properties subject to flooding as per the FEMA flood maps. Flood zones are mapped in the Township's GIS.
What local department is responsible for floodplain management?	Engineering Department
Are any staff certified floodplain managers (CFMs)?	Yes
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No

Floodplain Administration	Comments
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	N/A
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	Determinations of substantial damage are reviewed when a property applies for Building permits. Establishing official procedures for substantial damage determinations would be helpful to ensure necessary requirements are followed after major events.
Summarize the jurisdiction's Substantial Improvement procedures.	Determinations of substantial improvements are reviewed when a property applies for Building permits.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAC: 10/15/1993, CAV: 06/29/1993
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

11.3.6 Community Classifications

Table 11-14 summarizes the Township of Livingston's participation in community classification programs.

Table 11-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Bronze	November 11, 2024
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

11.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Livingston has in place and will use to prepare for changes in risk due to climate change.

Table 11-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Drought, Extreme Temperature, Flood, Severe Weather, Severe Winter Weather, Wildfires.
What information does the jurisdiction use to understand potential climate change impacts?	Township Departments and Floodplain Manager have identified best available information.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Updated flood damage prevention ordinance
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Township Council/Administration, Environmental Commission, Engineering, Planning Departments, Floodplain Manager.
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Funds are being identified.
How does the jurisdiction educate the public on potential climate change impacts?	Education programs are not in place yet but likely to be developed in the future.

11.3.8 Capability Assessment Summary

The Township of Livingston's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Livingston determined the following hazard capability effectiveness ratings.

Table 11-16. Township of Livingston Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

11.3.9 Opportunities to Improve Capabilities and Integration

- The Borough lacks a Substantial Damage Response Plan

- The Borough will be required to develop a Watershed Improvement Plan by December 2027.
- Mitigation planning in the Township of Livingston is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.

11.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Livingston were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Livingston reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- Factors considered included the increase in recent building/construction throughout the Township, future development, and continued impacts of climate change on hazards such as drought, extreme temperature, flood, severe weather, severe winter weather, and wildfire.
- The Township agreed with the calculated hazard rankings.

Table 11-17. Township of Livingston Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

11.5 Jurisdictional Mitigation Strategy

11.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 11-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-LIVINGSTON-001	**Conduct stream cleaning and restoration:** Develop plan for stream cleaning and restoration in Canoe Brook, Cub Brook and Slough Brook.	Township Engineering	In Progress, Phase 1 cleaned a section of Canoe Brook. Removal of sediment, downed trees, debris, and snags.	Yes	-
2020-LIVINGSTON-002	**Relocate DPW garage:** Relocate DPW garage	Township Engineering	In Progress, Land has been acquired. Township is designing new facility. The new facility would be built in accordance with update NJ DEP flood standards.	Yes	Groundbreaking expected in 2025
2020-LIVINGSTON-003	**Evaluate all new development to reduce stormwater runoff with every plan review:** Complete a town-wide drainage study that evaluates capacity of all systems to handle current runoff. This study and plan will identify all localized flooding outside of FEMA designated zones, including 9 RL properties, and devise mitigation options to eliminate these hazards.	Township Engineering	Ongoing Capability; isolated drainage studies are completed in areas prone to flooding as identified and needed.	No, ongoing capability	-
2020-LIVINGSTON-004	**Easement and culvert cleaning plan:** Develop and implement an easement and culvert cleaning plan.	Township Engineering, DPW	Ongoing Capability, DPW cleans as needed and when requested by residents.	No, ongoing capability	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-LIVINGSTON-005	**Restore old drainage ways to their original capacity:** Restore old drainage ways to their original capacity.	Township Engineering	Ongoing Capability as part of regular stormwater maintenance.	No, ongoing capability	-
2020-LIVINGSTON-006	**Post-event damage assessment program:** Implement a post-event damage assessment program, including the following: • Conduct public outreach to inform property owners of the need to report property damage and obtain required permitting when making repairs. • Organize local resources to conduct post-event damage assessments, including substantial damage determination. Develop an inventory (file system and/or database) of losses (i.e., loss of service, property damage, economic losses).	Township Engineering, FPA	In Progress. Application for damage evaluation is being provided by the state.	Yes	Develop substantial damage management plan
2020-LIVINGSTON-007	**Mutual Aid agreements with neighboring communities for continuity of operations:** Create/Enhance/Maintain	Township OEM	Complete, County mutual aid plans in place, 911 support from Roseland, City Fire mutual aid.	No, complete.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	Mutual Aid agreements with neighboring communities for continuity of operations.				
2020-LIVINGSTON-008	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Planning Board	No Progress. Plan has not been updated but will be due for update in 2028.	Yes	-
2020-LIVINGSTON-009	**Riker Hill Art Park Hydrants:** Extend the water main to Riker Hill Park to provide proper fire protection to buildings.	Township OEM	No Progress. Only 1 hydrant is responsible for protecting the neighborhood. County support is needed.	Yes	Discussion needed with Essex County officials.
2020-LIVINGSTON-010	**Atlantic Ambulance Corporation:** Discuss with the owner to recommend for them to develop a plan.	Township Engineering, FPA	No Progress, private organization.	No, this action is being addressed through stakeholder outreach in the 2025 Hazard Mitigation Plan update	-
2020-LIVINGSTON-011	**Livingston Township Sewage Treatment Plant:** Determine vulnerabilities and develop mitigation strategies, if necessary.	Township Engineering, FPA	Ongoing Capability. Master Plan for treatment plan exists. Plan is updated as new needs are identified.	No, ongoing capability	-
2020-LIVINGSTON-0012	**Repetitive Loss (RL) property outreach and mitigation:** Track flood-prone properties, and conduct outreach to educate owners of their RL status and mitigation options. The Township will compile a list of mitigation activities the homeowners would like to	FPA	In Progress. NJOEM has conducted outreach to all repetitive loss properties and is following up on potential mitigation measures.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	pursue then develop a FEMA HMA grant to obtain funding.				

11.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Livingston identified the following mitigation efforts completed since the last HMP:

- None identified

11.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Livingston identified the following issues that require mitigation.

- Canoe Brook, Cub Brook, and Slough Brook are degraded. Streambanks are eroded and collapsing, trees and debris have created snags, and excess sediment has filled channels. All of these factors have contributed to flooding. Residences have been impacted.
- The Department of Public Works Garage is located in the floodplain and has repetitively flooded. This results in damage to the garage, vehicles, and equipment. Flooding of the Garage also results in loss of emergency response and maintenance capabilities of the DPW.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- Mitigation planning in the Township of Livingston is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.
- Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 14 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.

11.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Livingston's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 11-19. Township of Livingston 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Livingston-01	Stream Restoration					X	X	X	X	
2025-Livingston-02	Relocate DPW Garage					X		X	X	
2025-Livingston-03	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-Livingston-04	Watershed Improvement Plan	X	X		X	X				
2025-Livingston-05	HMP Integration	X	X	X	X	X	X	X	X	X
2025-Livingston-06	Riker Hill Art Park Hydrants									X
2025-Livingston-07	Repetitive Loss Mitigation					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 11-20. Township of Livingston 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Livingston-01	Stream Restoration	1	1	1	1	1	1	1	0	1	1	1	0	0	1	11	High
2025-Livingston-02	Relocate DPW Garage	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High
2025-Livingston-03	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Livingston-04	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Livingston-05	HMP Integration	0	1	1	1	1	1	1	1	1	1	1	0	0	1	11	High
2025-Livingston-06	Riker Hill Art Park Hydrants	1	1	1	1	0	1	1	1	1	0	1	0	1	1	11	High
2025-Livingston-07	Repetitive Loss Mitigation	1	1	1	1	1	0	1	1	1	1	1	1	0	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Livingston-01: Stream Restoration

Lead Agency:	Township Engineering
Supporting Agencies:	DPW
Hazard(s) of Concern:	Flood, Geologic Hazards, Severe Weather, Severe Winter Weather
Description of the Problem:	Canoe Brook, Cub Brook, and Slough Brook are degraded. Streambanks are eroded and collapsing, trees and debris have created snags, and excess sediment has filled channels. All of these factors have contributed to flooding. Residences have been impacted. Work has already been completed to clean a section of Canoe Brook. This has involved removal of sediment, downed trees, debris, and snags.
Description of the Solution:	The Township will continue to remove sediment, downed trees, debris, and snags in Canoe Brook, Cub Brook, and Slough Brook.
Estimated Cost:	High
Potential Funding Sources:	FMA (for activities benefiting NFIP-insured structures), municipal budget.
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	This action will restore the streams and decrease flood risk along Canoe Brook, Cub Brook, and Slough Brook.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is increasing flooding risk. Heavy downpours are increasing the volume of water that must make it downstream, leading to more flood risk and increased chances of streambank erosion and downed trees that exacerbate flooding.
Mitigation Category:	Natural Resource Protection
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Relocate homes / Costly and not feasible Hard structure lining of streams / Not permitted

2025-Livingston-02: Relocate DPW Garage

Lead Agency:	Township Engineering	
Supporting Agencies:	Department of Public Works	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Department of Public Works Garage is located in the floodplain and has repetitively flooded. This results in damage to the garage, vehicles, and equipment. Flooding of the Garage also results in loss of emergency response and maintenance capabilities of the DPW.	
Description of the Solution:	The Township has purchased land for the relocation of the Department of Public Works Garage. While this land does have floodplain, the flood risk is reduced. The Engineer will evaluate different construction approaches to ensure the	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Groundbreaking expected in 2025	
Goals Met:	2, 6	
Benefits:	Reduction in flooding impacts to the DPW	
Impact on Socially Vulnerable Populations:	DPW often assists with supporting socially vulnerable populations impacted by hazard events. This action helps preserve DPW's ability to provide support.	
Impact on Future Development:	This action will construct a new DPW facility.	
Impact on Critical Facilities/Lifelines:	The new DPW facility will be considered a critical facility and be built to NJ DEP standards to protect the facility and its capabilities.	
Impact on Capabilities:	This action protects DPW capabilities from being lowered or lost during and after flood events in the Township.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events that are likely to require DPW response. This action helps preserve DPW capabilities.	
Mitigation Category:	Property Protection, Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Elevate current structure	Not feasible
	Move current structure to new location	Not feasible

2025-Livingston-03: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5, 6
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Livingston-04: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Livingston-05: HMP Integration

Lead Agency:	Planning Board
Supporting Agencies:	OEM
Hazard(s) of Concern:	All Hazards
Description of the Problem:	Mitigation planning in the Township of Livingston is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.
Description of the Solution:	During future updates of the Master Plan or the Emergency Operation Plan, work with Township agencies to integrate hazard mitigation principles and recommendations into the plans.
Estimated Cost:	The Township will also use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.
Potential Funding Sources:	Municipal budget
Implementation Timeline:	3 years
Goals Met:	1, 3, 4
Benefits:	Provides an opportunity for coordination amongst agencies and their planning efforts to improve the overall ability to prepare for, respond to, and recover from events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	The Township Master Plan guides future development.
Impact on Critical Facilities/Lifelines:	Integrating mitigation into building and zoning protects existing infrastructure and guides the safe development of new construction.
Impact on Capabilities:	A consolidated planning process brings together the capabilities of agencies and departments and better identifies what resources are available at any given point in time and where they are needed most.
Climate Change Considerations:	As the climate changes, planning processes will require a more intense focus on plan maintenance and gathering of the best data to remain current and accurate over time. The Township will use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.
Mitigation Category:	Prevention, Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action /
	Develop standalone plans for mitigation / Repetitive of Essex County HMP and would not result in integration with other local plans
	Include annex in HMP as an annex to Master Plan and EOP / Guidance and goals may conflict between the two documents

2025-Livingston-06: Riker Hill Art Park Hydrants

Lead Agency:	Township OEM	
Supporting Agencies:	Essex County	
Hazard(s) of Concern:	Wildfire	
Description of the Problem:	Only one fire hydrant is responsible for protecting the Riker Hill Art Park neighborhood. County support is needed to install additional fire hydrants.	
Description of the Solution:	Township OEM will encourage Essex County to install additional fire hydrants in the Riker Hill Art Park neighborhood.	
Estimated Cost:	Medium	
Potential Funding Sources:	Essex County	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 5	
Benefits:	Fire hydrants and water lines maintained for emergency response	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will improve the water lifeline in the Riker Hill Art Park neighborhood.	
Impact on Capabilities:	This action will allow for increased firefighting capabilities.	
Climate Change Considerations:	Climate change is likely to increase the occurrence of conditions that promote wildfire. This action improves firefighting capabilities.	
Mitigation Category:	Emergency Services, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Purchase tanker truck for water	Costly
	Develop contract with neighboring towns for fire response	Too slow of response times, towns may be unavailable

2025-Livingston-07: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. 14 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

11.6 Jurisdictional Hazard Mitigation Team

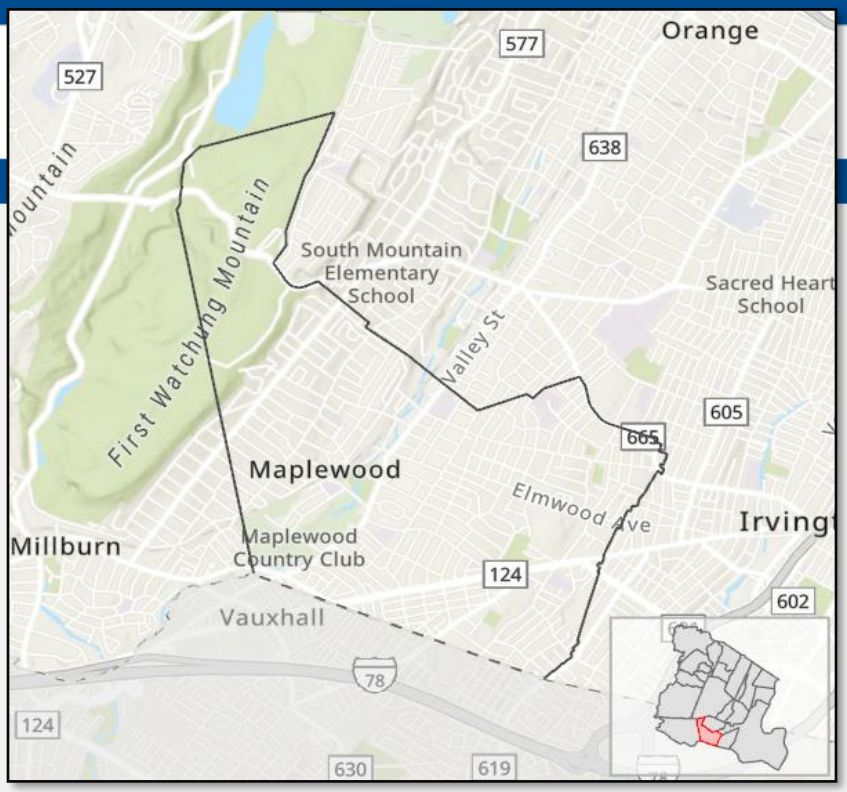
Table 11-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Chris Mullin, OEM Coordinator	Name and Title:	Rossana Mattia, Administrative Assistant to the Fire Chief
Address:	625 S. Livingston Avenue, Livingston, NJ 07039	Address:	625 S. Livingston Avenue, Livingston, NJ 07039
Phone Number:	973-992-2373	Phone Number:	973-992-2373
Email:	cmullin@livingstonnj.org	Email:	rmattia@livingstonnj.org
NFIP Floodplain Administrator			
Name and Title:	Jeannette Harduby, Engineer		
Address:	625 S. Livingston Avenue, Livingston, NJ 07039		
Phone Number:	973-535-7949		
Email:	Jharduby@livingstonnj.org		

Table 11-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Chris Mullin, OEM Coordinator	Attended annex support meeting, contributed to mitigation strategy
Jeannette Harduby, Engineer and Floodplain Administrator	Attended annex support meeting, contributed to mitigation strategy

Township of Maplewood



POPULATION STATISTICS

25,406
TOTAL POPULATION (2023 ACS)

0.06%
Change in population since 2010 Census

8,659
TOTAL HOUSEHOLDS

AT RISK POPULATION

3,058
Population Over 65

1,794
Population Under 5

1,520
Living With Disability

248
Households Without Vehicle

1,934
People Renting Homes

POVERTY AND LANGUAGE

497
Households Below Poverty Level

673
Population With English as 2nd Language

POPULATION AND BUSINESSES

20,437
Daytime Population

804
Total Businesses

13,130
Total Employees

FLOOD VULNERABILITY

245
Number of People in 1% SFHA

65
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

12 TOWNSHIP OF MAPLEWOOD

12.1 JURISDICTIONAL PROFILE

Township of Maplewood is located near the convergence of Interestate-78 and the Garden State Parkway. Communities bordering Maplewood include South Orange to the North, Irvington to the East, Union to the South, and Millburn to the West. The East Branch of the Rahway River runs through the middle of the Township. Total land area for the Township of Maplewood is 3.879 square miles of which 3.877 square miles are land and 0.002 square miles are water.

The area now known as the Township of Maplewood was settled in 1675 by the Dutch, English, and French Puritans. Maplewood developed into a center for trade and light manufacturing as it was a stagecoach stop between Newark, Jersey City, and Morristown. Cider, rum, honey, and livestock were major sources of trade. In 1922, Maplewood parted from South Orange Township and became known as Maplewood. Township of Maplewood operates using a five-member township Committee, which selects a Mayor annually.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

The Township identified the following improvements implemented over the last five years to address hazard risk within the community:

- Stormwater
    - The Township formed a stormwater utility authority to address climate change and fund stormwater projects.
    - Added stormwater collection on Concord Avenue, Oakland Terrace, Bowdoin Street, and Lexington Avenue
    - Reconstructed swales in the Upper Ridgewood Section and performed upgrades where feasible.
    - Overall maintenance improvements that include clearing grates and removing debris from catch basins prior to storms.
    - Maple Terrace – trash racks added to drainage along the roadway and regular maintenance prior to storms, including clearing the entire stormwater discharge line that leads into Millburn Township.
    - 36-inche bypass storm line was installed at Maple Terrace and Ridgewood Road.
- Sanitary Sewer System
    - Boyden Avenue sanitary sewer siphon – added an additional barrel for sanitary sewer to improve capacity and resiliency of the sanitary sewer system.
    - Sanitary jetting of siphons and critical infrastructure prior to storms.
- Retaining wall repairs along the East Branch of the Rahway River were made. The Township attended a two-day charrette with Army Corps of Engineers.
- Proposed improvements expected in the next two years
    - Tiffany Place stormwater upgrades in 2025

- St. Lawrence sinkhole repairs in 2025
- Backer Street and Maplewood Avenue repairs in 2025
- Maple Terrace drainage improvements in spring 2026
- Meadowbrook drainage improvements in 2026

12.2 Jurisdictional Risk Assessment

The following sections assess the Township of Maplewood's risk to the hazards of concern identified for the 2025 HMP update.

12.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Maplewood's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 12-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Mask requirements, schools closed, businesses closed, following State and Federal guidelines; municipal programs were closed (loss of revenue)
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Over 200 downed trees which led to power outages and road closures throughout; police/DPW overtime; many residential homes were damaged as well Requested reimbursement for services/overtime More wind damage to the municipality
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Identified 20 FEMA projects – more flood damages; police/DPW/fire overtime – requested reimbursement Library – had 7 feet of water in the basement; changed the whole way they are rebuilding the library – elevated equipment/utilities Civic House – was damaged but have not mitigated – used a childcare center through an agreement with YMCA;

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
			historic building – flood prone building – no backup power

Source: FEMA 2024; NOAA NCEI 2025

12.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

The FEMA flood maps adequately address flood risk within the Township. Flooding associated with the mapped floodplains include Kendal Ave (Jefferson Ave to East Cedar Ln) and nearby portions of Hoffman St, Headley Pl, Arcularius Terr, and DeHart Rd as well as Baker Street (Burnet St to Valley St). Flooding associated with waterways that are not mapped floodplains include unnamed tributaries in Maple Terrance (Ridgewood Rd to Myrtle Ave), Mountain Ave (Ridgewood Rd to Myrtle Ave), and Clinton Ave (Ridgewood Rd to Myrtle Ave). Flooding not associated with waterways or mapped floodplains includes Orchard Road (Boyden Ave to Parker Ave), Orchard Road (Boyden Ave to Parker Ave), Meadowbrook Road (Elmwood Ave to Laurel Ave), Jacoby Street (Schaeffer Rd to Boyden Ave), Porter Road (Schaeffer Rf to Pleasant Parkway), Burnett Terrace at intersection with Ivy Terrace, and Essex Road at cul-de-sac. While the Township experiences flood damage, there are no known properties within the township that have been declared substantially damaged from prior flood events.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Maplewood.

Table 12-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
150	$153,650	$42,784,000	141	$1,977,009	13	1

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 12-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
No community lifelines located in the floodplain		

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

12.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Maplewood, including major residential/commercial/industrial development and major infrastructure development.

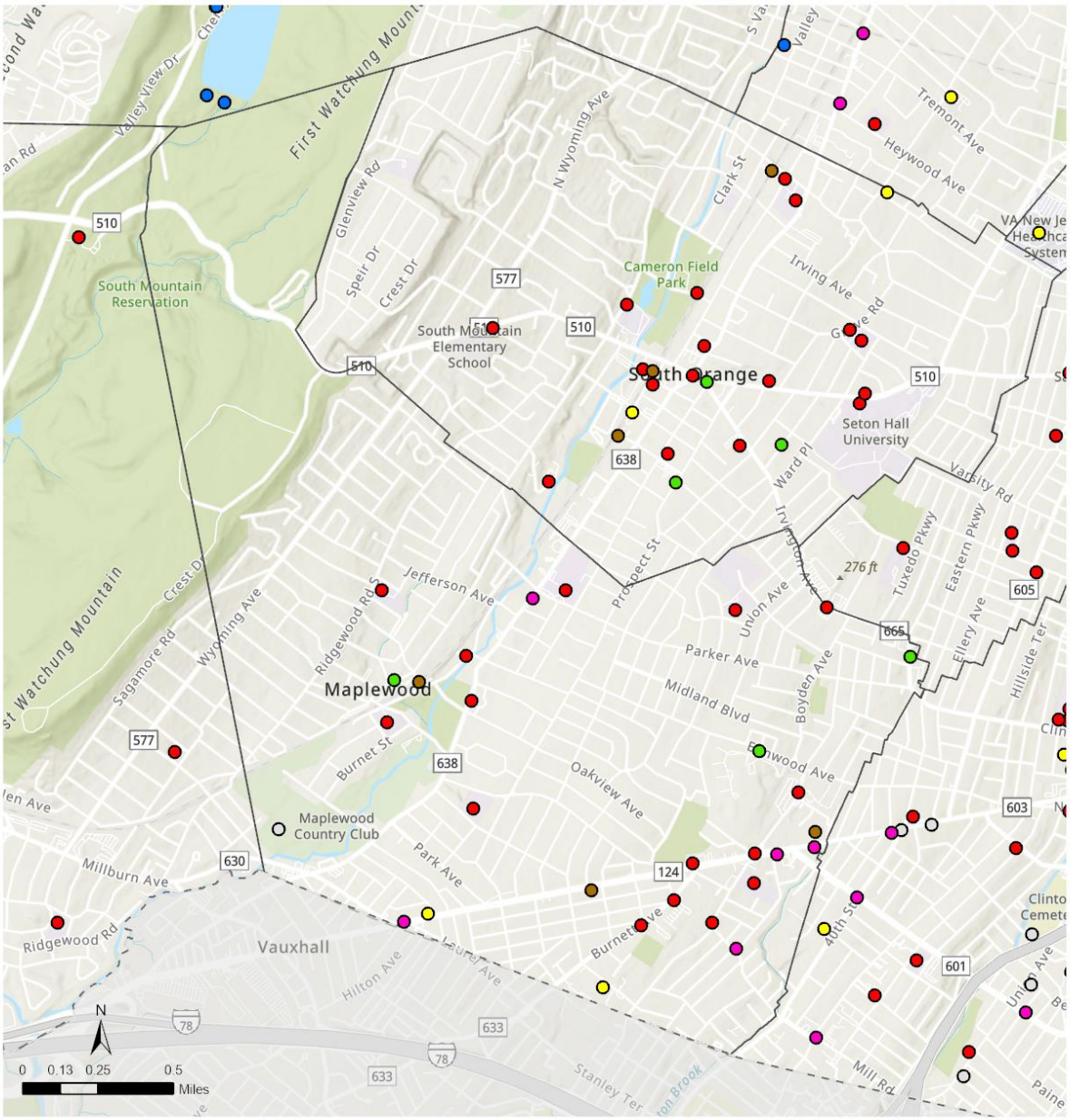
Table 12-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
1722 Springfield Avenue	30	1	1722 Springfield Avenue	No	2024
7 Parker West	46	1	7 Parker West	AE Floodplain	2024

12.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Maplewood that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 12-1. Township of Maplewood Community Lifelines

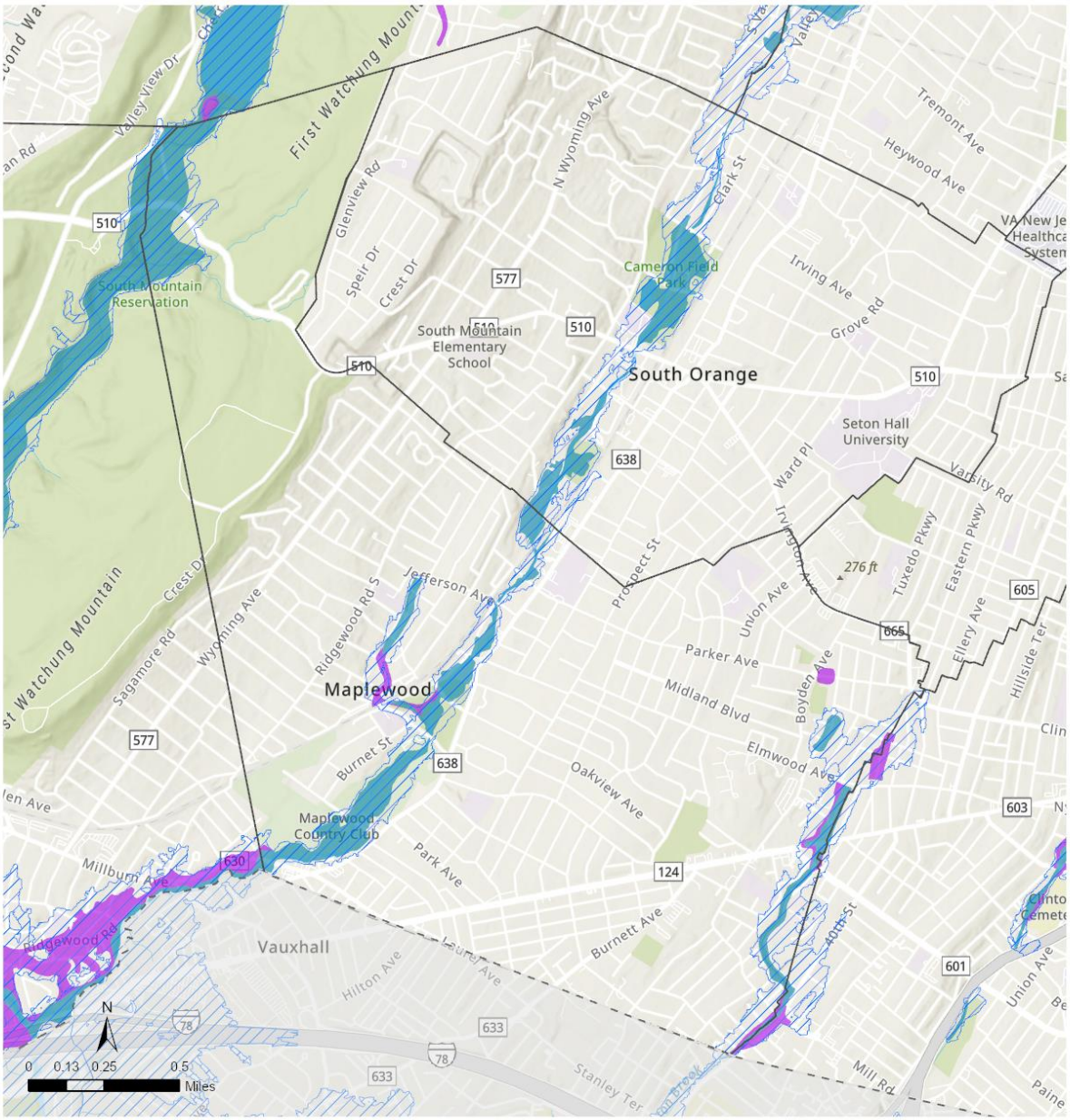


Maplewood Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 12-2. Township of Maplewood Flood-Related Hazards

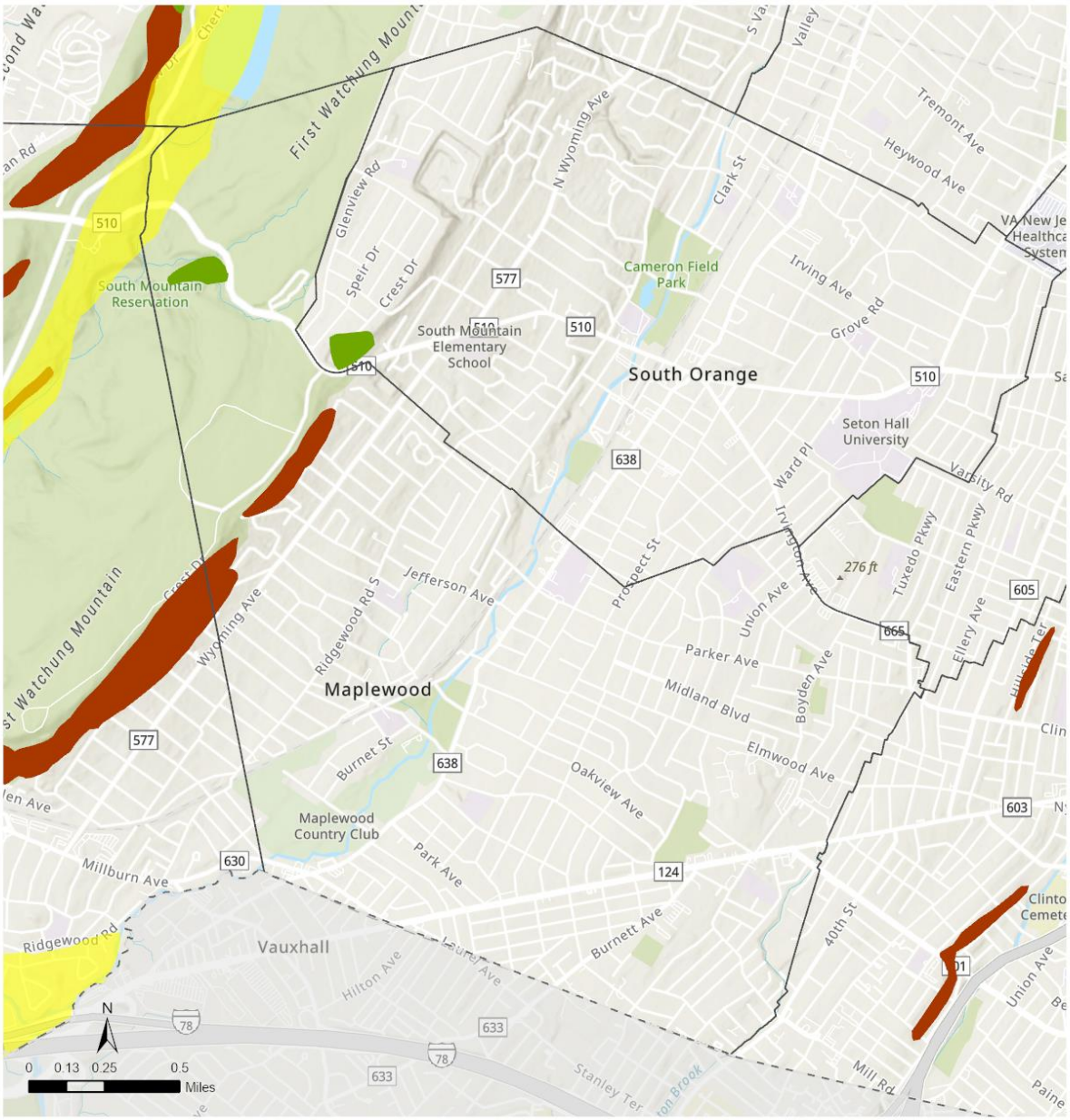


Maplewood Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 12-3. Township of Maplewood Geological Hazards



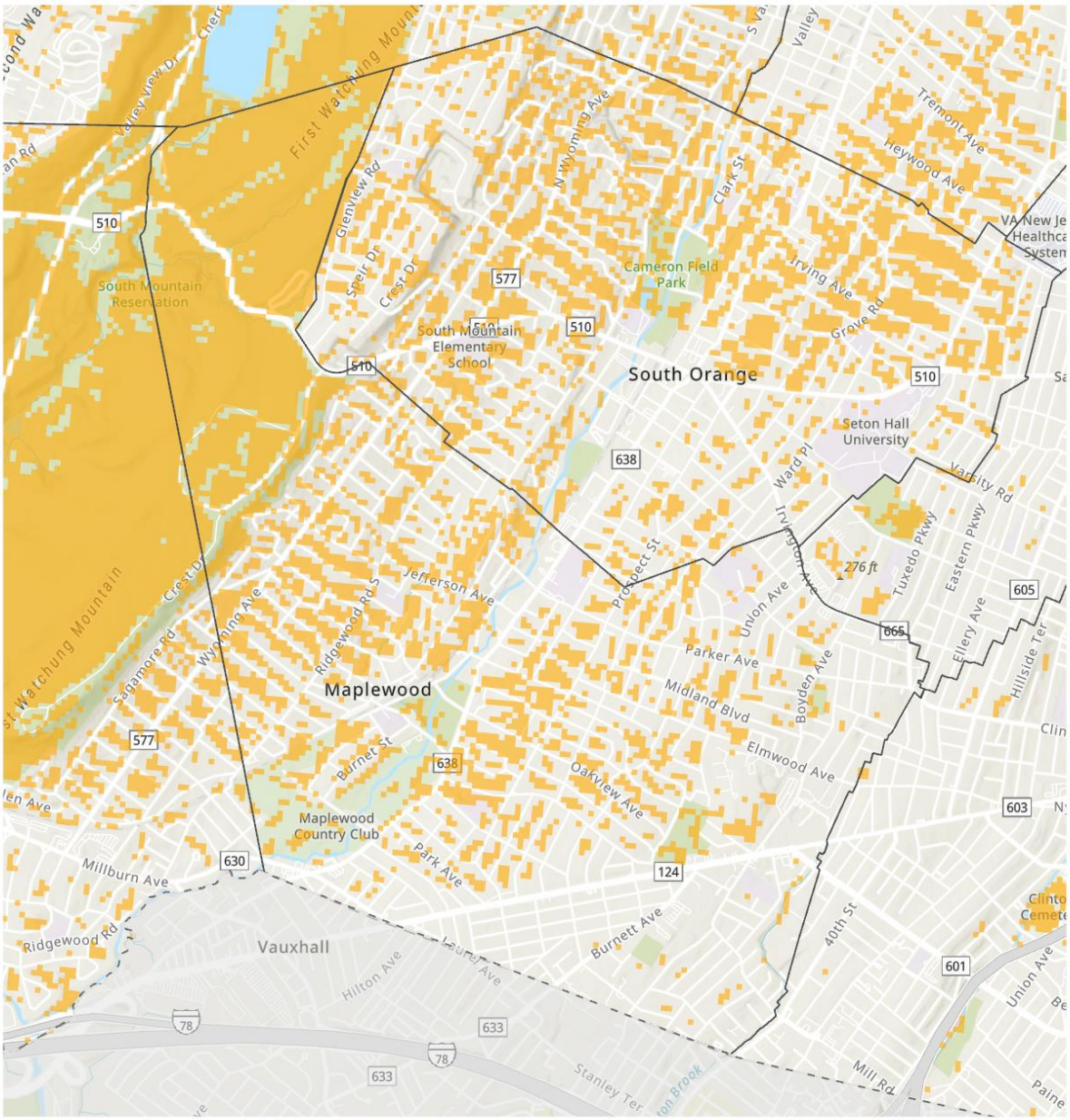
Maplewood Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 12-4. Township of Maplewood Wildfire Hazard



Maplewood Township: Wildfire Hazard Potential

N

0 0.13 0.25 0.5 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

12.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of Maplewood, climate change is likely to have the following impacts:

- The effect of climate change will impact stormwater hazards in the Township. As a result, the Township established a stormwater utility in 2024 that will be used to improve the stormwater system.
- Extreme heat events and increase in urban heat island impacts.
- Local Flooding of properties due to high intensity shorter duration storms.
- Local Flooding to saturated groundwater in the soil and more frequent storm events.
- Surcharging of our infrastructure resulting in inlet grates and manholes blowing off.
- Damage to our infrastructure due to surcharging.
- Increase erosion.

12.2.5 Risk Assessment Summary

The Township identified extreme temperature, flooding, and severe weather as their hazards of highest concerns. Combined with climate change projects, the Township is experiencing more frequent rainfall and flooding events. Impacts of climate change on the stormwater system is also a concern in the Township. More storms are leading to local flooding, infrastructure surcharge, and erosion. The Township identified mitigation strategies that address these concerns (refer to Section 12.5.2):

- There are several areas in the Township that are experiencing streambank erosion and flooding. This includes Irvington Brook near Nelson Place, Lightning Brook, and the Rahway River. Both private properties and municipal-owned properties are at risk to erosion and flooding. Without improvements, these areas will continue to experience erosion and flooding, putting the structures and infrastructure at risk to further damage and losses.
- Frequent heavy rain events in the Township lead to flooding and backups of the stormwater and sewer systems. Flood water ends up in the sanitary systems which lead to sewer backups in homes/basements. Stormwater inundates roadways and damages buildings. The impacts from these system failures are damaging residential homes, businesses, and critical infrastructure.
- The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- The Crooked Brook is a source of flooding in the Township and is in need of improvements to reduce flooding and damages. Surveying, permitting, funding, and studies are required to determine best solutions to address the problem. However, the Township has limited property ownership in the Orchard area.
- East Branch of Rahway River near Dunnell Road is a source of flooding in the Township which leads to road closures and flood-related damages.

- The Township's Office of Emergency Management building is a community lifeline and essential to the community before, during, and after disasters. The building lacks backup power and cannot function properly during power outages.
- While Fire Department Station 3 is no longer the fire headquarters, it serves as Station 3 (105 Dunnell Road) for the fire department, providing essential fire and rescue services to the Township. This property is located in the floodplain and susceptible to flood damage. During flooding events, the station cannot be accessed and cannot provide services to the community.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 13 repetitive loss properties and 1 severe repetitive loss property, but other properties may be impacted by flooding as well.
- The Board of Education parking lot is eroding from heavy rainfall events. Parking lots repairs were made but the area continues to erode and needs to be repaired. This area is owned by the Board of Education and the Township does not have jurisdiction over it.
- The Township has performed studies and televised inspections of sewer sections 1, 2, and 3, identifying critical areas for improvement. Sections 4, 5, and 6 still need to be inspected and evaluated to determine what additional improvements are needed. Although the Township has used capital improvement funds for these studies, additional funding is needed to carry out the improvements identified in the studies. If this funding is not secured, the Township could face incomplete upgrades to the sewer system, which might pose public health risks, environmental issues, and problems with the infrastructure.
- The Township continues to experience stormwater flooding from storms. While they continue to make updates and map MS4 piping, flooding continues to be a problem.
- Maplewood Library is a community lifeline and essential to the community before, during, and after disasters. The library serves as a heating/cooling/charging center during extreme temperature events and power outages. The building lacks backup power and cannot function properly during power outages.

12.3 Jurisdictional Capability Assessment

The Township of Maplewood performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities

- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

12.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of Maplewood.

Table 12-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Township of Maplewood Master Plan, 2023	Planning Board
Impact on Risk Reduction: The new Master Plan outlines a vision for the future and establishes community principles to balance economic, social, physical, environmental, and fiscal planning. The document provides guidance to elected officials, Township staff, and stakeholders when they make land use, zoning, and capital investment decisions. Goals of the Master Plan include: • Act to mitigate and adapt to climate change and improve capacity to recover from emergencies and natural disasters • Support environmental sustainability initiatives that improve waste and energy systems, enhance the tree canopy, protect natural resources, and reduce the impact of development • Upgrade infrastructure systems to improve function, lessen critical vulnerabilities, and address neighborhood disparities			
Capital Improvement Plan	Yes	Six-year improvement plan that is adopted with the Township Budget	Township Committee
Impact on Risk Reduction: Provides funding for capital improvement projects, many of which are related to mitigating hazards			
Stormwater Management Plan	Yes	Adopted a Stormwater Management Plan	Engineering
Impact on Risk Reduction: Developing and implementing the Stormwater Management Plan helps the Township reduce flooding and erosion damage, reduce runoff pollution to streams, and improve water quality locally. The plan describes how the Township will achieve the goals of stormwater management and how the Township implements stormwater management.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Plan Update, 2024; updated each year	Engineering
Impact on Risk Reduction: The update provides sections on post construction stormwater management in new development and redevelopment, public education, illicit connections, storm drain inlet retrofitting, street sweeping and road erosion control maintenance, de-icing, and stormwater facility maintenance.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction: -			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Open Space Plan	Yes	Part of the Master Plan	Planning Board
Impact on Risk Reduction: The new Master Plan outlines a vision for the future and establishes community principles to balance economic, social, physical, environmental, and fiscal planning. The document provides guidance to elected officials, Township staff, and stakeholders when they make land use, zoning, and capital investment decisions. Goals of the Master Plan include: • Act to mitigate and adapt to climate change and improve capacity to recover from emergencies and natural disasters • Support environmental sustainability initiatives that improve waste and energy systems, enhance the tree canopy, protect natural resources, and reduce the impact of development • Upgrade infrastructure systems to improve function, lessen critical vulnerabilities, and address neighborhood disparities			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	Community Energy Plan (April 2024)	Sustainable Maplewood Committee
Impact on Risk Reduction: The Maplewood Community Energy Plan is an implementation and action plan to generate significant reductions in greenhouse gas emissions for both municipal operations and the wider community while providing numerous local co-benefits ,such as long-run cost savings, improved air quality, and creation of local jobs. The purpose of the Community Energy Plan is to identify initiatives at the Township level that will address local opportunities and changes that are required to support the New Jersey Energy Master Plan's strategies to reach the goal of 100% clean energy by 2050.			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			
Additional Planning Capabilities			
List any additional plans that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
• **Stormwater Utility Program** – assess properties based on their impervious coverage and provides dedicated funding for stormwater improvements and maintenance in the Township. This was established in 2024 by Ordinance 3138-24. • **Natural Resources Plan** – in need of updating; would like to get funding to update the plan			

The table below summarizes the emergency response and recovery plans that guide the Township of Maplewood to prepare for, respond to, and recover from hazard events.

Table 12-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years and the next update will be done in 2025.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			
Evacuation Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			
Public Health Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			
Disaster Debris Management Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response during natural and non-natural hazard events. The Plan is updated every two years.			
Substantial Damage Management Plan	Yes	Comprehensive Emergency Management Plan (May 1, 2023)	Office of Emergency Management

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction: Damage assessment annex as part of the EOP - windshield exercise; no structural assessments. For flood, the Township would determine if its substantially damaged as homeowners get permits. For fire, the Township determines if they can provide a safe structure notice. The building official is called in there is significant damage to the home (unsafe structure, uninhabitable, etc.).			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of Maplewood.

Table 12-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 93 Building Construction; Chapter 127 Fire Prevention	Building Department; Fire Prevention Bureau
Impact on Risk Reduction: Chapter 93 established in Maplewood a State Uniform Construction Code enforcing agency, to be known as the "Building Department," consisting of a Construction Official, a Building Subcode Official, a Plumbing Subcode Official, an Electrical Subcode Official, a Fire Protection Subcode Official, an Elevator Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of the Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code and such other personnel as are necessary to perform the duties of this Department. The Construction Official shall be the chief administrator of this enforcing agency. Chapter 127 establishes the enforcement of the New Jersey Uniform Fire Code with the Maplewood Fire Prevention Bureau			
Zoning or Land Use Regulations	Yes	Chapter 271 Zoning and Development Regulations	Planning Board
Impact on Risk Reduction: The purposes of this chapter are to establish a pattern for the use of land and buildings based on the Land Use element of the Master Plan and to guide appropriate and orderly development which will promote the public health, safety, morals and general welfare. To this end, design standards are included to guide the preparation of development plans, and procedures for submitting and acting upon these plans are also included. This chapter is intended to carry out the purposes of the Municipal Land Use Law, which provides municipalities with the power to zone, and includes among the purposes of the law the following: A. To encourage municipal action to guide the appropriate use or development of all lands in this state, in a manner which will promote the public health, safety, morals, and general welfare. B. To secure safety from fire, flood, panic, and other natural and man-made disasters. C. To provide adequate light, air, and open space.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
D. To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county, and the state as a whole. E. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment. F. To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies. G. To provide sufficient space in appropriate locations for a variety of residential, recreational, commercial, and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens. H. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight. I. To promote a desirable visual environment through creative development techniques and good civic design and arrangements. J. To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the state and to prevent urban sprawl and degradation of the environment through improper use of land. K. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.			
Subdivision Regulations	Yes	Chapter 271 Zoning and Development Regulations, Article III Development Review Procedures and Plat Details	Planning Board
Impact on Risk Reduction: Chapter 271 Article III sets the procedures and requirements for subdivisions and site plans.			
Site Plan Regulations	Yes	Chapter 271 Zoning and Development Regulations, Article III Development Review Procedures and Plat Details	Planning Board
Impact on Risk Reduction: Chapter 271 Article III sets the procedures and requirements for subdivisions and site plans.			
Stormwater Regulations	Yes	Chapter 238 Stormwater Management	Engineer
Impact on Risk Reduction: The purpose of this chapter is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 271 Zoning and Development Regulations – currently under NJDEP and FEMA review	Floodplain Administrator
Impact on Risk Reduction: It is purpose of this ordinance to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Protect human life and health. B. Minimize expenditure of public money for costly flood control projects. C. Minimize the need for rescue and relief efforts associated with flooding and			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
D. generally undertaken at the expense of the general public. E. Minimize prolonged business interruptions. F. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of specific flood hazard. G. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas. H. Ensure that potential buyers are notified that property is in an area of special flood hazard. I. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. The regulations do not follow the updated code coordinated ordinance available from NJDEP that is needed to meet NFIP requirements; however, the Township has updated the code as of February 2025 and it is under review by NJDEP and FEMA.			
Environmental Protection Regulations	Yes	Chapter 227 Shade Trees; Chapter 237A Steep Slopes; Chapter 213 Riparian Buffer Conservation Zones	
Impact on Risk Reduction: Chapter 227 provides for the care and protection of trees in public highways and the protection, preservation, and enhancement of privately owned trees. Chapter 237A regulates the intensity of use in areas of steeply sloping terrain in order to limit soil loss, erosion, excessive stormwater runoff, and the degradation of surface water and to maintain the natural topography and drainage patterns of land. Chapter 213 aims to: (1) Restore and maintain the chemical, physical, and biological integrity of the water resources of the Township; (2) Prevent excessive nutrients, sediment, and organic matter, as well as biocides and other pollutants, from reaching surface waters by optimizing opportunities for filtration; (3) Provide for shading of the aquatic environment so as to moderate temperatures, retain more dissolved oxygen, and support a healthy assemblage of aquatic flora and fauna; (4) Provide for the availability of natural organic matter (leaves and twigs) and large woody debris (trees and limbs) that provide food and habitat for aquatic organisms (insects, amphibians, crustaceans, and small fish), which are essential to maintain the food chain; (5) Increase stream bank stability and maintain natural fluvial geomorphology of the stream system, thereby reducing stream bank erosion and sedimentation and protecting habitat for aquatic organisms; (6) Maintain base flows in streams and moisture in wetlands; (7) Control downstream flooding; and (8) Conserve the natural features important to land and water resources, e.g., headwater areas, groundwater recharge zones, floodways, floodplains, springs, streams, wetlands, woodlands, and prime wildlife habitats.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

12.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Maplewood's departments, boards, and committees that contribute to risk reduction.

Table 12-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	• Planning Board - In accordance with Section 14 of Chapter 433 of the Laws of 1953, the Planning Board is authorized to review subdivisions and to recommend final approval to the Township Committee in keeping with the provisions of the Land Subdivision Ordinance of the Township of Maplewood. • Zoning Board of Adjustment
Planning Department	The Department of Community Development (DCD) includes the Construction, Zoning, and Property Maintenance Divisions, Zoning and Planning Board Administration. DCD staff also initiates and implements special projects related to the environment, business development, and pursues grant opportunities from public and private sources. The Township's Zoning Officer is responsible for administering and enforcing Zoning Ordinances under the Zoning and Land Use Regulations. The Zoning Officer has overall responsibility for the administrative oversight of all applications for land development and zoning permits including: • Reviewing all plot plans, subdivision layouts, surveys, site plans and building plans of new structures and additions for compliance with land use regulations • Reviewing proposed projects for compliance with Municipal Land Use Law and consult with the applicants, their professionals and township board members and professionals regarding all development within the township • Enforcement of Township zoning laws through the Zoning Officer and Code Enforcement Officer Property Maintenance inspectors also have authority to enforce zoning laws.
Public Works / Highway Department	The operations of the Department of Public Works (DPW) consist of providing a myriad of services, including, but not limited to: • Street sweeping • Roadway repair • Tree pruning • Maintenance of all municipal buildings • Care and upkeep of parks • Automotive Repairs of all municipal vehicles • Recycling • Snow removal • Operation of the jitney service
Construction / Building / Code Enforcement Department	The Maplewood Township Construction Division's primary responsibility is to enforce the Uniform Construction Code, review and release plans and specifications for construction projects, issue Construction Permits, and conduct inspections to ensure compliance with the regulations. Code Enforcement is responsible for the enforcement of Chapter 203 of the Township's Property Maintenance Regulations. One of the primary goals is to improve and maintain Quality of Life for the residents and visitors of the Township by ensuring the Property Maintenance Regulations are enforced.
Engineering Department	The Engineering Department of Maplewood Township is responsible for design and implementation of road improvements, storm and sanitary sewer maintenance and upgrades, traffic calming and any other engineering tasks that arise. The

Department / Board / Committee	*Description and Role in Risk Reduction*
	Department utilizes the services of outside consulting engineers as needed to complete design tasks. The Engineering Department works with a consulting engineer, and an attorney that service both the Planning and Zoning Boards and two administrative personnel including the secretary of the two boards. The Engineering, Public Works & Planning (EPWP) Committee focuses on infrastructure improvements and modifications within the Township of Maplewood.
Parks and Recreation Department	The mission of the Maplewood Division of Recreation is to provide entertaining, safe, and varied recreational programs and services to the Township's diverse population in a cost-effective and progressive manner.
Open Space Board / Committee	The general purpose of the Maplewood Open Space Trust Fund Advisory Committee shall be to recommend to the Maplewood Township Committee the prioritized use of funds from the Open Space Trust Fund.
Environmental Board / Commission	The Maplewood Environmental Advisory Committee is a group of Maplewood residents appointed by the Township Committee to advise them and the municipal government on environmental/green issues including climate change, recycling, clean air, clean water, and protection against health threatening contaminants. The Committee is also responsible for coordinating the annual celebration of Earth Day and developing educational programs for the community. The Maplewood Green Team consists of up to 12 members appointed to the advisory committee and a general committee which is open to all residents of Maplewood. The Green Team also has a liaison from the Township Committee and a seat on the Sustainable Maplewood Committee, which is a quarterly meeting of the Township Department Heads, Elected Leadership, Green Team, and Environmental Advisory Committee. The core role of the Green Team is completing sustainability projects and outreach.
Emergency Management / Public Safety Department	The Township of Maplewood's Office of Emergency Management (OEM) is responsible for coordinating all alerting, warning and communications functions. Standard Operating Procedures (SOPs) describe communication steps that will be taken during an emergency and which municipal entity will be responsible for each step. The Public Safety Committee shall exercise supervision over the Police Department, Emergency Management Services and monitor activities of the South Essex Fire Department.
Fire Department	Served by South Essex Fire Department – joint meeting between South Orange and Maplewood to provide fire service to both communities and EMS to Maplewood The Fire Prevention Division is responsible for: • Conducting fire investigations for all fires • Conducting fire safety presentations to schools, churches, neighborhood associations, and any other group requests • Home fire inspections • Conducting site plan reviews • Enforcing the New Jersey Uniform Fire Code • Issuing fire safety permits

Department / Board / Committee	Description and Role in Risk Reduction
	• Registering all businesses in town
Additional departments, boards, and committees	Rahway River Mayors - collaborates with other local municipalities along the Rahway River for environmental and regional concerns. SOMA Two Towns - collaborates with neighboring South Orange for community development and initiatives.

The table below summarizes the Township of Maplewood's staff with skills and expertise that contribute to risk reduction.

Table 12-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Community Development
Engineer	Engineering Department
Stormwater Officer	Engineering Department – responsible for stormwater
Resilience / Sustainability Officer	-
Grant Writer	-
Staff with benefit / cost analysis expertise	Engineering Department
Staff trained in conducting substantial damage determinations	Construction Official; Office of Emergency Management
Staff trained in GIS	Contractor for Engineering Department
Staff that provide support to socially vulnerable populations	Maplewood Health, Fire and Police Departments are working together to collect a vulnerable populations list (health dept) and promoting a special needs registry and emergencyprofile.org (a national dispatch notification system). These lists are helpful to identify vulnerable lists during a natural or manmade disaster. Social Services for Maplewood are now offered through Essex County. Community Services provides programming for seniors.
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the Township of Maplewood.

Table 12-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	The Construction Division in the community Development Department
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	Zoning and construction permit files
What percentage of your jurisdiction is available for new development?	Minimal, the majority of the Township is developed.

12.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Maplewood.

Table 12-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Applied for funding in the past for generators, but have not received funding
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Approved for $1 million to rebuild the library and incorporate resiliency measures to mitigate from future hazards
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Apply for and receive funding for ADA accessibility
Capital improvements funding	Yes	Capital improvements are the main focus of the Engineering department. The improvements include: • Budgeting, planning, tax map maintenance, and grant writing • Improving and reconstructing roads, sewer, parks, ball fields, buildings, and traffic systems • Remediate environmental hazards • Surveying, inspecting construction, designing capital projects, and reviewing site plans
Open space acquisition programs	Yes	Have access but have not used them recently
Impact fees for developers of new homes	Yes	Community benefit agreements with developers (redevelopment areas) Require developers to upgrade sewers, etc.
User fees for water, sewer, gas, or electric	Yes	Sewer fees, Water through NJAW, Gas PSEG
Stormwater utility fees	Yes	Stormwater Utility – implemented in 2025; $70/residential unit
Authority to levy taxes for specific purposes	Yes	Assessment
Ability to incur debt through bonds	Yes	Through general obligation bonds
Other financial resources available for hazard mitigation	Yes	Applied for and received EMAA grants previously and will continue to do so in the future Applied for and receive funding through congress appropriations for storm sewer work in the Township (Community Project Funding Grants)

12.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Maplewood.

Table 12-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	Nixle alerts
Public Information Officer	Yes – Township-wide

Outreach Capability	Description and Role in Risk Reduction
Website	The Township's primary public information source is the Township Website: maplewoodnj.gov. Members of the public can access e-alerts for non-emergencies through the Township website and e-alerts for emergency notifications via Nixle Alerts (sign-ups available through the Township website and Police Department website). The OEM section of the website includes information on natural disasters and disaster recovery. Engineering has information on stormwater management.
Social media	Facebook, Instagram, YouTube
Public safety campaigns	Information on website and social media pages; inserts in tax bills; Community Service Officers to residents throughout the community (home security, public safety, etc.); Fire Dept. does fire prevention to go to communities, block parties, schools, etc. to provide education and outreach regarding fire safety
Newsletters	Weekly e-blasts/e-mail
Hazard education programs for schools	Fire Prevention Division is responsible conducting fire safety presentations to schools.
Outreach to socially vulnerable populations	• Community Services has programming for seniors • Maplewood Health, Fire and Police Departments are working together to collect a vulnerable populations list (health dept) and promoting a special needs registry and emergencyprofile.org (a national dispatch notification system). These lists are helpful to identify vulnerable lists during a natural or manmade disaster.
Other outreach capabilities	The Division of Arts & Culture organizes and facilitates performances and cultural activities working independently and in conjunction with various local arts and civic groups. The Maplewood Health Department provides education programs and events to promote and encourage healthy behaviors and provides assistance to health impacted residents by connecting them to necessary resources. The Township also hosts farmers markets and an annual Green Fair.

12.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Maplewood.

Table 12-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Flood plain review is a prior approval process before obtaining construction permits
What local department is responsible for floodplain management?	The Administrative Officer is the Construction Official
Are any staff certified floodplain managers (CFMs)?	Yes, the Construction Official is a CFM

Floodplain Administration	Comments
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	Unknown
Summarize the jurisdiction's Substantial Damage determination procedures.	-
Summarize the jurisdiction's Substantial Improvement procedures.	A project would be deemed a substantial improvement if the construction plans show substantial construction and then would trigger a review of the costs involved. The property owner would then substantiate the improvements whether they are over or under the 50 percent rule.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	There has not been any such visit
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	The current code for the Township has been updated to meet the minimum requirements; as of February 2025, it has not been formerly adopted by the Township but it is under review by NJDEP and FEMA.

12.3.6 Community Classifications

Table 12-14 summarizes the Township of Maplewood's participation in community classification programs.

Table 12-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Yes – Silver	October 3, 2023
Other Programs	Not participating	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

12.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018).

The table below summarizes the capabilities that the Township of Maplewood has in place and will use to prepare for changes in risk due to climate change.

Table 12-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Flash flooding of prone areas, documented instances of prior flooding by residents
What information does the jurisdiction use to understand potential climate change impacts?	Stormwater webpage on Engineering page of Township Website. The Committee also discuss this with the public informing them of the changes.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Township is passing a Stormwater Utility to fund projects. Also, Township addresses flooding concerns with other programs during the year such as the Road Program. Also advertise separate projects that are funded.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Paul Kittner, PE, PP, CME, Licensed professional Engineer Dave Barry, PE, Licensed Engineer Darius Pokoj, Certifed Flood Plan Manager
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Stormwater Utility to address stormwater upgrades. Township will continue to pass Bond Ordinances as required.
How does the jurisdiction educate the public on potential climate change impacts?	Will be discussed during discussions of Stormwater Utility, will also work with public outreach staff (Cindy Price) to send our flyers and notices as available by state.

12.3.8 Capability Assessment Summary

The Township of Maplewood's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Maplewood determined the following hazard capability effectiveness ratings.

Table 12-16. Township of Maplewood Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate to Strong
Drought	Moderate
Earthquake	Light to Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Light to Moderate
Severe Weather	Moderate to Strong
Severe Winter Weather	Strong
Wildfire	Moderate

12.3.9 Opportunities to Improve Capabilities and Integration

Based on the Township's capability assessment, the following have been identified as opportunities to improve overall capabilities and integration:

- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

12.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Maplewood were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Maplewood reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- Adjusted extreme temperature from medium to high due to climate change and urban heat island effect.
- Adjusted flood from medium to high due to climate change and more intense and frequent rainfall/flooding events.

Table 12-17. Township of Maplewood Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	High
Geologic (Landslide)	Low

Hazard	*Hazard Ranking*
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Medium

12.5 Jurisdictional Mitigation Strategy

12.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 12-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-MAPLEWOOD-001	**Emergency Generator OEM Building:** Design and construct backup generator for OEM Bldg.	Township Engineering	No Progress – applied for funding but did not receive; would like to get funding to purchase and install	Yes – include in the 2025 HMP	Purchase and install a generator at the Township's OEM building. This will provide continuity of operations and allow the Township to provide services to the municipality during power outages.
2020-MAPLEWOOD-002	**Stabilize streambank and mitigate structures along Rahway River:** Investigate options for structures in the floodplain including the Civic House, Skate House, Memorial Library, Country Club, and other RL properties.	Township Engineering	In Progress – wall was stabilized in front of the fire house; large portion of the streambank that is in need of stabilization – much of it is outside of the Twp's jurisdiction (privately owned); held a meeting with property owners – still under consideration	Yes – include in the 2025 HMP	The Township will work with the appropriate agencies and property owners to stabilize the streambank along the section of the Rahway River that is designated as Twp responsibility. The proper stabilization methods will be identified and then implemented once design complete and funding identified.
2020-MAPLEWOOD-003	**Stabilize the streambank and mitigate structures along Lighting Brook:** Increase floodproofing of structures and reconstruct walls containing the river. Mitigate properties, including an RL property,	Township Engineering	No Progress (see notes) – eroding the private properties, can jeopardize garages or homes, and municipal infrastructure (homes falling down the streambank)	Yes – include in the 2025 HMP	The Township will work with the property owners to identify mitigation measures to reinforce and stabilize the streambank along Lightning Brook.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	residential houses, and limited commercial properties.				
2020-MAPLEWOOD-004	**Fire Headquarters upgrade:** Preliminary plans and needs assessment were completed. $3M required funding.	Township Fire Department	No Progress due to lack of funding	Include in the 2025 HMP	While this facility is no longer the fire headquarters, it serves as Station 3 (105 Dunnell Road) for the fire department. This property is located in the floodplain and susceptible to flood damage. The Township will work with the fire department to implement mitigation measures to protect utilities and equipment from flood damage once funding is identified.
2020-MAPLEWOOD-005	**Orchard Study Area:** Investigate options for drainage improvements, including inventorying and inspecting structures, surveying infrastructure, and mitigating flooding to 2 RL structures.	Township Engineering	Ongoing Capability – Twp is currently performing studies and improvements to reduce flood impacts in this area	Include in the 2025 HMP	The Township will continue investigating options for drainage improvements through studies. As the studies are complete and projects are identified, the Township will make the improvements to reduce flood impacts in the area once funding is identified.
2020-MAPLEWOOD-006	**Crooked Brook:** Investigate options for drainage improvements, including inventorying structures and	Township Engineering	Ongoing Capability – Twp is identifying options and improvements for this area of the municipality	Include in the 2025 HMP	The Township will identify options for drainage improvements in the area of Crooked Brook. Once

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	inspect structures and infrastructure.				identified, the Township will make the improvements to reduce flood impacts in the area once funding is identified.
2020-MAPLEWOOD-007	**Floodplain Administrator (FPA) becomes a Certified Floodplain Manager (CFM):** The FPA will become a CFM.	Township Engineering	Complete – Darius received his CFM (Construction Official)	Do not include in the 2025 HMP – action is complete	Darius Prokoj is a flood plain manager.
2020-MAPLEWOOD-008	**Storm services planning:** Investigate options for consistent resources, including developing contracts with outside vendors for winter storm services and securing new trucks and snow plows. Reference the debris management plan.	Township Administration	Ongoing Capability/Complete – Twp received new trucks (Twp Committee); engaging with smaller company to provide assistance when needed for snow removal	Do not include in the 2025 HMP – this is an ongoing capability that the Township performs as needed. The Township received new trucks, funded by the Township, and they are working with smaller companies to contract as needed for snow removal.	Township has upgraded much of its fleet, needs to continue.
2020-MAPLEWOOD-009	**Repair the Board of Education parking lot damage due to hurricane rains:** Apply for grant funding or a cost-sharing agreement with the BOE.	Township Administration	In Progress – parking lots repairs were made but the area continues to erode and needs to be repaired. This area is owned by the BOE and the Township does not have jurisdiction over it.	Include in the 2025 HMP	The Township will work with the Board of Education to identify the repairs and improvements needed to prevent the parking lot from eroding. Once identified, the Board of Education will make the appropriate repairs.
2020-MAPLEWOOD-010	**Sanitary Sewer Improvements:** Assess the condition of the sanitary sewer, especially on	Township Engineering	In Progress – Twp performed studies on sections 1, 2, and 3 – televised all sections of the	Include in the 2025 HMP	Once the studies of the sewer systems are complete, the Township will identify the

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	Maplewood Avenue and at Boyden Avenue. Partial studies have been completed, but the entire town needs to be assessed and prioritized. $1M is required for assessment and mapping.		sewer pipe; need to complete Section 4, 5, and 6 – funded through the Twp's capital improvement funds – need funding eventually to implement the improvements identified in the study		projects that need to be completed in order to improve the systems. The Township will seek funding to implement and complete the projects.
2020-MAPLEWOOD-011	**Stormwater Conveyance Improvement:** Map MS4 and develop a plan for addressing maintenance and stormwater flooding.	Township Engineering	Ongoing Capability – continue to have flooding from storms, continue to make updates and map MS4 piping throughout the Township	Include in the 2025 HMP – there is one more stage that NJDEP is looking for that the Township needs funding to complete/implement	The Township will with NJDEP to obtain funding to improve the stormwater systems based on the recent improvements and the MS4 piping maps.
2020-MAPLEWOOD-012	**Dunnell Road Drainage:** Investigate options for reducing flooding on the road to allow for emergency management equipment.	Township Engineering	East Branch of Rahway River – this action is part of the fire station action above	Include in the 2025 HMP	While this facility is no longer the fire headquarters, it serves as Station 3 (105 Dunnell Road) for the fire department. This property is located in the floodplain and susceptible to flood damage. The Township will work with the fire department to implement mitigation measures to protect utilities and equipment from flood damage. Perform a feasibility study along Dunnell Road to identify the cause of flooding and

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
					projects and improvements needed to reduce flooding along the roadway. Once identified, the Township will seek funding to make those improvements.
2020-MAPLEWOOD-013	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Township Engineering	Ongoing Capability – the Township reviews plans to determine areas of implementation; the Master Plan was updated in 2023	Do not include in the 2025 HMP – ongoing capability	-
2020-MAPLEWOOD-014	**Support the mitigation of vulnerable structures via retrofit (e.g., elevation, flood-proofing) or acquisition/relocation:** Conduct outreach to educate owners of their RL status and provide them with site-specific mitigation options. Maplewood will compile a list of mitigation activities the owners would like to pursue, then develop a FEMA HMA grant to obtain funding.	Planning Board	Ongoing Capability – no interest from homeowners in mitigation (typically outbuildings are the ones flooding)	Include in the 2025 HMP – reword as needed	

12.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Maplewood identified the following mitigation efforts completed since the last HMP:

- The Stormwater Utility was established in 2024 by Ordinance 3138-24 to directly address the effects of climate change and escalating stormwater hazards in the Township of Maplewood. All revenues generated by or on behalf of the Stormwater Utility shall be deposited in the Stormwater Utility Fund and used exclusively for the Stormwater Utility. This includes installing green infrastructure, water quality and monitoring, retrofits, equipment and system upgrades, and education and outreach.
- Between 2022 and 2024, added stormwater collection on Concord Avenue, Oakland Terrace, Bowdoin Street, and Lexington Avenue.
- Reconstructed swales in the Upper Ridgewood section (approximately $800,000 to complete) - reconstructed stone swales that were damaged during IDA; FEMA funding obtained, work complete.
- Overall maintenance improvements that include clearing grates and removing debris from catch basins prior to storms.
- Maple Terrace – trash racks installed in 2021; recently receive approval for large piped solution and construction is anticipated in 2026. Cost anticipated to be $1 million.
- 36-inche bypass storm line was installed at Maple Terrace and Ridgewood Road.
- Boyden Avenue sanitary sewer siphon (approximately $800,000 to complete) – reconstructed existing sanitary sewer siphon at Boyden Ave and Stuyvesant Ave, work complete.
- Sanitary jetting of siphons and critical infrastructure prior to storms.
- Retaining wall repairs along the East Branch of the Rahway River were made. The Township attended a two-day charrette with Army Corps of Engineers.
- Tiffany Place stormwater upgrades, abandonment of old main, construction anticipated 2025, cost anticipated $200,000.
- St. Lawrence sinkhole, work anticipated 2025.
- Meadowbrook Drainage Improvements, work anticipated 2026, cost anticipated $300,000.
- Baker Street/Maplewood Ave drainage structure repair, anticipated 2025 work, cost anticipated $300,000.

12.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Maplewood identified the following issues that require mitigation.

- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.

- As an NFIP community, the Township does not have a substantial damage response plan in place.
- By December 2027, the Township will be required to have a watershed improvement plan in place as part of NJDEP's MS4 permit process.
-
- There are several areas in the Township that are experiencing streambank erosion and flooding. This includes Irvington Brook near Nelson Place, Lightning Brook, and the Rahway River. Both private properties and municipal-owned properties are at risk to erosion and flooding. Without improvements, these areas will continue to experience erosion and flooding, putting the structures and infrastructure at risk to further damage and losses.
- Frequent heavy rain events in the Township lead to flooding and backups of the stormwater and sewer systems. Flood water ends up in the sanitary systems which lead to sewer backups in homes/basements. Stormwater inundates roadways and damages buildings. The impacts from these system failures are damaging residential homes, businesses, and critical infrastructure.
- The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- The Crooked Brook is a source of flooding in the Township and is in need of improvements to reduce flooding and damages. Surveying, permitting, funding, and studies are required to determine best solutions to address the problem. However, the Township has limited property ownership in the Orchard area.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- East Branch of Rahway River near Dunnell Road is a source of flooding in the Township which leads to road closures and flood-related damages.
- The Township's Office of Emergency Management building is a community lifeline and essential to the community before, during, and after disasters. The building lacks backup power and cannot function properly during power outages.
- While Fire Department Station 3 is no longer the fire headquarters, it serves as Station 3 (105 Dunnell Road) for the fire department, providing essential fire and rescue services to the Township. This property is located in the floodplain and susceptible to flood damage. During flooding events, the station cannot be accessed and cannot provide services to the community.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 13 repetitive loss properties and 1 severe repetitive loss property, but other properties may be impacted by flooding as well.
- The Board of Education parking lot is eroding from heavy rainfall events. Parking lots repairs were made but the area continues to erode and needs to be repaired. This area is owned by the Board of Education and the Township does not have jurisdiction over it.

- The Township has performed studies and televised inspections of sewer sections 1, 2, and 3, identifying critical areas for improvement. Sections 4, 5, and 6 still need to be inspected and evaluated to determine what additional improvements are needed. Although the Township has used capital improvement funds for these studies, additional funding is needed to carry out the improvements identified in the studies. If this funding is not secured, the Township could face incomplete upgrades to the sewer system, which might pose public health risks, environmental issues, and problems with the infrastructure.
- The Township continues to experience stormwater flooding from storms. While they continue to make updates and map MS4 piping, flooding continues to be a problem.
- Maplewood Library is a community lifeline and essential to the community before, during, and after disasters. The library serves as a heating/cooling/charging center during extreme temperature events and power outages. The building lacks backup power and cannot function properly during power outages.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

12.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Maplewood's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume 1, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 12-19. Township of Maplewood 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of Maplewood-01	Townshipwide Streambank Erosion and Improvements					X	X	X		
2025-Township of Maplewood-02	Townshipwide Stormwater Improvements					X		X		

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of Maplewood-03	Feasibility Study for Stormwater Retention					X		X		
2025-Township of Maplewood-04	Crooked Brook and Orchard Study Area Drainage Improvements					X		X		
2025-Township of Maplewood-05	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-Township of Maplewood-06	Dunnell Road Drainage Study and Improvements					X		X		
2025-Township of Maplewood-07	Emergency Generator OEM Building	X	X	X	X	X	X	X	X	X
2025-Township of Maplewood-08	Fire Department Station 3 Upgrades	X	X	X	X	X	X	X	X	X
2025-Township of Maplewood-09	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Township of Maplewood-10	Repair the Board of Education parking lot damage due to hurricane rains					X		X		
2025-Township of Maplewood-11	Sanitary Sewer Improvements					X		X		
2025-Township of Maplewood-12	Stormwater Conveyance Improvement					X		X		
2025-Township of Maplewood-13	Backup Generator for Maplewood Library	X	X	X	X	X	X	X	X	X
2025-Township of Maplewood-14	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Township of Maplewood-15	Watershed Improvement Plan	X	X		X	X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 12-20. Township of Maplewood 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of Maplewood-01	Townshipwide Streambank Erosion and Improvements	1	1	1	1	0	0	1	0	1	1	1	1	1	1	11	High
2025-Township of Maplewood-02	Townshipwide Stormwater Improvements	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Township of Maplewood-03	Feasibility Study for Stormwater Retention	1	1	1	1	1	0	1	0	1	1	1	0	0	1	10	Medium
2025-Township of Maplewood-04	Crooked Brook and Orchard Study Area Drainage Improvements	1	1	1	1	0	0	1	0	1	1	1	0	0	1	9	Medium
2025-Township of Maplewood-05	Disaster Debris Management Plan	1	1	1	1	1	0	0	0	1	1	1	0	1	1	10	Medium
2025-Township of Maplewood-06	Dunnell Road Drainage Study and Improvements	1	1	1	1	0	0	1	0	1	1	1	0	0	1	9	Medium
2025-Township of Maplewood-07	Emergency Generator OEM Building	1	1	1	1	1	0	0	0	1	1	0	0	1	0	8	Medium
2025-Township of Maplewood-08	Fire Department Station 3 Upgrades	1	1	1	1	1	0	0	0	1	1	0	0	1	0	8	Medium
2025-Township of Maplewood-09	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	0	1	1	1	0	0	1	8	Medium
2025-Township of Maplewood-10	Repair the Board of Education parking lot damage due to hurricane rains	1	1	1	1	0	0	0	0	1	1	1	0	1	1	9	Medium
2025-Township of Maplewood-11	Sanitary Sewer Improvements	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Township of Maplewood-12	Stormwater Conveyance Improvement	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of Maplewood-13	Backup Generator for Maplewood Library	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Township of Maplewood-14	Substantial Damage Response Plan	1	1	1	1	1	0	0	0	1	1	0	0	1	0	8	Medium
2025-Township of Maplewood-15	Watershed Improvement Plan	1	1	1	1	1	0	0	0	1	1	1	0	1	1	10	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Township of Maplewood-01: Townshipwide Streambank Erosion and Improvements

Lead Agency:	Township Engineering and DPW	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Geological Hazards, Severe Weather	
Description of the Problem:	There are several areas in the Township that are experiencing streambank erosion and flooding. This includes Irvington Brook near Nelson Place, Lightning Brook, and the Rahway River. Both private properties and municipal-owned properties are at risk to erosion and flooding. Without improvements, these areas will continue to experience erosion and flooding, putting the structures and infrastructure at risk to further damage and losses.	
Description of the Solution:	The Township will implement a combination of structural and natural solutions to stabilize the streambanks, reduce erosion, and mitigate flood risk in problem areas identified and that are designated as Township responsibility (Nelson Place, Lightning Brook, and Rahway River). The Township will complete a feasibility study to identify solutions to implement. Once study is complete and funding is identified, the Township will begin making improvements.	
Estimated Cost:	Medium	
Potential Funding Sources:	EPA Water Infrastructure and Resiliency, NJDEP CWSRF, FEMA HMGP and BRIC, Capital Improvement, Township Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Township of Maplewood-02: Townshipwide Stormwater Improvements

Lead Agency:	Township Engineering and DPW
Supporting Agencies:	N/A
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent heavy rain events in the Township lead to flooding and backups of the stormwater and sewer systems. Flood water ends up in the sanitary systems which lead to sewer backups in homes/basements. Stormwater inundates roadways and damages buildings. The impacts from these system failures are damaging residential homes, businesses, and critical infrastructure.
Description of the Solution:	The Township will continue investigating options for stormwater improvements throughout the municipality through studies and inspections. As the studies and inspections are completed and projects are identified, the Township will utilize the stormwater utility fund to complete projects and improvements.
Estimated Cost:	Medium
Potential Funding Sources:	Stormwater Utility Fund
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater flowing downstream and an increase in capacity in the stormwater system, decreasing flooding.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations in these areas will be further protected from stormwater flooding
Impact on Future Development:	Provides protection from stormwater flooding on future development
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.
Impact on Capabilities:	This action will increase the Township's stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Implement green infrastructure throughout the Township	This can reduce stormwater flooding but does not address infrastructure and necessary improvements
Elevate all homes and roads	Costly; not feasible; stormwater flooding will occur and cause damage

2025-Township of Maplewood-03: Feasibility Study for Stormwater Retention

Lead Agency:	Township Engineer and DPW	
Supporting Agencies:	Township Council	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.	
Description of the Solution:	The Township will undertake a study to identify suitable locations for underground detention that will allow for storage of stormwater. This will include surveying and mapping of the stormwater collection systems as required by NJDEP. This is likely to include Township owned parking lots in areas prone to stormwater flooding. The Township will implement cost effective underground detention projects identified by the study.	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Township Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will result in a decrease in stormwater flowing downstream and an increase in capacity in the stormwater system, decreasing flooding.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations in these areas will be further protected from stormwater flooding	
Impact on Future Development:	Provides protection from stormwater flooding on future development	
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.	
Impact on Capabilities:	This action will increase the Township's stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rain gardens	Lack of space and likely low change in stormwater volumes
	Above ground detention	No available space in the Township for this type of project

2025-Township of Maplewood-04: Crooked Brook and Orchard Study Area Drainage Improvements

Lead Agency:	Township Engineering	
Supporting Agencies:	Township DPW, NJDEP	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Crooked Brook is a source of flooding in the Township and is in need of improvements to reduce flooding and damages. Surveying, permitting, funding, and studies are required to determine best solutions to address the problem. However, the Township has limited property ownership in the Orchard area.	
Description of the Solution:	Once funding is identified, the Township will work to identify options for drainage improvements in the area of Crooked Brook and the Orchard Study Area. The Township will make the improvements to reduce flood impacts in the area to areas that they have jurisdiction over.	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA (for activities benefiting NFIP-insured structures); Capital Improvement; Township Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	Critical facilities and community lifelines in the area of Crooked Brook and Orchard Study Area will be protected from flooding and damages related to flooding	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Township of Maplewood-05: Disaster Debris Management Plan

Lead Agency:	Township OEM and DPW	
Supporting Agencies:	Township Council	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 3, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

2025-Township of Maplewood-06: Dunnell Road Drainage Study and Improvements

Lead Agency:	Township Engineering and DPW	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	East Branch of Rahway River near Dunnell Road is a source of flooding in the Township which leads to road closures and flood-related damages.	
Description of the Solution:	Perform a feasibility study along Dunnell Road to identify the cause of flooding and projects and improvements needed to reduce flooding along the roadway. Once identified, the Township will seek funding to make those improvements.	
Estimated Cost:	Medium	
Potential Funding Sources:	FEMA HMGP, BRIC, and FMA; Capital Improvement; Township Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action will protect properties, improve natural environment, and increase resilience to erosion and flooding.	
Impact on Socially Vulnerable Populations:	All residents in this area will benefit from improvements to mitigate flood and erosion risk.	
Impact on Future Development:	Any new development in this area will benefit from improvements	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is resulting in increased frequency and intensity of rain events. This action will help reduce damage from the events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Elevate all homes and roads	Costly; not feasible; erosion will still occur and flooding will still happen
	Acquire properties and restore to open space	Not feasible; loss tax base

2025-Township of Maplewood-07: Emergency Generator OEM Building

Lead Agency:	Township Engineering	
Supporting Agencies:	Township OEM and DPW	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	The Township's Office of Emergency Management building is a community lifeline and essential to the community before, during, and after disasters. The building lacks backup power and cannot function properly during power outages.	
Description of the Solution:	Purchase and install a generator at the Township's OEM building. This will provide continuity of operations and allow the Township to provide services to the municipality during power outages.	
Estimated Cost:	$100,000+	
Potential Funding Sources:	FEMA HMGP; Capital Improvement; Township Budget	
Implementation Timeline:	1-3 years	
Goals Met:	1, 2, 4, 6, 7	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	This action results in protection of a critical facility that could support future development.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Township of Maplewood-08: Fire Department Station 3 Upgrades

Lead Agency:	Township Fire Department
Supporting Agencies:	Township DPW
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	While this facility is no longer the fire headquarters, it serves as Station 3 (105 Dunnell Road) for the fire department, providing essential fire and rescue services to the Township. This property is located in the floodplain and susceptible to flood damage. During flooding events, the station cannot be accessed and cannot provide services to the community.
Description of the Solution:	Once funding is identified, the Township will work with the fire department to implement mitigation measures to protect utilities and equipment from flood damage. This will include purchasing water rescue equipment to use during response and water rescues.
Estimated Cost:	$100,000+
Potential Funding Sources:	FEMA Assistance to Firefighters Grants Program, FEMA FMA (for activities benefiting NFIP-insured structures) and HMGP (equipment ineligible), Capital Improvement, Township Budget
Implementation Timeline:	1-3 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Emergency Services
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Elevate fire department / Costly; equipment is still vulnerable to flood damage
	Relocate fire department / Not feasible; no available land to relocate building

2025-Township of Maplewood-09: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 13 repetitive loss properties and 1 severe repetitive loss property, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	$1 million+
Potential Funding Sources:	FEMA BRIC, FMA and HMGP; Local match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	Current problem continues
Levee around floodplain	Costly, not enough room
Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of Maplewood-10: Repair the Board of Education parking lot damage due to hurricane rains

Lead Agency:	Township Administration and DPW	
Supporting Agencies:	Board of Education, NJDEP	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Board of Education parking lot is eroding from heavy rainfall events. Parking lots repairs were made but the area continues to erode and needs to be repaired. This area is owned by the Board of Education and the Township does not have jurisdiction over it.	
Description of the Solution:	The Township will work with the Board of Education to identify the repairs and improvements needed to prevent the parking lot from eroding. Once identified, the Board of Education will make the appropriate repairs.	
Estimated Cost:	$1 million+	
Potential Funding Sources:	Board of Education budget	
Implementation Timeline:	5 years	
Goals Met:	1, 2	
Benefits:	Reduced damage, roads are not closed or flooded	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	New development occurring in this area will be protected from erosion and flooding	
Impact on Critical Facilities/Lifelines:	The school is considered a community lifeline	
Impact on Capabilities:	N/A	
Climate Change Considerations:	More frequent rain events will increase erosion concerns and damages	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Bank stabilization	Need to have shovel-ready projects identified
	Acquire property and restore to open space	Not feasible

2025-Township of Maplewood-11: Sanitary Sewer Improvements

Lead Agency:	Township Engineering
Supporting Agencies:	Township DPW
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Township has performed studies and televised inspections of sewer sections 1, 2, and 3, identifying critical areas for improvement. Sections 4, 5, and 6 still need to be inspected and evaluated to determine what additional improvements are needed. Although the Township has used capital improvement funds for these studies, additional funding is needed to carry out the improvements identified in the studies. If this funding is not secured, the Township could face incomplete upgrades to the sewer system, which might pose public health risks, environmental issues, and problems with the infrastructure.
Description of the Solution:	The Township will conduct assessments of sections 4, 5, and 6 of the sewer systems to identify the extent of damage and prioritize the areas in need of repair. Additionally, the Township will implement measures to reduce I&I to help prevent excess water entering the system. The Township will also replace pipes as needed. Lastly, the Township will identify a regular maintenance schedule that includes periodic inspections, cleaning, and repairs to ensure the long-term integrity of the sewer system.
Estimated Cost:	$1 million+
Potential Funding Sources:	FEMA HMGP and BRIC; capital improvement; municipal budget; NJ EIT
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6
Benefits:	Continuity of operations; overall sewer improvements
Impact on Socially Vulnerable Populations:	Provides a reliable and safe sewer system for all residents including socially vulnerable populations
Impact on Future Development:	Reliable sewer infrastructure supports new residential, commercial, and industrial developments
Impact on Critical Facilities/Lifelines:	The sewer system is a community lifeline in the Township and the improvements will improve the system and provide services to the Township
Impact on Capabilities:	N/A
Climate Change Considerations:	More frequent rain events increases the risk of the sewer systems failing
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection, Emergency Services, Structural Projects
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Implement green infrastructure throughout the Township	This can reduce the amount water entering the sewer system; however, it does not address the aging and damaged infrastructure
Implement decentralized wastewater treatment systems	While this can reduce the risk of systems overflowing, it does not address the aging and damaged infrastructure

2025-Township of Maplewood-12: Stormwater Conveyance Improvement

Lead Agency:	Township Engineer and DPW
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Township continues to experience stormwater flooding from storms. While they continue to make updates and map MS4 piping, flooding continues to be a problem.
Description of the Solution:	The Township will work with NJDEP to obtain funding to improve the stormwater systems based on the recent improvements and the MS4 piping maps.
Estimated Cost:	$1 million+
Potential Funding Sources:	EPA Water Infrastructure and Resiliency, NJDEP CWSRF, FEMA HMGP and BRIC, Capital Improvement, Township Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4, 6, 7
Benefits:	This action will result in a decrease in stormwater flowing downstream and an increase in capacity in the stormwater system, decreasing flooding.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	Provides protection from stormwater flooding on future development
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.
Impact on Capabilities:	This action will increase the Township's stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Implement green infrastructure throughout the Township	This can reduce stormwater flooding but does not address infrastructure and necessary improvements
Upgrade all roadways to green streets to reduce stormwater volume	Costly and long-term project

2025-Township of Maplewood-13: Backup Generator for Maplewood Library

Lead Agency:	Township Engineer and DPW	
Supporting Agencies:	Library and Township Council	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Maplewood Library is a community lifeline and essential to the community before, during, and after disasters. The library serves as a heating/cooling/charging center during extreme temperature events and power outages. The building lacks backup power and cannot function properly during power outages.	
Description of the Solution:	Purchase and install a generator at the Maplewood Library. Additionally, purchase appropriate equipment to use as charging centers for personal electronics. By having power during outages, the library can provide essential services to the community.	
Estimated Cost:	$100,000+	
Potential Funding Sources:	FEMA HMGP; Capital Improvement; Township Budget	
Implementation Timeline:	1-3 years	
Goals Met:	1, 2, 6, 7	
Benefits:	This action protects public health and safety and ensures continued operation of a community lifeline during a power outage.	
Impact on Socially Vulnerable Populations:	Provides a safe place to go to during power outages where residents can charge electronics and be protected from extreme temperature events.	
Impact on Future Development:	This action results in protection of a critical facility that could support future development.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a community lifeline during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Structure and Infrastructure Projects	
CRS Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Township of Maplewood-14: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Township of Maplewood-15: Watershed Improvement Plan

Lead Agency:	Township Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures , Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

12.6 Jurisdictional Hazard Mitigation Team

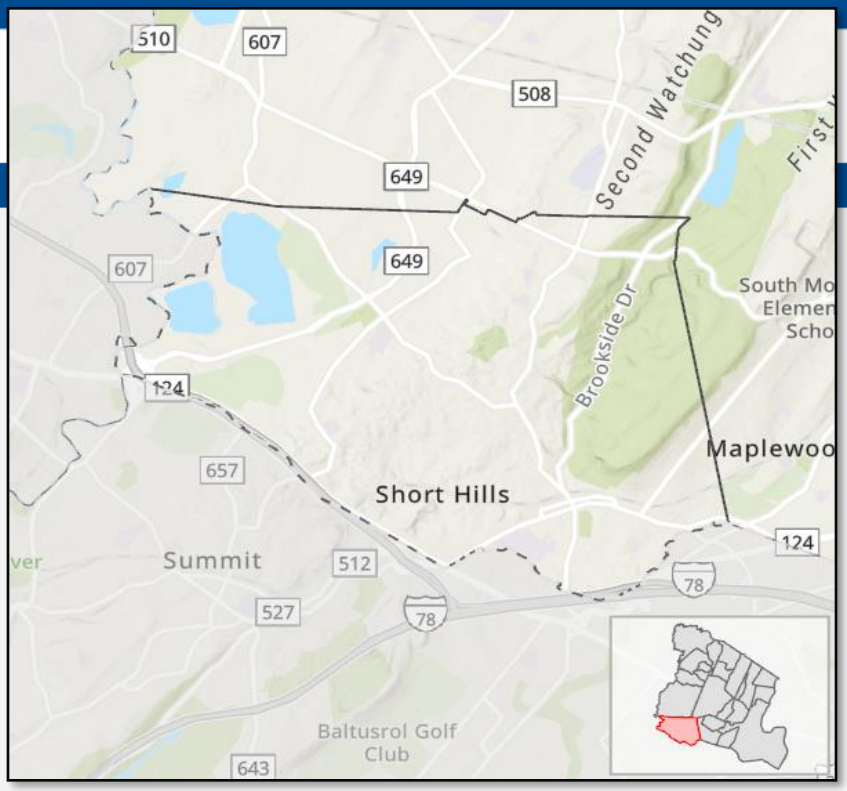
Table 12-21. Jurisdictional Points of Contact

Primary Point of Contact		Alternate Point of Contact	
Name and Title:	Patrick Wherry, Business Administrator / OEM Coordinator	Name and Title:	Miriam Perez, Assistant Business Administrator
Address:	574 Valley Street, Maplewood, NJ 07040-2691	Address:	574 Valley Street, Maplewood, NJ 07040-2691
Phone Number:	973-762-8120 x2000	Phone Number:	973-762-8120 x2003
Email:	pwherry@maplewoodnj.gov	Email:	mperez@maplewoodnj.gov
NFIP Floodplain Administrator			
Name and Title:	Darius Pokoj, Construction Official, Floodplain Administrator, Department of Community Development		
Address:	574 Valley Street, Maplewood, NJ 07040-2691		
Phone Number:	973-762-8120 x3600		
Email:	dpokoj@maplewoodnj.gov		

Table 12-22. Annex Contributors

Name and Title	Contributions to Annex and Planning Process
Patrick Wherry, Business Administrator / OEM Coordinator	Served on the Essex County HMP Planning Partnership, identified primary point of contact for the Borough's annex, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Miriam Perez, Assistant Business Administrator	Identified alternate point of contact for the Borough's annex, attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Darius Pokoj, Construction Official, Floodplain Administrator, Department of Community Development	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Nancy Adams, Mayor	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Paul Kittner, Township Engineer, DPW Director, Department of Engineering and Public Works	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Paul Grygiel, Principal Planner, Phillips Preiss Grygiel Leheny Hughes, LLC	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Scott Redmond, Engineer	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Victor De Luca	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Chris Ariemma	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP
Liz Fritzen, Clerk, Office of the Clerk	Attended meetings, provided input for the annex update process, identified mitigation strategies, and reviewed draft sections of the HMP

Township of Millburn



POPULATION STATISTICS

21,793
TOTAL POPULATION (2023 ACS)

0.08%
Change in population since 2010 Census

6,999
TOTAL HOUSEHOLDS

AT RISK POPULATION

2,863
Population Over 65

1,231
Population Under 5

812
Living With Disability

17
Households Without Vehicle

1,384
People Renting Homes

POVERTY AND LANGUAGE

345
Households Below Poverty Level

1,709
Population With English as 2nd Language

POPULATION AND BUSINESSES

26,786
Daytime Population

1,312
Total Businesses

10,056
Total Employees

FLOOD VULNERABILITY

27
Number of People in 1% SFHA

20
Number of Buildings in 1% SFHA

6
Community Lifelines in 1% SFHA

13 Township of Millburn

13.1 Jurisdictional Profile

According to the U.S. Census Bureau, the Township has a total land area of 9.876 square miles, of which 9.322 square miles is land and 0.554 square miles is water. The Township of Millburn is in southwestern Essex County and is bordered to the east by the Township of Maplewood, to the north by the Township of West Orange and the Township of Livingston, to the west by Morris County municipality of Chatham, and to the south by Union County municipalities of Summit and Springfield.

Once part of Elizabethtown and Newark, Millburn Township was part of Springfield Township and created by King Charles II for his brother, James, in 1664. In 1857, Millburn Township separated from Springfield Township. Millburn Township is home to the internationally known Paper Mill Playhouse where many Broadway shows have gotten their preview start much like the Tony Award winning musical Newsies. The first planned commuter suburb in America, Short Hills, is in Millburn Township. Millburn Township operates under the Township form of government with a five-member Committee. Annually, the Committee selects one member to serve as Mayor.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

13.2 Jurisdictional Risk Assessment

The following sections assess the Township of Millburn's risk to the hazards of concern identified for the 2025 HMP update.

13.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Millburn's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 13-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Emergency Protective Measures Category B. $85,050.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to	Debris Removal Category A. $24,944.97; Emergency Protective Measures. $66,718.14.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Debris Removal Category A. Town-wide $176,838.10. Debris removal Taylor Park Pond $112,416.48. Emergency Protective Measures Category B. $102,989.50. Water Control Facilities Category D. $96,000. Skiff Brook Damage. Holly Drive Sewer Flume damage $89,900. Roads and Bridges Category C. $16,808.21 for Lawrence Drive Roadway Damage.
January 6, 2022	Winter Storm	County Snow Emergency	Minimal impacts for 2-4 inches.
January 28, 2022	Winter Storm	Local Emergency declared for snow storm.	Provided Emergency Protective Measures for 14-18 inches.
July 16, 2023	Severe Weather	Summer thunderstorms.	Tree limbs, trees, and limited power outages. Emergency Protective Measures.
September 9, 2023	Severe Weather	Scattered thunderstorms	Tree limbs, trees, and limited power outages. Emergency Protective Measures.

13.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

FEMA flood maps do not address all flood risks within the Township. For example, the Glenwood residential neighborhood north of Millburn Avenue. The area was not included in 1976 Flood Insurance Study (FIS) and is not shown as a flood risk on FEMA flood maps despite it being prone to flooding. There is a need to expand FIS area to include neighborhoods not previously studied so flood risk is identified within the Township.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Township of Millburn.

Table 13-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
239	$363,233	$70,473,000	416	$13,680,992	39	3

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)

Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Three residential homes have been declared substantially damaged in prior flood events within the Township.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 13-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Campbells Pond Dam	Dam	X
Canoe Brook Dam	Dam	X
Canoe Brook Reservoir #1 Dam	Dam	X
Diamond Mill Dam	Dam	X
Taylor Park Pond	Dam	X
Bauer Center	Shelter	X

Source: Essex 2025; FEMA 2020

13.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of Millburn, including major residential/commercial/industrial development and major infrastructure development.

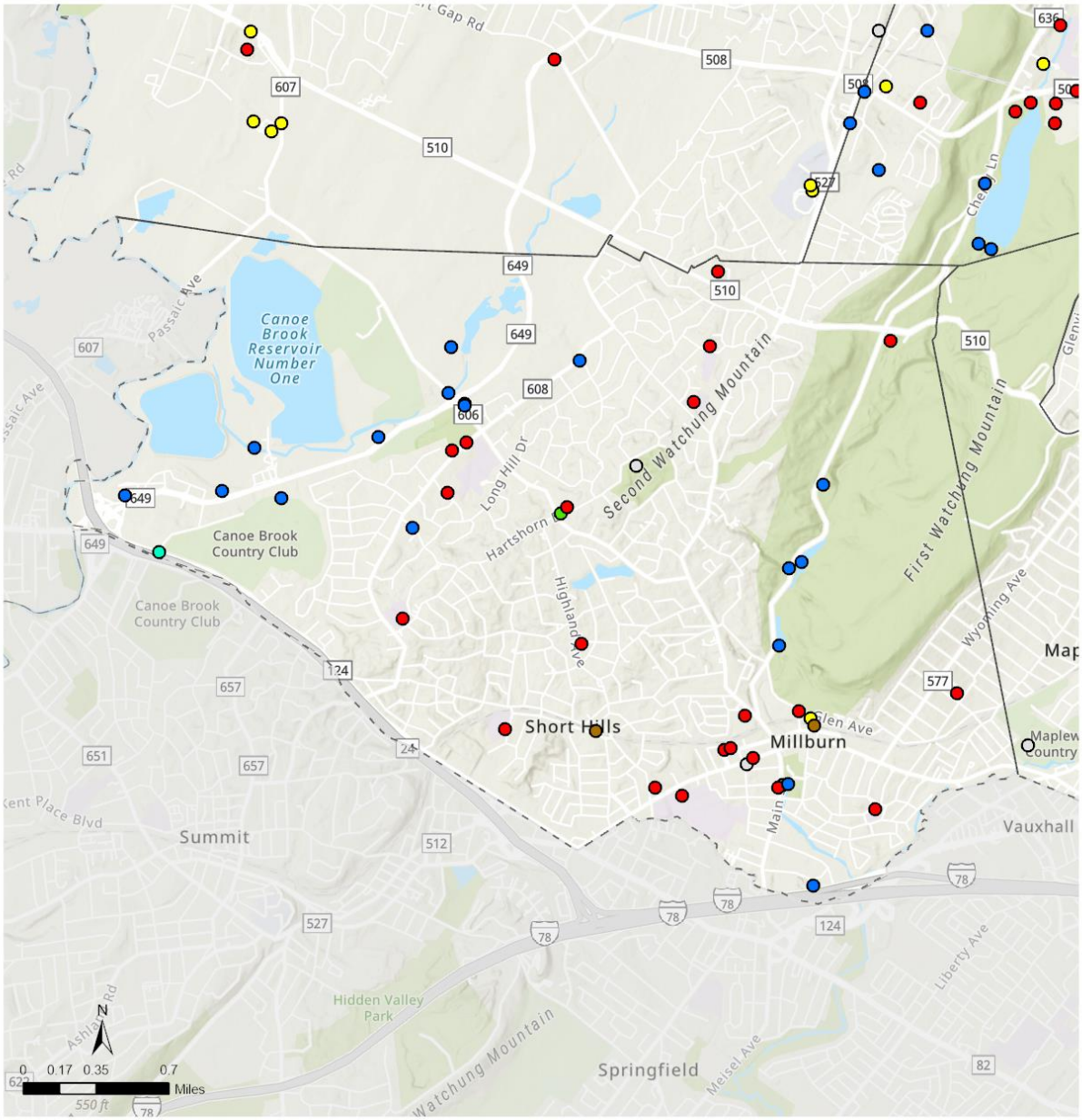
Table 13-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
378 Millburn	Mixed use: Residential/office/retail	3 residential units 3rd floor, office space 2nd floor, retail space at street level	378 Millburn Ave./ Block 801/Lot 6.01	-	2024
Harth	Mixed use: residential (primary), retail	53 residential units, 3 street level retail spaces	397 Millburn Ave./ Block 1211/Lot 1.01	-	2024
Annie Millburn Partners	Residential apartments	149 Units	249 Millburn Ave./ Block 705/ Lot 1	-	Received Planning Board approval, construction activity beginning
85 Woodland Rd.	Residential/Medical	50 residential Units + 10,000 SF Medical use	85 Woodland Rd./ Block 1904/ Lot 72.01	-	Received Planning Board approval, construction activity beginning
Millburn Town Hall	Municipal Government Building	1	375 Millburn Ave./Block 1212/Lot 4	-	Proposed interior renovation of existing building; addition to rear of building

13.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Millburn that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 13-1. Township of Millburn Community Lifelines

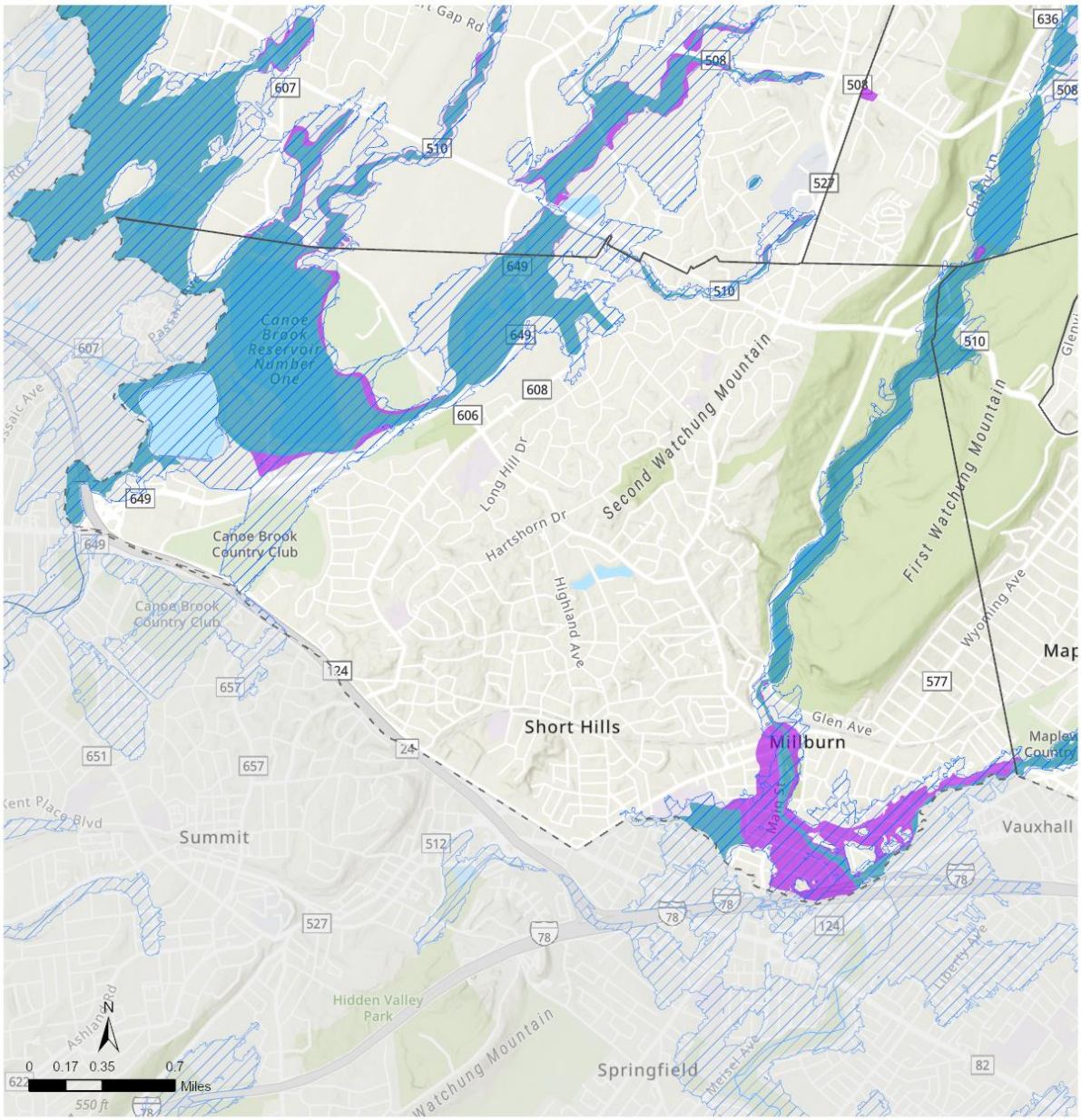


Millburn Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 13-2. Township of Millburn Flood-Related Hazards

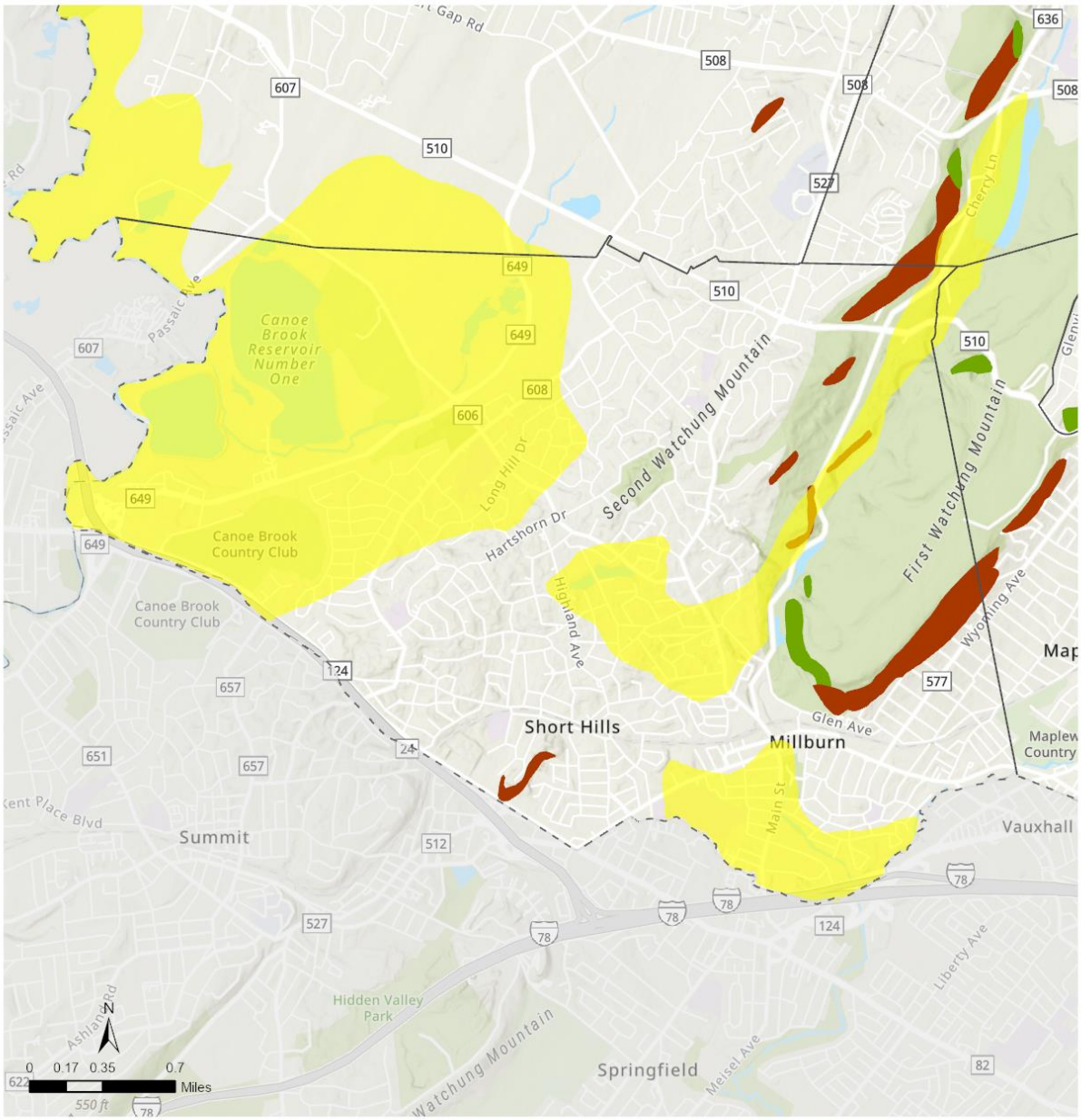


Millburn Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 13-3. Township of Millburn Geological Hazards



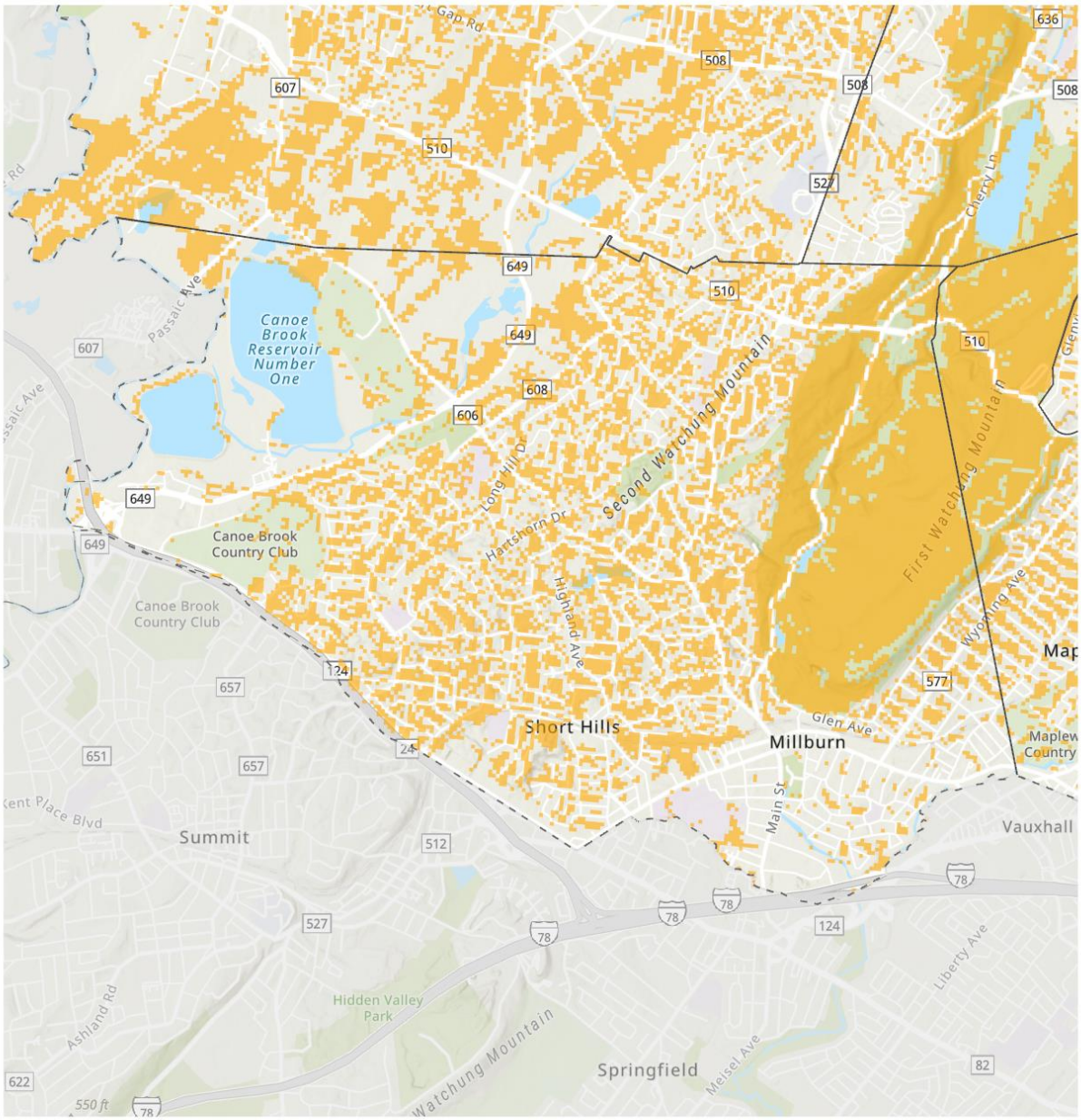
Millburn Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 13-4. Township of Millburn Wildfire Hazard



13.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Millburn, climate change is likely to have the following impacts:

- Heavy rainfall events are likely to increase in severity and frequency, resulting in increased flood risk.

13.2.5 Risk Assessment Summary

- The Township owned library is a designated heating/cooling center for displaced residents. The facility lacks backup power. The Gilbert Place stormwater pump station has a portable generator stationed on site. Both sites are critical and should have permanent fixed generators on site.
- Stormwater flooding occurs in an area disconnected from the Gilbert Place pump station. A gravity fed system is needed to allow for connection to the pump station.
- Additional stormwater pumping capacity is needed at the pump station at Gilbert Park.
- The Cora Hartshorn Arboretum and Bird Sanctuary, also known as the Hartshorn Arboretum, is an arboretum and bird sanctuary located at 324 Forest Drive South, in the Short Hills section of Millburn. A stone lined channel on the north side of the Arboretum carries water out of the Short Hills neighborhood. The area downstream of the channel floods during heavy rainfall events.
- The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
- John F Kennedy Parkway is a County owned roadway prone to flooding in heavy rainfall events. Township Police and the Department of Public Works regularly need to respond during flooding events to conduct road closures and make rescues in severe events.
- Frequent flooding events have resulted in damages to residential properties on Ridgewood Road. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 39 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- During rainfall events, street stormwater has entered the sanitary sewer system through manhole covers. This overloads the sanitary sewer system and leads to flooding of the system.
- During rainfall events, suspected I&I leads to flooding issues. The last I&I study was done for the South Mountain area of town in areas experiencing flooding in 2017. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.

13.3 Jurisdictional Capability Assessment

The Township of Millburn performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

13.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Millburn.

Table 13-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan Reexamination and Update for the Township of Millburn, Essex County, New Jersey, 2018, Next re-exam: 2028	Planning Board
Impact on Risk Reduction: A goal of the Master Plan relating to hazard mitigation include to develop and implement strategies to address town-wide sustainability, resiliency and to adapt to global climate change. Objectives for this goal include: • Require private development to incorporate sustainable design practices that control run-off, improve streetscapes, increase energy efficiency, and preserve open space and greenways. • Encourage redevelopment of underutilized or vacant commercial property in order to preserve open space. • Evaluate and improve Township's infrastructure, as appropriate. • Protect water resources and enforce sustainable design practices. • Maintain stormwater management plan. Objective 6.06 Maintain and upgrade Township's existing storm drainage and sanitary sewer systems. • Support and adopt policies to protect and improve: The quality of surface and ground water; The local and regional water supply; The bioavailability of land Air quality; The Township's open spaces and natural resources. • Prohibit development of areas inappropriate for development, such as flood plains, water reserves, wetlands, and other environmentally sensitive areas. Maintain integrity of stream channels for their biological function as well as drainage. Objective 6.10 Reduce risk for future power outages.			
Capital Improvement Plan	Yes	Slayton Sanitary Sewer Pump Station Rehabilitation – completed 03/2023	DPW and Engineering
Impact on Risk Reduction: Improved back-up pump capability; relined wet well.			
Stormwater Management Plan	Yes	Stormwater Management Plan	DPW and Engineering

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Impact on Risk Reduction: Aims to reduce stormwater volume and increase quality.			
Stormwater Pollution Prevention Plan	Yes	Most recent revision, 12/2020. Will be updated 2025	DPW and Engineering
Impact on Risk Reduction: Requires techniques to prevent spread of pollution in stormwater at construction sites.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Master Plan, Open Space and Recreation Element, 2023	Planning Board
Impact on Risk Reduction: A goal of the Open Space and Recreation Element is to prioritize preservation of environmental resources and increase environmentally sensitive passive recreation opportunities.			
Habitat Conservation Plan	Yes	Unnamed tributary to Van Winkle Brook	Engineering/Flood Mitigation Advisory Committee (FMAC)
Impact on Risk Reduction: Effort underway to determine benefit of restoring masonry lined channel that lies between Chatham Rd. and the Cora Hartshorn Arboretum to natural state, recreating wetlands and natural ecosystem, along with possible stormwater impoundment area to mitigate downstream flooding affects.			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Management Plan	Township Forester
Impact on Risk Reduction: The community forest management plan aims to reduce the carbon footprint, continue public information opportunities, educate the public on non-native invasive plants and deer issues, partner with conservation groups, conserve/preserve trees, select and maintain street trees appropriately, preserve historic trees, improve and update tree related ordinances, and improve the tree inventory data.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Millburn to prepare for, respond to, and recover from hazard events.

Table 13-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to natural and non-natural disaster events. The plan is updated every 2 years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: An evacuation and sheltering plan is included in the Emergency Operations Plan.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Millburn.

Table 13-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 9 Building and Housing	Building Department
Impact on Risk Reduction: There is hereby established in the Township, a State Uniform Construction Code enforcing agency to be known as Millburn Construction Code Enforcing Agency, consisting of a Construction Official, Building Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official, and such other subcode officials for such additional subcodes as the			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency.			
Zoning or Land Use Regulations	Yes	Development Regulations and Zoning Ordinance	Planning Board
Impact on Risk Reduction: The purposes of this ordinance are to establish a pattern for the use of land and structures based on the Master Plan, to implement the Master Plan, and to encourage private and municipal action that will foster development of the Township in a manner which will promote the public health, safety, morals, and general welfare of the people. This ordinance is intended to carry out the purposes set forth in the New Jersey Municipal Land Use Law.			
Subdivision Regulations	Yes	Development Regulations and Zoning Ordinance	Planning Board
Impact on Risk Reduction: Approval is required for all subdivisions by the approving authority following the rules and regulations for preliminary and final plat approval adopted by the Planning Board and Board of Adjustment.			
Site Plan Regulations	Yes	Development Regulations and Zoning Ordinance	Planning Board
Impact on Risk Reduction: A site plan approval is required for all developments which do not meet the definition of "Site Plan, Exempt." The procedures for filing an application for site plan approval shall be adopted by the Planning Board and Board of Adjustment. Except for variance applications under N.J.S.A. 40:55D-70d, which shall be acted upon by the Board of Adjustment, the Planning Board shall be the approving authority for site plans.			
Stormwater Regulations	Yes	Development Regulations and Zoning Ordinance, DRZ-525, Revised & adopted 03/2021	Engineer
Impact on Risk Reduction: The purpose of this section is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Development Regulations and Zoning Ordinance, Article 7 Floodplain Management Regulations, Revised and adopted 10/2023	Floodplain Administrator and Construction Official
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: 1. Protect human life and health. 2. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. 3. Manage the alteration of natural floodplains, stream channels and shorelines; 4. Manage filling, grading, dredging and other development, which may increase flood damage or erosion potential. 5. Prevent or regulate the construction of flood barriers, which will divert floodwater or increase flood hazards.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
6. Contribute to improved construction techniques in the floodplain. 7. Minimize damage to public and private facilities and utilities. 8. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. 9. Minimize the need for rescue and relief efforts associated with flooding. 10. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas, and establish minimum design flood elevation. 11. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. 12. Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 18 Environmental Regulations; Chapter 11 Tree Preservation	Public Works, Green Team; Forester of the Township of Millburn
Impact on Risk Reduction: The goal of this policy is to encourage and increase the use of environmentally preferable methods, products, and services in the Township of Millburn. By including environmental considerations in municipal building and grounds decisions, Millburn can promote practices that are beneficial to our land, beneficial to public and worker health and conserve natural resources. The policy objectives are to: a. Conserve natural resources; b. Minimize environmental impacts such as pollution and use of water and energy; c. Eliminate or reduce toxics that create hazards to workers and our community; d. Support strong recycling markets; e. Reduce materials that are routinely landfilled; f. Increase the use and availability of environmentally preferable products that protect the environment; g. Identify environmentally preferable techniques, methods, and distribution systems; h. Create a model for sustainable buildings and grounds maintenance that encourages others in our community to adopt similar goals. Trees are declared to be an important cultural, ecological, scenic, and economic resource. Proper management of this resource will ensure its maintenance and result in economic returns. A forestry management program is intended to meet the objectives of preserving, protecting, enhancing, and maintaining trees and providing opportunities for the continued use of forest resources which are compatible with the maintenance of the environment. This will be accomplished by ensuring management of forest and trees through the application of sound management practices. To that end, it shall be unlawful to cut down, damage, poison or in any other manner destroy or cause to be destroyed any trees covered by this chapter, except in accordance with the provisions of this chapter.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

13.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Millburn's departments, boards, and committees that contribute to risk reduction.

Table 13-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board has powers in relation to the Master Plan; Subdivision Control and Site Plan Review; Official Map; Zoning

Department / Board / Committee	*Description and Role in Risk Reduction*
	Ordinance and Conditional Uses; Capital Improvements Program; Variances and certain Building Permits in conjunction with subdivision, site plan and conditional use approval. The Board of Adjustment has the power to: • Hear and decide appeals where it is alleged by the appellant that there is error in any order, requirement, decision or refusal made by an administrative officer based on or made in the enforcement of the zoning ordinance; • Hear and decide requests for interpretation of the zoning map or ordinance or for decisions upon other special questions upon which such board is authorized to pass by any zoning or official map ordinance; • Grant variances in special cases
Planning Department	Department of Land Use and Permitting
Public Works / Highway Department	The Public Works Department of the Township of Millburn is responsible for the following: • Collection of leaves • Educating the public in various areas • Flood control of Township right-of-way • Installation of street name signs • Providing assistance to other Townships • Response to citizen inquires • Snow removal on Township roads and parking lots
Construction / Building / Code Enforcement Department	The Building Department is responsible for building safety standards relating to the design, construction, use and occupancy of all buildings and structures located within the Township of Millburn. The Building Department enforces the Zoning Ordinance of the Township of Millburn and the Uniform Construction Code of the State of New Jersey.
Engineering Department	Engineers serve as the Administrative Officers to Township Planning Board. Both the Engineer and Assistant Engineer are the Township representatives to the Community Development organization. The Engineers also: • Review and issue grading/drainage permits for both public and private projects • Prepare grant applications for Community Development and Department of Transportation projects • Oversee Township infrastructure projects (i.e. drainage improvements, road improvements, etc.) • Consult with Department of Public Works regarding routine repair and maintenance of Township infrastructure • Answer questions from residents regarding site grading and stormwater management
Parks and Recreation Department	Recreation Department
Open Space Board / Committee	No
Environmental Board / Commission	The Millburn Environmental Commission oversees the identification, preservation and protection of the Township's environmental resources. The Environmental Commission also serves as advisor to the Township Committee and the Planning Board on planning and zoning matters. The Millburn Green Team works closely with the environmental groups from the elementary schools, the Millburn Environmental Commission, and the Millburn Arts Advisory Commission.

Department / Board / Committee	Description and Role in Risk Reduction
Emergency Management / Public Safety Department	The Office of Emergency Management is charged with coordinating the efforts of these agencies and organizations during a disaster or natural emergency. The Borough of New Providence, City of Summit, and Township of Millburn combined their emergency dispatch centers to form Mountain Valley Emergency Communications Center, a unified public safety answering point serving all three jurisdictions.
Fire Department	The Millburn Fire Department provides a professional all hazards emergency response including: fire suppression, rescue and hazardous materials. The Fire Department is committed to protecting and supporting our community through planning, public education, and code enforcement. Responding to an average of 2,000 calls per year, each firefighter is trained and certified in Firefighter I and II, First Responder Medical Care, CPR, Incident Command Levels 100 and 200, hazardous materials, awareness and operational levels, and mass decontamination. More than half of the fire department members are N.J. Certified Emergency Medical Technicians. The Millburn Fire Department operates four engines, one ladder truck, a heavy rescue unit, a Polaris Ranger capable of off-road maneuvering and carrying one patient with support staff, one command vehicle and several support staff vehicles.
Additional departments, boards, and committees	The Flood Mitigation Advisory Committee works to mobilize community involvement in flood control matters and funding concerns, address funding issues with the Governing Body, provide pertinent information to residents, and serve in an advisory capacity to the Township Committee on flood control matters. The Millburn Township Shade Tree Advisory Board assists and advises the Township Committee, the Superintendent of Public Works and the Township Forester with respect to the planting, care and control of trees and shrubbery in public places owned by the Township. The Historic Preservation Commission is responsible for the maintenance of the Historic Structures Survey, and the recommendation of any actions necessary for updating the historic preservation element of the Master Plan. The Commission advises the Planning Board and the Zoning Board on applications for development affecting designated historic districts and sites.

The table below summarizes the Township of Millburn's staff with skills and expertise that contribute to risk reduction.

Table 13-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Administration contractor
Engineer	Township Engineer
Stormwater Officer	No
Resilience / Sustainability Officer	No

Staff	Description and Role in Risk Reduction
Grant Writer	Administration contractor
Staff with benefit / cost analysis expertise	Chief Financial Officer
Staff trained in conducting substantial damage determinations	Construction Official and administration contractor
Staff trained in GIS	Engineering contractor
Staff that provide support to socially vulnerable populations	The Municipal Welfare Department administers the General Assistance Program, a state funded program for eligible adults and childless couples. The Department also provides information and referral services and assists residents with applications for other programs. The Senior Citizen Advisory Board was formed to serve the senior population of the township. The responsibilities of the Advisory Board are to provide information to the public on the aspects of aging, to identify the needs of seniors, to explore the appropriate solutions and to develop and coordinate resources. The Senior Bus provides transportation for residents 62 and over to medical appointments, grocery shopping, library, meetings, and activities.
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of Millburn.

Table 13-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Municipal (Local) Planning Board
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Special Flood Hazard Areas, 100- & 500-year floodplains
How does your jurisdiction inventory land available for new development?	Permitting
What percentage of your jurisdiction is available for new development?	There are limited areas available for new development.

13.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Millburn.

Table 13-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Accessible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Accessible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Accessible
Capital improvements funding	Yes	Accessible

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Open space acquisition programs	No	-
Impact fees for developers of new homes	Yes	Accessible
User fees for water, sewer, gas, or electric	Yes	Sewer from tax collector: One-time fee collected for additional users of sewer collection system ($2300/new household and/or apartment unit)
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Accessible
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds
Other financial resources available for hazard mitigation	No	-

13.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Millburn.

Table 13-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Notify Me®
Public Information Officer	No
Website	The Township website (https://twp.millburn.nj.us/) includes information on flooding, hurricane preparedness, developing a disaster kit, and developing a personal emergency operations plan.
Social media	Facebook, X (formerly Twitter), Instagram, YouTube
Public safety campaigns	Water conservation education program.
Newsletters	No
Hazard education programs for schools	The Millburn Green Team works closely with the environmental groups from the elementary schools.
Outreach to socially vulnerable populations	The Township of Millburn encourages loved ones of individuals with access/functional needs to sign up for Register Ready. This helps Millburn's OEM team to support residents who may have difficulties sheltering in place during a disaster. The Local Assistance Board provides public assistance for the needy.
Other outreach capabilities	Green Fair and Farmers Markets

13.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Millburn.

Table 13-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Grading permits are issued for proposed development in FHAs and are reviewed by Engineering Dept. and CFM for compliance with DEP regulations and Uniform Construction Code. Municipal Engineering Dept. performs inspections.
What local department is responsible for floodplain management?	Engineering Department
Are any staff certified floodplain managers (CFMs)?	Township engineer is a CFM.
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	Yes
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Three (3) in process (have received notice of FEMA grant for home elevation).
How many properties have been mitigated (elevation or acquisition)?	None to date; 3 in process.
Summarize the jurisdiction's Substantial Damage determination procedures.	Outside consultant was hired to determine substantial damage claims for the 3 residents that applied for a FEMA elevation grant.
Summarize the jurisdiction's Substantial Improvement procedures.	Substantial improvements are tracked by Construction Official.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	N/A
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

13.3.6 Community Classifications

Table 13-14 summarizes the Township of Millburn's participation in community classification programs.

Table 13-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Yes	October 21, 2021
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

13.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Millburn has in place and will use to prepare for changes in risk due to climate change.

Table 13-15. Adaptive Capacity for Climate Change

Adaptive Capacities	*Comments*
What climate change associated risks have been identified by the jurisdiction?	Heavy rainfall events are likely to increase in severity and frequency, resulting in increased flood risk.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	No
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not underway
How does the jurisdiction educate the public on potential climate change impacts?	Not underway

13.3.8 Capability Assessment Summary

The Township of Millburn's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Millburn determined the following hazard capability effectiveness ratings.

Table 13-16. Township of Millburn Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate

Hazard	Capability Effectiveness Rating
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

13.3.9 Opportunities to Improve Capabilities and Integration

- The National Weather Service (NWS) provides a certification called StormReady to locales that adopt certain weather preparedness principles and planning. The Township is a weather ready ambassador but is not an official StormReady community.
- Mitigation planning in the Township of Millburn is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.
- Although the Township has flood exposure, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.
- The Township does not participate in the Firewise program.The Township lacks a Substantial Damage Response Plan
- The Township will be required to develop a Watershed Improvement Plan by December 2027.

13.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Millburn were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Millburn reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township changed the hazard ranking for flood from medium to high. Though the Township does not flood regularly, there are two branches of the Rahway River and when heavy rains occur of 5 plus inches, residential areas flood in the lower section of the town, including outside of the mapped Special Flood Hazard Area (SFHA). During Ida, there was a vast amount of damage to the commercial and residential areas. Many residents were uninsured, potentially because they were not required to carry flood insurance outside of the SFHA and were uneducated that their area floods or have the ability to pay for the repairs themselves without high yearly premiums of flood insurance.
- While the Township does have steep slope areas in the reservation section of town, lack of development with established vegetation and enforcement of the steep slope ordinance and

permitting requirements prevents landslide issues. This aligned with the calculated hazard ranking for geological hazards

- The Township agreed with the remainder of the calculated hazard rankings.

The Township of Millburn agreed upon the following hazard rankings.

Table 13-17. Township of Millburn Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	High
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

13.5 Jurisdictional Mitigation Strategy

13.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 13-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?* *Yes/No* *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-MILLBURN-001	**Short Hills Gardens Channel:** Fix undermined retaining wall at Short Hills Gardens by stabilizing slopes susceptible to erosion.	Township Engineering	Completed. Streambanks have been stabilized in accordance with NJ DEP regulations including a vegetative buffer.	No, complete	-
2020-MILLBURN-002	**Tree Service Contract:** Adopt a contract to keep the tree management service on retainer. Update the current EOP to reflect the contract.	Township Administration, DPW	Ongoing Capability. Township has an in house tree crew and brings in contractors on an as needed basis.	No, ongoing capability	-
2020-MILLBURN-003	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Planning Board	No Progress. This action will be conducted at the next update of the Master Plan (assumed to take place in 2028)	Yes	-
2020-MILLBURN-004	**Gilbert Place generator:** Purchase and install a backup generator.	Township OEM	Complete. Stormwater pump station had generator installed in 2023. Haran pump station has a generator as well.	No, complete	-
2020-MILLBURN-005	**Participate in Firewise program:** Township is enrolled as Firewise Ambassador and will further Firewise program development.	Township OEM	In Progress. The Township has taken steps to better understand program requirements and will continue to explore the possibility of joining the program.	Yes	-

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?* *Yes/No* *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-MILLBURN-006	**Participate in the StormReady program and educate the public on how to prepare for hazards and disasters:** The township enrolled in the StormReady program to increase community readiness.	Township OEM	In Progress. The Township participates as a weather ready ambassador but is looking to become an official StormReady community.	Yes	-
2020-MILLBURN-007	**South Mountain storm pumps:** Install pumps in the South Mountain neighborhood to push the floodwater over the berm and into the Rahway River.	Township DPW	In Progress. Work was completed in 2023 to redirect water to the pump station.	Yes	Split into two actions: Working to secure easements to allow gravity flow to direct water to pump station at Gilbert Place. Looking to add additional pump at Gilbert Place to increase capacity and serve as a back up for existing pump. Cost would be estimated between $200-600k range depending on size and number of pumps needed.
2020-MILLBURN-008	**Inflow/Infiltration to protect infrastructure during sanitary sewer back-ups:** Perform an I&I study to determine the sources of infiltration into the sanitary system.	Township	In Progress: Capital funds requested to finance I & I study in South Mountain neighborhood, an area that experiences flooding. Also in progress: locking manhole covers with inserts were purchased and installed on streets that flood to	Yes	Split the action into two projects: 1) Install locking manhole covers 2) I&I study

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?* *Yes/No* *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
			prevent inflow of stormwater into sanitary system. Also in progress: sanitary lines on streets scheduled for repaving are being scoped and repairs made to mitigate infiltration into sanitary system.		
2020-MILLBURN-009	**Support the mitigation of vulnerable structures via retrofit (e.g., elevation, flood-proofing) or acquisition/relocation:** Compile a list of vulnerable locations and identify mitigation strategy for each.	Township Engineering, FPA	In Progress: FEMA grants approved for elevation of three (3) residential structures located in FHA. Structures sustained substantial damage during T.S. Ida 09/2021	Yes	-
2020-MILLBURN-010	**Dam Risk Reduction:** Update the EOP to include a review of EAPs from the City of Orange (Campbells Pond), East Orange Board of Water Commissioners (Canoe Brook), NJAW (Canoe Brook Res. 1&2), and Essex County DPW (Diamond Mill). Incorporate these with the EAP for Taylor Park Pond. Complete dam failure studies where necessary.	Township Engineering, OEM, FPA, DPW, Administration	In Progress, the EOP is scheduled for update with a state supplied consultant in early 2025.	Yes	-

13.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Millburn identified the following mitigation efforts completed since the last HMP:

- None identified

13.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Millburn identified the following issues that require mitigation.

- The National Weather Service (NWS) provides a certification called StormReady to locales that adopt certain weather preparedness principles and planning. The Township is a weather ready ambassador but is not an official StormReady community.
- The Township owned library is a designated heating/cooling center for displaced residents. The facility lacks backup power. The Gilbert Place stormwater pump station has a portable generator stationed on site. Both sites are critical and should have permanent fixed generators on site.
- Stormwater flooding occurs in an area disconnected from the Gilbert Place pump station. A gravity fed system is needed to allow for connection to the pump station.
- Additional stormwater pumping capacity is needed at the pump station at Gilbert Park.
- The Cora Hartshorn Arboretum and Bird Sanctuary, also known as the Hartshorn Arboretum, is an arboretum and bird sanctuary located at 324 Forest Drive South, in the Short Hills section of Millburn. A stone lined channel on the north side of the Arboretum carries water out of the Short Hills neighborhood. The area downstream of the channel floods during heavy rainfall events.
- The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
- John F Kennedy Parkway is a County owned roadway prone to flooding in heavy rainfall events. Township Police and the Department of Public Works regularly need to respond during flooding events to conduct road closures and make rescues in severe events.
- Mitigation planning in the Township of Millburn is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.
- Although the Township has flood exposure, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.
- The Township does not participate in the Firewise program.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.

- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- Frequent flooding events have resulted in damages to residential properties on Ridgewood Road. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 39 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- During rainfall events, street stormwater has entered the sanitary sewer system through manhole covers. This overloads the sanitary sewer system and leads to flooding of the system.
- During rainfall events, suspected I&I leads to flooding issues. The last I&I study was done for the South Mountain area of town in areas experiencing flooding in 2017. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.

13.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Millburn's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 13-19. Township of Millburn 2025 Mitigation Actions by Hazard Addressed

Project Number	*Project Name*	*Disease Outbreak*	*Drought*	*Earthquake*	*Extreme Temperature*	*Flood*	*Geological Hazards*	*Severe Weather*	*Severe Winter Weather*	*Wildfire*
2025-Millburn-01	Become a StormReady Community				X	X		X	X	
2025-Millburn-02	Backup Power			X	X	X	X	X	X	X
2025-Millburn-03	Stormwater Connections at Gilbert Place					X		X		
2025-Millburn-04	Gilbert Place Stormwater Pump Station Expansion					X		X		
2025-Millburn-05	Arboretum Flood Mitigation					X		X		
2025-Millburn-06	Pre-Flood Draw Down of Orange Reservoir					X		X	X	

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Millburn-07	JFK Boulevard Flooding					X		X		
2025-Millburn-08	Hazard Mitigation Integration	X	X	X	X	X	X	X	X	X
2025-Millburn-09	Join Community Rating System Program					X				
2025-Millburn-10	Join Firewise Program									X
2025-Millburn-11	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-Millburn-12	Watershed Improvement Plan	X	X		X	X				
2025-Millburn-13	Elevation of Floodprone Properties					X		X		
2025-Millburn-14	Install Watertight Manhole Covers					X		X		
2025-Millburn-15	I&I Study					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 13-20. Township of Millburn 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Millburn-01	Become a StormReady Community	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2025-Millburn-02	Backup Power	1	0	1	1	1	0	0	1	1	1	1	0	1	1	10	Medium
2025-Millburn-03	Stormwater Connections at Gilbert Place	1	1	1	1	0	1	1	1	1	1	1	0	1	1	12	High
2025-Millburn-04	Gilbert Place Stormwater Pump Station Expansion	1	1	1	1	0	1	1	1	1	1	1	0	1	1	12	High
2025-Millburn-05	Arboretum Flood Mitigation	1	1	1	1	0	0	1	1	1	1	1	0	1	1	12	High
2025-Millburn-06	Pre-Flood Draw Down of Orange Reservoir	1	1	1	1	1	0	1	1	1	1	1	0	1	1	12	High
2025-Millburn-07	JFK Boulevard Flooding	1	1	1	0	0	1	1	1	1	1	1	1	1	1	12	High
2025-Millburn-08	Hazard Mitigation Integration	1	1	1	1	1	1	1	1	1	1	1	1	0	1	13	High
2025-Millburn-09	Join Community Rating System Program	1	1	1	1	1	1	1	1	1	0	1	0	0	1	11	High
2025-Millburn-10	Join Firewise Program	1	1	1	1	1	1	1	1	1	0	1	0	0	1	11	High
2025-Millburn-11	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Millburn-12	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Millburn-13	Elevation of Floodprone Properties	1	1	1	1	1	0	1	1	1	1	1	0	1	1	12	High
2025-Millburn-14	Install Watertight Manhole Covers	0	1	1	1	1	1	1	0	1	1	1	1	1	1	12	High
2025-Millburn-15	I&I Study	0	1	1	1	1	0	1	0	1	1	1	1	1	1	11	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Millburn-01: Become a StormReady Community

Lead Agency:	Township OEM
Supporting Agencies:	County, NJOEM
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Flood, Extreme Temperatures
Description of the Problem:	The National Weather Service (NWS) provides a certification called StormReady to locales that adopt certain weather preparedness principles and planning. The Township is a weather ready ambassador but is not an official StormReady community.
Description of the Solution:	The Township will coordinate with the local NWS office to complete all necessary requirements to become a Storm Ready community.
Estimated Cost:	Low
Potential Funding Sources:	Municipal Budget
Implementation Timeline:	3 years
Goals Met:	3, 4, 5
Benefits:	StormReady is a nationwide program that helps communities better protect their citizens during severe weather. The program encourages communities to take a proactive approach to improving local hazardous weather operations. StormReady provides emergency managers with clear-cut guidelines on how to improve their hazardous weather operations. Community Rating System (CRS) points will become available that can reduce flood insurance premiums for home and business owners.
Impact on Socially Vulnerable Populations:	To become a participant in the StormReady program, a community must have more than one way to receive severe weather warnings and forecasts and to alert the public. Increasing methods of communication to socially vulnerable populations can assist in the safety and security of residents.
Impact on Future Development:	This action will result in increased warning system capabilities for all current and future development.
Impact on Critical Facilities/Lifelines:	Being a part of the StormReady program would result in improved critical facility readiness.
Impact on Capabilities:	Participating in the StormReady program will increase the capabilities of the Township. To become a participant in the program, a community must establish a 24-hour warning point and emergency operations center, have more than one way to receive severe weather warnings and forecasts and to alert the public, create a system that monitors weather conditions locally, promote the importance of public readiness through community seminars, and develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate-related disaster events. This action will increase emergency response capabilities to increasing storm risks.
Mitigation Category:	Emergency Services, Public Education and Awareness
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Increase warning system capabilities without Storm Ready guidance / No CRS points would be available. Less public awareness and support from NWS.
	Participate in the program, but do not utilize resources / The Township would miss opportunities to strengthen communication and safety skills

2025-Millburn-02: Backup Power

Lead Agency:	Township OEM	
Supporting Agencies:	Public Works	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Flood, Extreme Temperatures, Geological Hazards, Wildfire, Earthquake	
Description of the Problem:	The Township owned library is a designated heating/cooling center for displaced residents. The facility lacks backup power. The Gilbert Place stormwater pump station has a portable generator stationed on site. Both sites are critical and should have permanent fixed generators on site.	
Description of the Solution:	The Engineer will evaluate the capacity needs for each facility and determine the appropriate size and design of each permanent generator. Public Works will oversee installation of a fixed mounted generator and necessary electrical components at each site to supply backup power. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 6	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas. The generator at the library will allow for sheltering of socially vulnerable populations during extreme temperature events	
Impact on Future Development:	This action results in protection of critical facilities that could support future development.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of critical facilities and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Windmills/solar panels	Not sufficient room.

2025-Millburn-03: Stormwater Connections at Gilbert Place

Lead Agency:	Engineer	
Supporting Agencies:	Public Works, Administration	
Hazard(s) of Concern:	Severe Weather, Flood	
Description of the Problem:	Stormwater flooding occurs in an area disconnected from the Gilbert Place pump station. A gravity fed system is needed to allow for connection to the pump station.	
Description of the Solution:	The Administration will secure easements for installation of a gravity fed system connecting to the Gilbert Place pump station. The Engineer will be responsible for design and installation. Public Works will be responsible for maintenance.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2	
Benefits:	This action will reduce stormwater flooding.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will increase the efficiency of the stormwater system.	
Impact on Capabilities:	This action will increase the efficiency of the stormwater system.	
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.	
Mitigation Category:	Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Detention areas	Not sufficient room
	Create natural floodplains	Not sufficient room

2025-Millburn-04: Gilbert Place Stormwater Pump Station Expansion

Lead Agency:	Engineer
Supporting Agencies:	Public Works
Hazard(s) of Concern:	Severe Weather, Flood
Description of the Problem:	Additional stormwater pumping capacity is needed at the pump station at Gilbert Park.
Description of the Solution:	The Engineer will work with Public Works to determine the best approach to expand the current capacity of the Gilbert Park pump station and implement the cost-effective solution. This is likely to include adding an additional pump.
Estimated Cost:	High. Estimates are between $200-600k depending on the necessary upgrades and additions.
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	This action will reduce stormwater flooding.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action will increase the efficiency of the stormwater system.
Impact on Capabilities:	This action will expand the capacity of the stormwater system.
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Structural Projects, Climate Resiliency
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Detention areas	Not sufficient room
Create natural floodplains	Not sufficient room

2025-Millburn-05: Arboretum Flood Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Engineer, Administration
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	The Cora Hartshorn Arboretum and Bird Sanctuary, also known as the Hartshorn Arboretum, is an arboretum and bird sanctuary located at 324 Forest Drive South, in the Short Hills section of Millburn. A stone lined channel on the north side of the Arboretum carries water out of the Short Hills neighborhood. The area downstream of the channel floods during heavy rainfall events.
Description of the Solution:	The Township will complete a feasibility assessment to determine if removing the stone lined channel and creating a natural floodplain area to allow for permeation of stormwater before it runs downstream will significantly reduce flooding downstream. If the project is identified as being cost effective, the Township will move forward with the property upgrades.
Estimated Cost:	High. Estimates are between $200-600k depending on the necessary upgrades and additions.
Potential Funding Sources:	Municipal funding for feasibility assessment; HMGP, FMA (for activities benefiting NFIP-insured structures) or natural systems grants potentially available from NJDEP for system upgrades.
Implementation Timeline:	2 years for feasibility assessment
Goals Met:	1, 2
Benefits:	This action will reduce flooding downstream of the Short Hills neighborhood.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	The channel carries water under a railway. This action would reduce flood and erosional risk to the railway overpass.
Impact on Capabilities:	This action will improve natural floodplain function in the Township
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Expand the carrying capacity of the channel / This may result in faster flooding of downstream areas Build lake at Arboretum / Loss of other habitat for bird sanctuary

2025-Millburn-06: Pre-Flood Draw Down of Orange Reservoir

Lead Agency:	Mayors Council Rahway River Watershed Flood Control
Supporting Agencies:	Township Engineer, Floodplain Administrator, Administration
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by Orange City.
Description of the Solution:	The Orange City Council passed a resolution in 2023 that let Millburn Township study the Orange Reservoir's potential as a retention basin during storms. The aim would be to use the lake to hold back thousands of gallons of water from entering the Rahway River, greatly reducing the volume of water flowing downstream. The idea is to install pipes that could drain the reservoir before a storm. This would increase the capacity of the reservoir, allowing more water to fill the reservoir before entering the Rahway River, reducing the amount of water heading downstream.
Estimated Cost:	USACE estimates the project to cost $20 million to $80 million
Potential Funding Sources:	BRIC, FMA (for activities benefiting NFIP-insured structures), HMGP, Infrastructure Investment and Jobs Act funding
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 5
Benefits:	This action would reduce flood risk along the Rahway River downstream of the Orange Reservoir. Millburn Township believes that flooding could be reduced by as much as three feet with this project implemented.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	All development downstream of the Orange Reservoir on the Rahway River would benefit from this action.
Impact on Critical Facilities/Lifelines:	The Reservoir is a lifeline facility.
Impact on Capabilities:	This action would add a new flood risk reduction capability.
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Emergency Services, Climate Resiliency
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Expand the carrying capacity of the channel	This may result in faster flooding of downstream areas
Build lake at Arboretum	Loss of other habitat for bird sanctuary

2025-Millburn-07: JFK Boulevard Flooding

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	Public Works	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	John F Kennedy Parkway is a County owned roadway prone to flooding in heavy rainfall events. Township Police and the Department of Public Works regularly need to respond during flooding events to conduct road closures and make rescues in severe events.	
Description of the Solution:	The Township will provide the County with information on the location of flooding and probable causes of flooding (undersized culverts, low lying areas, and stormwater drains that become clogged with leaf litter).	
Estimated Cost:	Staff time	
Potential Funding Sources:	Municipal funding	
Implementation Timeline:	1 year	
Goals Met:	1, 2	
Benefits:	This action will provide the County with information on where flooding occurs and potential mitigation measures that the County can use to address the flooding.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	John F Kennedy Parkway is a critical roadway for the County.	
Impact on Capabilities:	If flooding is addressed, emergency staff capabilities at the Township will be freed up, increasing emergency capabilities.	
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.	
Mitigation Category:	Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Close access to JFK Parkway when flooding is forecast	Not feasible
	Build stormwater detention facilities next to JFK Parkway to take on stormwater	Not enough space

2025-Millburn-08: Hazard Mitigation Integration

Lead Agency:	Administration
Supporting Agencies:	OEM, Planning Board
Hazard(s) of Concern:	All hazards
Description of the Problem:	Mitigation planning in the Township of Millburn is often a separate effort from many other types of planning within the Township. Disregarding mitigation considerations may cause gaps in the ability to fully prepare for hazard events.
Description of the Solution:	During future updates of the Master Plan, Emergency Operation Plan, or other plans, the Township will work to integrate hazard mitigation principles and recommendations into the plans. Additionally, the Township will use these hazard mitigation principles and plan recommendations when considering updates to local building and zoning codes to create a more resilient community. The Township will also use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.
Estimated Cost:	Staff time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	The Master Plan is scheduled for update in 2028. The Emergency Operations Plan is scheduled for update with a state supplied consultant in early 2025.
Goals Met:	1
Benefits:	Integration provides an opportunity for coordination amongst agencies and their planning efforts to improve the overall ability to prepare for, respond to, and recover from events. Mitigation considerations being taken when developing or updating building and zoning codes can lessen the risk of damage from a hazard event and increase overall community resiliency.
Impact on Socially Vulnerable Populations:	Communities that collaborate and coordinate their planning efforts are more likely to have identified ways to best work with vulnerable populations to increase their level of preparedness.
Impact on Future Development:	Coordinated planning efforts provide an opportunity for efficient and safe growth and development. Updated building and zoning codes ensure that any new development that does take place is built to the safest standards based upon the best available data.
Impact on Critical Facilities/Lifelines:	Integrating mitigation into building and zoning protects existing infrastructure and guides the safe development of new construction.
Impact on Capabilities:	A consolidated planning process brings together the capabilities of agencies and departments and better identifies what resources are available at any given point in time and where they are needed most.
Climate Change Considerations:	As the climate changes, planning processes will require a more intense focus on plan maintenance and gathering of the best data to remain current and accurate over time. The Township will use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.
Mitigation Category:	Prevention, Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Develop standalone plans for mitigation / Repetitive of Essex County HMP and would not result in integration with other local plans Include annex in HMP as an annex to Master Plan and EOP / Guidance and goals may conflict between the two documents

2025-Millburn-09: Join Community Rating System Program

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	Administration Planning, OEM	
Hazard(s) of Concern:	Flood	
Description of the Problem:	Although the Township has flood exposure, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.	
Description of the Solution:	The Township will evaluate the benefits and costs of participating in CRS program. If feasible, the Township will join the program and begin implementing standards that exceed NFIP requirements.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	5	
Benefits:	The participation in the CRS benefits communities by offering discounted rates for flood insurance premiums, which addresses the three goals of the program: reduce and avoid flood damage to insurable property, strengthen and support the insurance aspects of the National Flood Insurance Program, and foster comprehensive floodplain management.	
Impact on Socially Vulnerable Populations:	The participation in the Community Rating System (CRS) benefits communities by offering discounted rates for flood insurance premiums, which may be more affordable for some socially vulnerable populations.	
Impact on Future Development:	Future development would need to adhere to any increased standards established as part of joining the CRS program such as increased freeboard and elevation certificate requirements.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action would enhance the Township's floodplain management capabilities.	
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.	
Mitigation Category:	Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Adopt aspects of the CRS program into the floodplain management program	Increased floodplain management capabilities but no reduction in flood insurance premiums
	Abandon any floodplain management practices not required by NFIP	Reduction in floodplain management capabilities and increase in risk.

2025-Millburn-10: Join Firewise Program

Lead Agency:	Township OEM
Supporting Agencies:	Township Fire Department
Hazard(s) of Concern:	Wildfire
Description of the Problem:	The Township does not participate in the Firewise program.
Description of the Solution:	Evaluate benefits of participating in the Firewise Program.
Estimated Cost:	Low
Potential Funding Sources:	Municipal Budget
Implementation Timeline:	3 years
Goals Met:	1, 2, 5
Benefits:	The national Firewise USA recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations in the Township may be located within very high and high fuel risk areas for wildfires. Participation in the Firewise Program will assist in the Township's efforts to educate populations on how to increase the ignition resistance of their home sand property.
Impact on Future Development:	Participation in this program requires a community wildfire assessment to be completed, which should be a community-wide view that identifies areas of successful wildfire risk reduction and areas where improvements could be made. This assessment may identify areas which the Township would like to restrict future development.
Impact on Critical Facilities/Lifelines:	Participation in this program requires a community wildfire assessment to be completed, which should be a community-wide view that identifies areas of successful wildfire risk reduction and areas where improvements could be made, which could include relocating various critical facilities or lifelines.
Impact on Capabilities:	This action will increase wildfire risk reduction and response capabilities for the Township.
Climate Change Considerations:	Higher temperatures are expected to increase the amount of moisture that evaporates from land and water. These changes have the potential to lead to more frequent and severe droughts, which, in turn, increases the likelihood of wildfires.
Mitigation Category:	Public Education and Awareness, Emergency Services
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Complete half of the program requirements / The Township would not be eligible to participate in the Firewise Program
	Participate in the program, but do not utilize resources / The Township would miss opportunities to strengthen communication and safety skills

2025-Millburn-11: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Township OEM, Public Works, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action**: No Action **Evaluation**: -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Millburn-12: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, FMA, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.

Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Millburn-13: Elevation of Floodprone Properties

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	Engineer, Construction Department, NJOEM	
Hazard(s) of Concern:	Severe Weather, Flood	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties on Ridgewood Road. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 39 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well. FEMA FMA funding has been secured for elevation of some these homes.	
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. The Township will support the elevation process of these homes, including inspections to make sure all applicable requirements are being met.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA FMA	
Implementation Timeline:	2 years	
Goals Met:	1, 2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of flooding. Elevating structures will reduce the recovery costs as a result of these events.	
Mitigation Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Millburn-14: Install Watertight Manhole Covers

Lead Agency:	Public Works	
Supporting Agencies:	Engineer	
Hazard(s) of Concern:	Severe Weather, Flood	
Description of the Problem:	During rainfall events, street stormwater has entered the sanitary sewer system through manhole covers. This overloads the sanitary sewer system and leads to flooding of the system.	
Description of the Solution:	The Township has purchased watertight manhole covers and inserts. The Township will install these improvements at manholes that have been identified as locations for stormwater entering the sanitary sewer system	
Estimated Cost:	Staff time for installation.	
Potential Funding Sources:	Township funding	
Implementation Timeline:	Within 6 months	
Goals Met:	2, 6	
Benefits:	Reduce I&I and flood risk	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will address the water lifeline systems.	
Impact on Capabilities:	This action will preserve wastewater capabilities in the Township.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of heavy rainfall events. This action will aim address I&I associated with these events.	
Mitigation Category:	Prevention, Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Seal off manhole covers	Would eliminate access to the sewer system
	Remove sewer system in areas that are floodprone	Not feasible

2025-Millburn-15: I&I Study

Lead Agency:	Public Works	
Supporting Agencies:	Engineer	
Hazard(s) of Concern:	Severe Weather, Flood	
Description of the Problem:	During rainfall events, suspected I&I leads to flooding issues. The last I&I study was done for the South Mountain area of town in areas experiencing flooding in 2017. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.	
Description of the Solution:	Complete broader I&I studies to identify the location of I&I in the sewer system and address identified locations.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA BRIC, Township capital funds	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 6	
Benefits:	Reduce I&I and flood risk	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will address the water lifeline systems.	
Impact on Capabilities:	This action will improve stormwater and wastewater capabilities in the Township.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of heavy rainfall events. This action will aim address I&I associated with these events.	
Mitigation Category:	Prevention, Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

13.6 Jurisdictional Hazard Mitigation Team

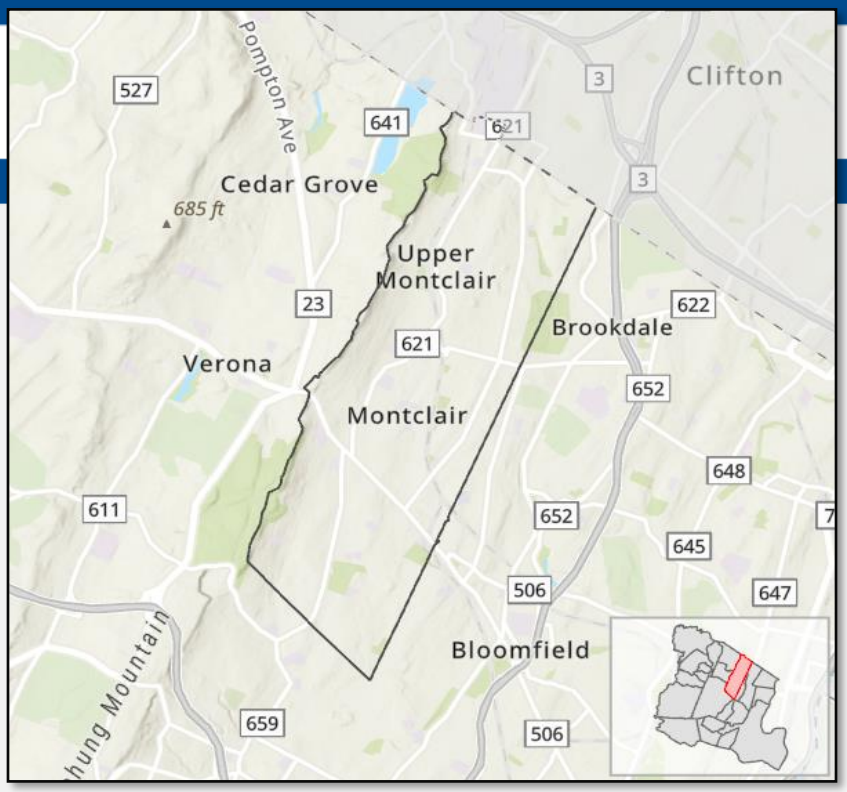
Table 13-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Robert Echavarria, Fire Chief/OEM Coordinator	Name and Title:	Mark Azzopardi, Millburn Police Department Captain/Deputy Emergency Management Coordinator
Address:	375 Millburn Avenue, Millburn, NJ 07041	Address:	375 Millburn Avenue, Millburn, NJ 07041
Phone Number:	908-564-0561	Phone Number:	973-564-7030
Email:	rechavarria@millburntwp.org	Email:	mazopardi@millburntwp.org
NFIP Floodplain Administrator			
Name and Title:	Martha Callahan, Township Engineer		
Address:	375 Millburn Avenue, Millburn, NJ 07041		
Phone Number:	973-564-7052		
Email:	mcallahan@millburntwp.org		

Table 13-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Robert Echavarria, Fire Chief/OEM Coordinator	Attended annex support meeting, contributed to mitigation strategy
Tom Doty, Department of Public Works	Attended annex support meeting, contributed to mitigation strategy
Martha Callahan, Township Engineer	Attended annex support meeting, contributed to mitigation strategy
Tim Hoffman, Assistant Business Administrator	Attended annex support meeting, contributed to mitigation strategy
Mark Azzopardi, Millburn Police Department Captain/Deputy Emergency Management Coordinator	Attended annex support meeting, contributed to mitigation strategy

Township of Montclair



POPULATION STATISTICS

39,873
TOTAL POPULATION (2023 ACS)

0.06%
Change in population since 2010 Census

15,118
TOTAL HOUSEHOLDS

AT RISK POPULATION

5,433
Population Over 65

2,310
Population Under 5

3,211
Living With Disability

313
Households Without Vehicle

6,026
People Renting Homes

POVERTY AND LANGUAGE

1,637
Households Below Poverty Level

1,220
Population With English as 2nd Language

POPULATION AND BUSINESSES

40,977
Daytime Population

2,162
Total Businesses

21,125
Total Employees

FLOOD VULNERABILITY

1,387
Number of People in 1% SFHA

290
Number of Buildings in 1% SFHA

4
Community Lifelines in 1% SFHA

14 TOWNSHIP OF MONTCLAIR

14.1 JURISDICTIONAL PROFILE

The area now known as Montclair Township was once part of the land of the Lenape Indians. Lenape heritage is still represented today in Montclair Township with the areas Watchung (on the hill) and Yantacaw (means place of dancing). The expansion of the railroad system in 1856 gave Montclair Township the opportunity to turn from a quiet country town into a commuter town for the people working in New York City. In 1873 five railroad stations along the Greenwood Lake line were completed. To this day, Montclair Township embraces both its country setting and easy access to New York City. There are over 40,000 trees in the many park areas and nature reserves within Montclair Township. Montclair State University can also be found in Montclair Township (Montclair Township, 2014).

Montclair Township is approximately 6.16 square miles. It is bordered by the Township of Bloomfield to the east, Township of West Orange to the south, the Eagle Rock Reservation to the southwest, and Clifton to the northeast. The First Watchung Mountain can be found along the southern and western borders (Montclair Township, 2014). Montclair Township has used the Faulkner Act's Council-Manager form of municipal government to set up its government operations. This style of government is also known as the Optional Municipal Charter Law.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

14.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Township of Montclair's risk to the hazards of concern identified for the 2025 HMP update.

14.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Montclair's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 14-1. Hazard Event History Since 2020 HMP

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	There were no property damages reported due to Covid-19. 78 deaths were reported in 2021. Local Disaster declaration was declared and O.E.M. operations were set up.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest	Montclair experienced heavy flooding which led to private

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
		sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	property damage and impassable roads. Damage losses are unknown at this time and there were no reported deaths. Many businesses along Bloomfield Ave. experienced flooding.
January 29, 2022	Snowstorm	Several areas of Essex County saw snowfall totaling 3 inches to 5 inches.	Montclair received roughly 4 inches of snow. The only damage reported was when a salt truck struck a streetlight on Bloomfield Ave. No declaration was declared locally.
October 5-October 14 2022	Nutley Water Main Break	A water main break in the neighboring town of Nutley created a water crisis in the Township of Montclair. The six-foot diameter line is Montclair's main water source. Other towns such as Nutley and Bloomfield were impaired as well.	Disaster was declared on October 8th. No losses were reported. Damage occurred outside of Montclair. Local impacts included low water pressure, boil water advisory, and non-essential water use restriction.
December 17, 2022	Upper Mountain Ave. Water Main Break	A burst water main caused local disruptions to water supply.	Roughly 100 homes were impacted. There were no losses. Boil water advisory was issued for the local area.
August 18, 2024	Severe Thunderstorms lead to Flooding	Heavy rains flooded several areas of Essex County causing traffic disruptions and property damage.	Pine Street and Watchung Ave. were impassable. Several privately owned buildings suffered water damage. Final loss numbers are unknown.

14.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

The Township believes that FEMA flood maps adequately represent flood risk. However, flood prone areas outside of the floodplain do include low lying areas and those with undersized infrastructure outside.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Montclair.

Table 14-2. NFIP Summary

Active NFIP Policies	Total Premium + Policy Fee	Number of Losses	Total Net Payment	Repetitive Loss (RL) Properties	Severe Repetitive Loss (SRL) Properties
480	$333,866	$144,225,000	300	$3,094,342	29

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

The Township does not have records of substantially damaged properties.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 14-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Potable Water Well - Rand	Potable Well	X
Montclair Volunteer Ambulance Unit	EMS	X
City of Newark Chlorination Station	Hazardous Materials	X
Senior Care & Activities	Nursing Home	X

Source: Essex 2025; FEMA 2020

14.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of Montclair, including major residential/commercial/industrial development and major infrastructure development.

Table 14-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
AD Holding 10 Elm Street, Inc.	Mixed Use	20	10 Elm Street	None	Under construction
Storage Deluxe Management Co., LLC	Commercial – self storage	82,600 sf. building	103 Grove Street	None	Approved
Pleasant Way Holdings	Residential	12 lot subdivision	16-22 Pleasant Way	None	Proposed
Montclair Kimberly Academy	School Addition	2865	12-36 Lloyd Road	None	Under Construction
Undercliff Lloyd LLC	Residential	9 lot subdivision	14 Undercliff/172 Lloyd	Steep slopes	Proposed

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Two South Willow	Mixed Use	200 units & 40,000 sf commercial	2 South Willow Street	None	Completed 2023
1 Seymour Street	Commercial	35000 sf. Office	1 Seymour Plaza	None	Completed 2023
The Clair	Mixed Use	40 units & 2300 sf. retail	37 Orange Riad	None	Completed 2024
59 Church Street	Mixed Use	74 units & 3,900 sf. retail	59 Church Street	None	Under Construction
10 Elm Street	Residential	20	10 Elm Street	None	Approved
Lackawanna Plaza	Mixed Use	300 units; 90,000 sf. retail; 100,000 sf. office	1 Lackawanna Plaza	Flood Hazard Area	Future

14.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Montclair that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 14-1. Township of Montclair Community Lifelines

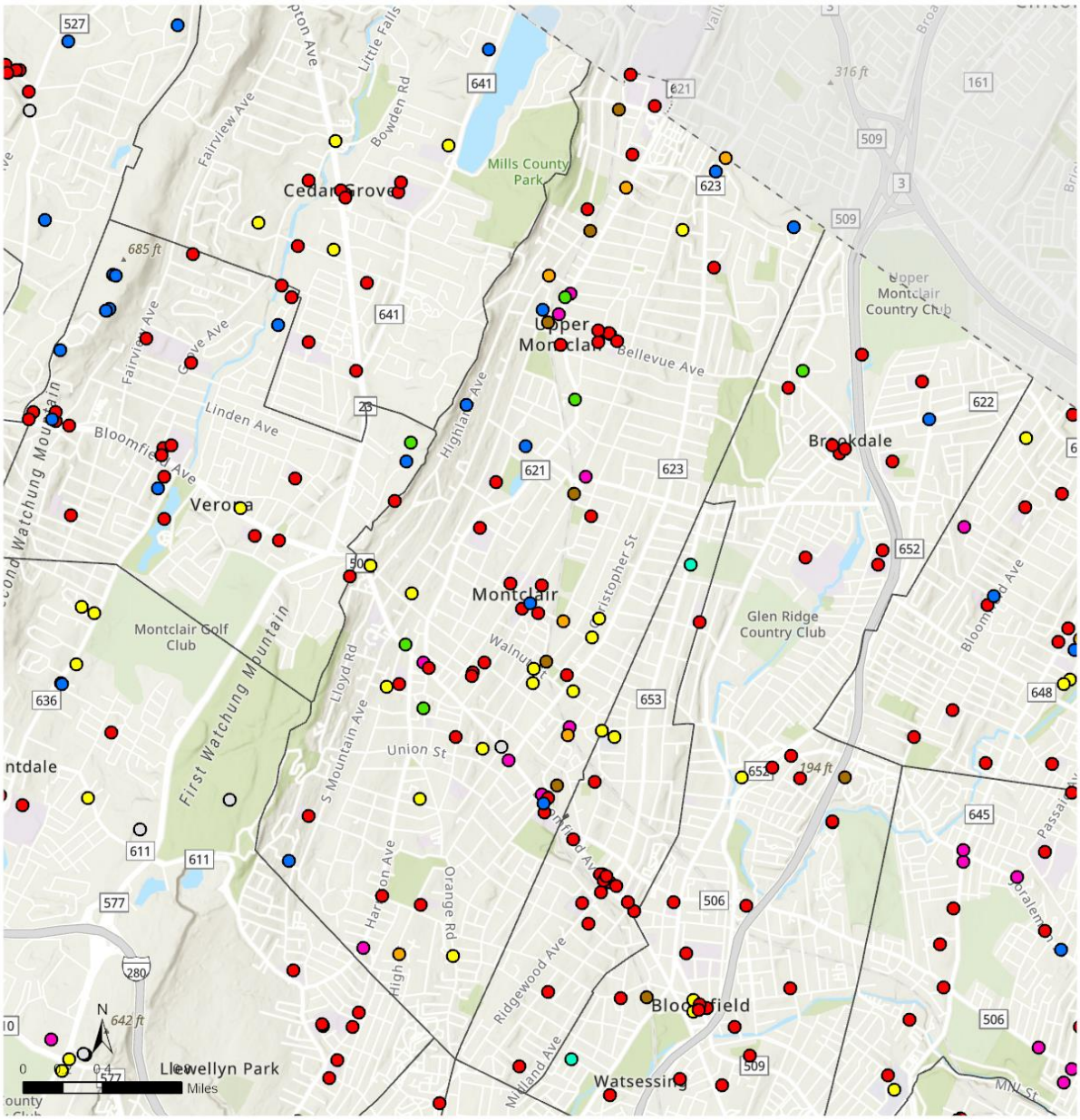
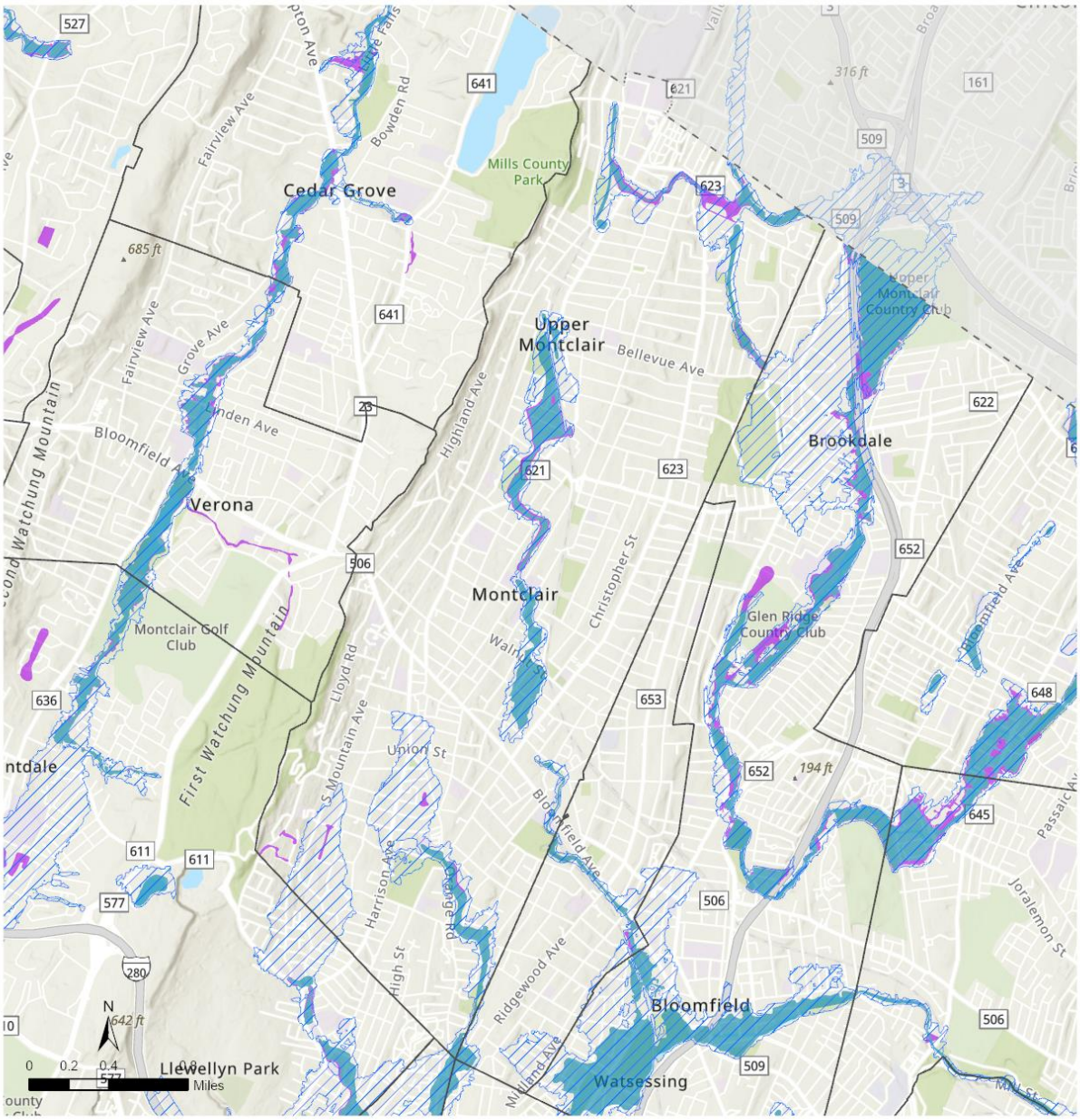


Figure 14-2. Township of Montclair Flood-Related Hazards

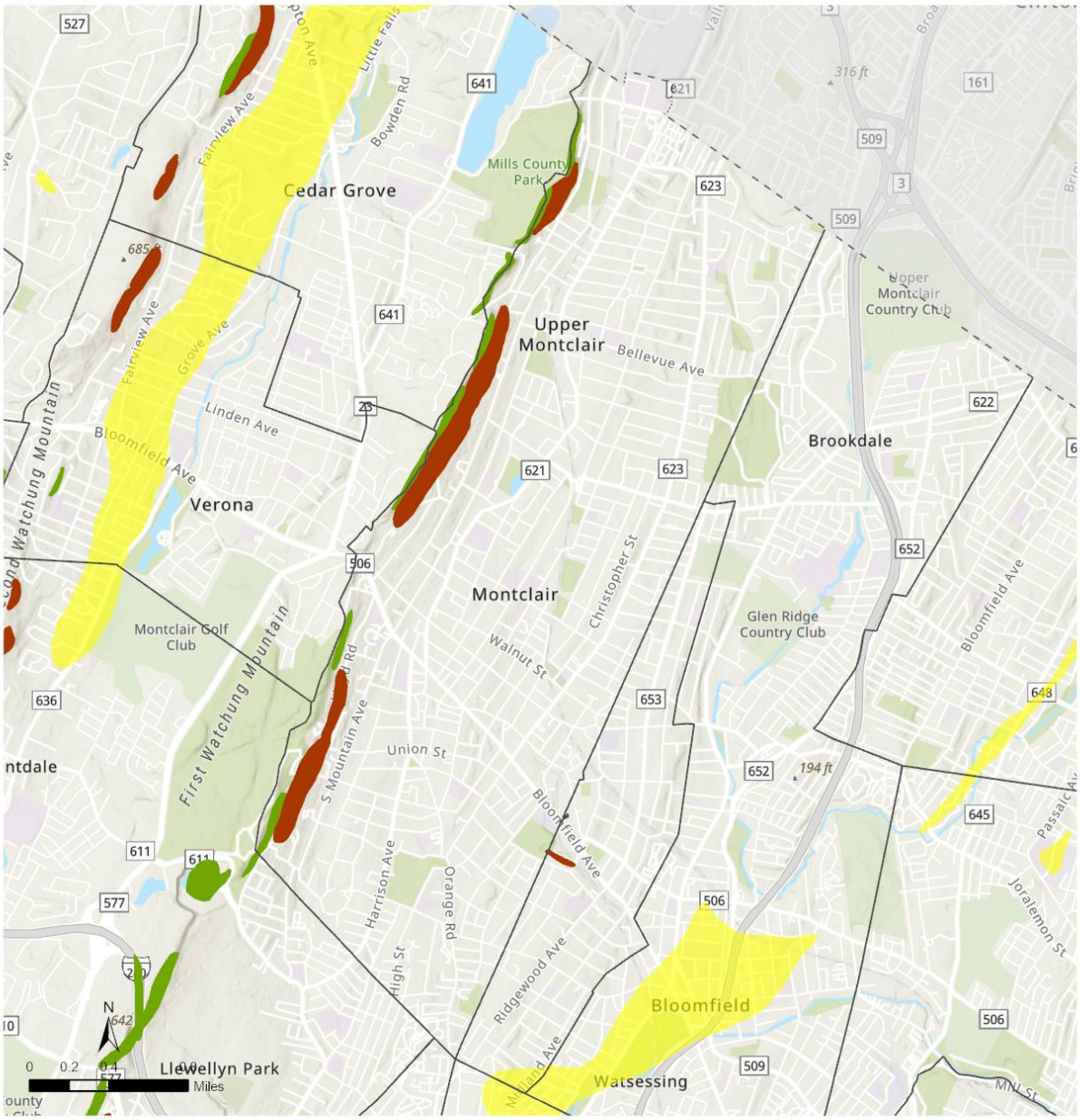


Montclair Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 14-3. Township of Montclair Geological Hazards



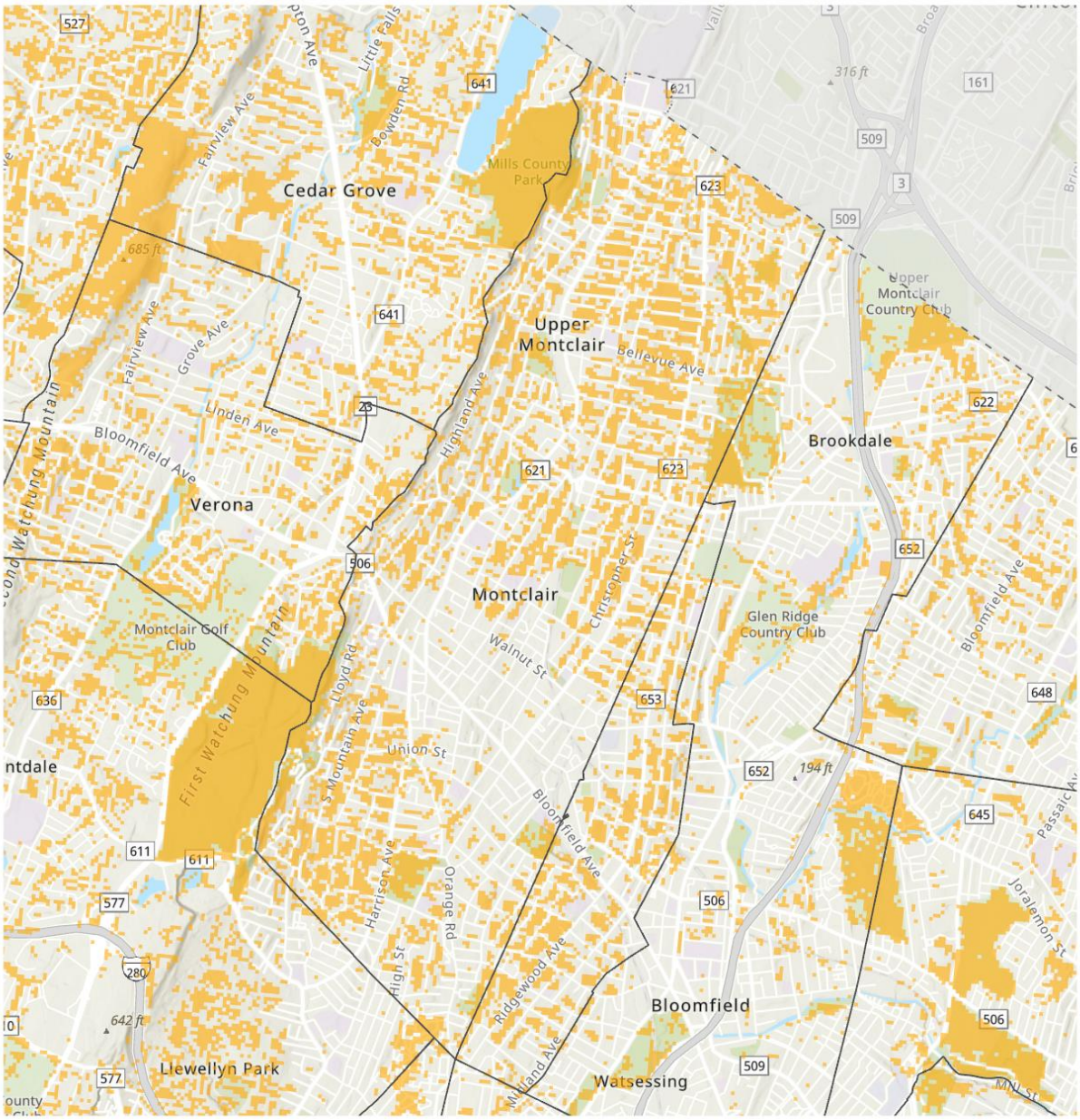
Montclair Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 14-4. Township of Montclair Wildfire Hazard



Montclair Township: Wildfire Hazard Potential

N

0 0.2 0.4 0.8 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

14.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Montclair, climate change is likely to have the following impacts:

- Climate change is likely to result in increased heavy precipitation events, leading to more flooding.
- Climate change is likely to increase the severity of extreme temperature events and urban heat island impacts.

14.2.5 Risk Assessment Summary

- The Ambulance Unit building is located in the 1% floodplain. The structure has been flooded numerous times, resulting in damages and loss of services.
- Stormwater components in the Township may be outdated and undersized. Stormwater flooding is a repetitive issue, including in areas outside the floodplain.
- The Library and Social Services buildings are critical facilities that lack backup power. The Library is a warming and cooling shelter. The facilities neighbor each other and could be powered by a single generator.
- Urban heat island impact results in high temperatures in the Township. Many shade trees have been lost over time, increasing extreme heat.
- The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- In 2017, Montclair was awarded a $142,000 grant from NJ Board of Public Utilities (NJBPU) for a Town Center Distributed Energy Resource (TCDER) Microgrid Feasibility Study, to determine whether Montclair would be an appropriate location for a Microgrid, to reduce energy costs through efficiency and provide resiliency and uninterrupted power for critical facilities during outages or disruption. The report, completed in 2018, has been reviewed by NJBPU for possible further incentives. It identifies Mountainside Hospital, Montclair Fire Headquarters and Emergency Management Center, Glenfield Middle School, our Water Bureau's Glenfield Well, NJ Transit's Bay Street Station, and Pine Ridge Senior Living housing complex as six facilities to be connected by the microgrid.
- The Animal Shelter is a critical facility that lacks backup power.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 29 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The Yantacaw Brook Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (12/24/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.

14.3 Jurisdictional Capability Assessment

The Township of Montclair performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

14.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Montclair.

Table 14-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan Reexamination 2023	Planning Board
Impact on Risk Reduction: The Master Plan is essentially the blueprint used by the Township to guide decisions regarding both growth and conservation. It provides a cohesive focus by outlining development goals and objectives for a community and identifying suitable locations for commercial, housing and mixed-use development and open space and recreational areas. The Master Plan establishes mechanisms for preserving environmental, historic and cultural resources and integrates the various components involving community life through community facilities, circulation/transportation and utilities plans. A periodic reexamination of municipal plans is required under N.J.S.A. 40:55D-89 to be conducted every ten years. The reexamination is conducted by the Planning Board and reviews the master plan and development regulations. The Master Plan includes elements for Housing, Conservation, and Stormwater Management.			
Capital Improvement Plan	Yes	Montclair Twp Capital Plan 2024	Office of the Manager and the Township Council
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
The Montclair Twp. Capital Plan reduces the risk associated with several hazards. Areas of need such as clearing of culverts, reconstruction of dams, and installing drainage basins are identified and a plan is set for funding of these activities. Hazard Mitigation cannot occur unless accurate accounting numbers are established, and funding is secured.			
Stormwater Management Plan	Yes	Master Plan, Stormwater Management Plan Element, 2020	Planning Board
Impact on Risk Reduction: This Municipal Stormwater Management Plan (the "Plan") documents the strategy for the Township of Montclair ("the Township") to address stormwater-related impacts. The plan addresses groundwater recharge, stormwater quantity and quality impacts by incorporating stormwater design and performance standards for new major development. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and the loss of groundwater recharge that provides base flow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities. A "build-out" analysis is not included in this plan, as there is a minimal amount of unimproved developable land in the Township. The plan addresses the review and update of existing ordinances, the Township Master Plan, and other planning documents to allow for project designs that include low impact development techniques. The goals of this Plan are to: • Prevent an increase in nonpoint source pollution to the greatest extent feasible. • Maintain the integrity of stream channels for their biological functions, as well as for drainage. • Minimize pollutants in stormwater runoff from new and existing development. • Reduce soil erosion from any development or construction project. • Minimize, to the extent practical, any increase in stormwater runoff from new development. • Reduce flood damage, including damage to life and property. These goals are critical to the achievement of key objectives important to proper stormwater management: • Restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state. • Protect public health. • Safeguard fish and aquatic life and scenic and ecological values. • Enhance the domestic, municipal, recreational, industrial, and other uses of water. • Protect public safety through the proper design and operation of stormwater basins. • Maintain and improve existing and proposed culverts and bridges, and other instream structures so they are adequate to provide proper flows with minimal flooding or erosion.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan May 2022	Montclair Dept. Community Service/ Engineering
Impact on Risk Reduction: The Stormwater Pollution Prevention Plan aims to reduce contamination reaching drainage. These include several codes that relate to proper disposal of waste, fuel dispensing operations, and collection of pet waste. The Township cleans basins and areas of material storage to ensure contamination spread is reduced to the least amount.			
Floodplain Management Plan or Watershed Plan	Yes	Floodplain Special Flood Hazard Areas	Montclair Engineering Dept.
Impact on Risk Reduction: The Township has made limited progress addressing localized flooding problems by improving road profiles and improving storm drainage when constructing street improvements. Previous street improvement projects have included drainage upgrades in the Erwin Park neighborhood and in the Brookfield section, both of which previously experienced regular flooding during moderate storm events			
Open Space Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Habitat Conservation Plan	Yes	Master Plan, Conservation Element, 2007	Planning Board
Impact on Risk Reduction: This Conservation Master Plan identifies an implementation strategy and additional planning steps necessary to continue this effort and makes recommendations to improve the balance between manmade and natural resources. The approach taken is to describe the natural resource conditions and, through a variety of suburban community- based programs, suggest alternative mechanisms to support the local environment of the community. Conservation goals that support hazard mitigation include: • Protect existing trees to improve air quality, reduce erosion, and to preserve community character. • Minimize environmental impacts resulting from developing and redeveloping properties. • Protect groundwater resources and promote the recharge of groundwater. • Preserve open space. • Preserve floodplains to reduce the hazards to life and property from flood events and to maintain the ecological health of stream corridors. • Preserve the Township's natural areas and buffer them from development. • Incorporate energy-efficient technologies into new development to reduce heat island effects. • Continue to implement the shade tree planting program by planting additional street trees in Montclair. • Support the goals and objectives of Montclair's Stormwater Management Plan to improve water quality.			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Master Plan Conservation Element 2007	Environmental Coordinator and Shade Tree Dept.
Impact on Risk Reduction: The Master Plan Conservation Element implement strict controls for the preservation of trees. The preservation of trees reduces the hazard associated with water run-off and flooding for steep slope areas. The Shade Tree Division also conducts removal of diseased and dying trees as well as pruning. This reduces the hazard of fallen trees and power lines due to hind winds.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	Climate Action Plan 2024	Environmental Commission
Impact on Risk Reduction: The Montclair Climate Action plan is a strategic framework and guide for Township administration, businesses, and residents to reach suggested carbon emission reduction targets by 2030. This plan provides strategies and actions for members of the Montclair community to reduce or eliminate carbon emissions by conserving energy, consuming clean electricity, and using clean transportation. This plan is informed by the Intergovernmental Panel on Climate Change (IPCC) which calls for a 50% global reduction in greenhouse gas (GHG) emissions by 2030. In addition, it aligns with the overall goals established in the 2007 New Jersey Global Warming Response Act mandating an 80% reduction in GHG emissions in New Jersey by 2050; New Jersey's Global Warming Reduction Act 80 x 50 Report, providing strategies to meet those goals; and the more concrete goals established in the 2019 New Jersey Energy Master Plan.			
Transportation Plan	Yes	Master Plan: Transportation - Reexamination 2023	Montclair Planning Board
Impact on Risk Reduction: Improvements to road design lead to safer streets for pedestrians, bike riders, and all travelers. Traffic management leads to more efficient infill and exfil during normal traffic hours and during emergencies. Efficient road networks reduce emergency services response times.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	Pine Street Redevelopment Plan/ Bellevue Theater Redevelopment Plan/ Various other location plans.	Montclair Planning Board
Impact on Risk Reduction: Redevelopment plans impact risk reduction by creating more resilient communities, creating more risk-informed and risk accountable developments. Older out of code buildings are demolished and newer, more stringent code buildings are erected.			

The table below summarizes the emergency response and recovery plans that guide the Township of Montclair to prepare for, respond to, and recover from hazard events.

Table 14-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to natural and man-made disaster events. The Plan is updated every two years. The Township of Montclair Emergency communications are covered within the all-hazards Emergency Operations Plan, which was recently recertified by the NJ State Office of Emergency Management (awaiting the certification letter). Within this plan are functional annexes, which provide guidance on relevant topics. With respect to emergency communications for the public, those are covered within Annex B (Alerting, Warning & Communications) and Annex F (Emergency Public Information).			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Emergency Operations Plan: Continuity Plan	Township Managers Office
Impact on Risk Reduction: The possibility that incidents or planned events could disrupt government functions requires that Montclair Township develop and maintain procedures to ensure continuity of government and continuity of operations. Table 5 lists key positions and the associated orders of succession to ensure government continuity in the event of absence or incapacitation. Order of succession: Township Manager-Deputy Manager-Police Chief-Fire chief.			
Evacuation Plan	Yes	Emergency Evacuation Plan 2024	Police, Fire, EMS, O.E.M
Impact on Risk Reduction: The evacuation plan allows for effective response to emergency situations which require evacuation of Montclair Citizens. This evacuation plan reduces the hazards associated with the rapid movements of large numbers of people such as major congestion and continued exposure to hazardous elements.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Montclair Dept. of Health and Human Services-Public Health Plan 2024	Montclair Dept. of Health and Human Services

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction: The Montclair Public Health Plan aids risk reduction by reducing the transmission risk associated with various illnesses and pandemics. The Public Health Plan provides public education to increase awareness in regard to disease prevention and health education. The Montclair Department of Health and Human Services (DHHS) maintains a department operations center, whose primary function is to direct public health actions in response to small-scale public health incidents, maintain situational awareness, assign, and track public health resources, and coordinate with other department operations centers and the emergency operations center (EOC).			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			
Additional Emergency Response and Recovery Planning Capabilities			
• *Damage Assessment Plan:* Community Services, Building Dept. Code Enforcement, and Township Manager. Provides for accurate and rapid assessment of damages Townwide. Tracks potential costs of damage.			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Montclair.

Table 14-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 121 Construction Codes, Uniform	Code Enforcement
Impact on Risk Reduction: There is hereby established in the Township of Montclair a State Uniform Construction Code enforcing agency to be known as Construction Code Enforcing Division, consisting of a Construction Official, Electrical Subcode Official, Building Subcode Official, Plumbing Subcode Official, Fire Subcode Official, Elevator Subcode Official, Technical Assistant, Control Person and such other subcode officials as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Code Official shall be the chief administrator of the enforcing agency.			
Zoning or Land Use Regulations	Yes	Chapter 202 Land Use Procedures; Chapter 347 Zoning	Planning Board, Zoning Board of Adjustment
Impact on Risk Reduction: Chapter 202 establishes land use procedures including the establishment of the Planning Board and Zoning Board of Adjustment. Chapter 347 is designed to encourage the most appropriate use of land throughout the Township of Montclair in accordance with the land use element of the Master Plan as adopted by the Township Planning Board. For this purpose, this chapter designates, regulates and restricts the location and use of buildings, structures and land for residential,			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
commercial, public, semipublic and other purposes; the height and size of buildings and other structures hereinafter erected or altered; appurtenant off-street parking, signs and other facilities; and the size of yards and other open spaces.			
Subdivision Regulations	Yes	Chapter 301 Subdivision of Land	Planning Board, Zoning Board of Adjustment
Impact on Risk Reduction: The purpose of this chapter is to provide for the regulation of land subdivision in the Township and to establish rules, regulations and standards governing such land subdivision in order to promote the public health, safety, convenience and general welfare of the Township. It shall be administered to ensure orderly growth and development, conservation, protection and proper use of land and adequate provision for circulation, utilities and service.			
Site Plan Regulations	Yes	Chapter 281 Site Plan Review	Planning Board, Zoning Board of Adjustment
Impact on Risk Reduction: Chapter 281 sets the standards and procedures for site plan review by the Planning Board and Zoning Board of Adjustment. Site plan review considers the risk associated with development on lots such as water runoff and pollution. The hazards are reduced through careful planning and the implementation of alternative solutions.			
Stormwater Regulations	Yes	Chapter 295 Stormwater Control	Planning Board
Impact on Risk Reduction: The purpose of this chapter is to establish minimum stormwater management requirements and controls for "major developments" and "minor developments." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 161 Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines. D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Environmental Protection Regulations	Yes	Chapter 134 Environmental Hazards; Chapter 294 Steep Slopes; Chapter 324 Trees; Chapter 341 Water Article III Drought and Water Storages	Township Administration, Town Arborist, Code Enforcement

Impact on Risk Reduction:
Chapter 134 includes prohibitions for single use plastic bags and requirements for privately owned salt storage.

The purpose of Chapter 294 is to protect the health, safety and welfare of people and property within the Township from improper construction, building and development on steep slope areas in the Township and, more particularly but without limitations, to reduce the peculiar hazards which exist on steep slopes by reason of erosion, siltation, flooding, soil slippage, surface water runoff, pollution of surface and ground water supplies from non-point sources and destruction of unique and predominant views. It is a further purpose of this chapter to encourage appropriate planning, design, and development of sites within steep slope areas which preserve and maximize the most appropriate use of the natural terrain in recognition of environmental constraints.

Chapter 324 establishes protections for shade trees, noting that trees stabilize soil, help reduce stormwater runoff and wind erosion of soils, improve water quality, reduce noise pollution, reduce air pollution, sequester carbon dioxide associated with global warming, create shade and help reduce energy consumption in the summertime, lower ambient air temperatures throughout the Township during the summer, and provide habitat for birds and other species.

Chapter 341 Water Article III establishes that whenever the average amount of water in the reservoirs supplying the Township in any one month falls 20% below the average amount of water in storage for the corresponding months of the five-year period immediately preceding and the Township Engineer certifies that an emergency exists in such water supply, the Director of the Department of Community Services may, for the protection of the health, safety and general welfare of the citizens and residents of the Township, proclaim the existence of a water emergency and prescribe regulations to:

A. Prohibit the use of water from the municipal supply for any purpose not necessary to the health, safety and welfare of the public.
B. Allocate and prorate the available water supplies.
C. Reduce consumption by users.
D. Prevent waste for the period of duration of such emergency.

Chapter 42 Native Vegetation: The Township of Montclair will require that at least 70% of newly procured plants (shrubs, groundcovers, and flowers) in each category as well as 70% of trees used in public places be native.

Climate Change Regulations	Yes	Leaf blower and fleet electrification 2023-ongoing	Code Enforcement and The Office of Sustainability

Impact on Risk Reduction:
Regulations and codes, Chapter 219, restricting gas leaf blower use to reduce carbon emissions. Reduction in gas vehicles assists in carbon emissions reduction.

Additional Codes, Ordinance, and Regulations Capabilities

List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction.

- *"Stop the Stuff "Lowering the amount of plastic pollutants that reach Montclair waterways and sewers. Montclair Environmental Affairs.*
- R-21-162-Climate Action Plan: The 2021 Montclair Climate Action plan is a strategic framework and guide for Township administration, businesses, and residents to reach suggested carbon emission reduction targets by 2030. The agency responsible is the Montclair Environmental commission.

14.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Montclair's departments, boards, and committees that contribute to risk reduction.

Table 14-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	*Description and Role in Risk Reduction*
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Township of Montclair Planning Board is a land use board tasked with preparation of the Township Master Plan, review of Applications for Development for site plan and subdivision approval, make recommendations to the Township Council on any proposed changes to the land use ordinance, and grant conditional use or bulk variances in association with subdivision and site plan applications. The Township of Montclair Zoning Board of Adjustment is a land use board empowered with principal duties to hear appeals, to grant variances from the strict application of the zoning ordinance and to rule on "use" applications. The Department of Planning & Community Development provides all administrative support staffing to the Zoning Board of Adjustment.
Planning Department	The Department of Planning and Community Development is responsible for all matters concerning planning, zoning, redevelopment and community development administration in the Township of Montclair.
Public Works / Highway Department	The Department of Community Services is responsible for streets, public property and parks, refuse collection and recycling, shade tree maintenance, snow and leaf removal, and all community infrastructure except the parking and water utilities and sanitary sewers. The Montclair Township Water Bureau and Sewer Utility provide customers with a safe, clean supply of drinking water and sanitary sewer disposal services at the lowest possible cost.
Construction / Building / Code Enforcement Department	The Building Department requires certain permits and inspections before making certain changes to a structure. The Division of Code Enforcement, Housing and Property Maintenance focuses on ensuring and improving the quality of life of all Montclair residents through enforcement of related provisions with the Code of the Township of Montclair, Essex County rules and regulations, and NJ Statewide requirements. The Division works in tandem with many other departments, including Zoning, Construction, Health, Police and Fire.
Engineering Department	The Montclair Engineering Bureau is responsible for design and construction management for certain capital improvements to Township streets (curbs, paving and drainage/storm sewers) and parks. Other responsibilities of the Engineering Bureau include permitting and inspections for road openings and construction of sidewalk, curb, and driveway aprons; maintenance of the official street map; and assistance to residents with engineering-related matters.
Parks and Recreation Department	The Parks & Recreation Advisory Committee is composed of representatives of local parks and “user groups.” It advises the Council

Department / Board / Committee	Description and Role in Risk Reduction
	on matters relating to the following: the renovation and maintenance of facilities including parks, playgrounds, public pools, ice skating arena, Municipal recreation programs and special events.
Open Space Board / Committee	Planning Board/ Zoning Dept. The Township of Montclair Planning Board is a land use board tasked with preparation of the Township Master Plan, review of Applications for Development for site plan and subdivision approval, make recommendations to the Township Council on any proposed changes to the land use ordinance, and grant conditional use or bulk variances in association with subdivision and site plan applications.
Environmental Board / Commission	The Montclair Environmental Commission guides Montclair Township to reduce carbon emissions, build climate resilience, advance environmental justice, and protect the living environment by advising, advocating, educating, developing policy and leading new initiatives. The Commission reviews site plan applications, use variance applications that involve site improvements, and major subdivision applications (3 or more lots).
Emergency Management / Public Safety Department	Montclair Office of Emergency Management Risk Identification: Through thorough risk assessments, emergency management identifies and evaluates potential hazards, such as natural disasters, technological accidents, and human-caused threats. Mitigation Strategies: Based on the identified risks, emergency management designs and implement strategies to reduce vulnerability. This may involve infrastructure improvements, land-use planning, and policies that encourage safer building practices. Training and Drills: Emergency management teams conduct training
Fire Department	The Fire Department is the emergency response agency that provides fire protection, emergency medical care, and other critical public safety services.
Additional departments, boards, and committees	A Climate Vulnerability Assessment Committee was formed in early 2022 to complete a climate change vulnerability risk assessment with an emphasis on storm water and flooding as that is the key challenge in Montclair. This work is also a state requirement in order to amend the Land Use element of the Master Plan. This Committee consists of two members of the Planning Board, two members of the Environmental Commission, Planning Department staff, Deputy Township Manager and Township Engineer. The team utilized the process advised in this action by reviewing the NJ Flood Mapper for flood prone areas and vulnerable assets and conducting a collaborative review of the Getting To Resilience survey. The Committee in the process of amending this information to a comprehensive GIS map analyzing flood prone areas across town. In May and June 2022, the team also completed site visits to each of the 36 areas identified to document observations related to storm water runoff, steep slopes, excessive impervious coverage, conditions of catch basins, stream blockages, etc.. The overall map will then be amended to include these observations, topography and county roads, as well as critical assets. Once completed, recommendations will be made for addressing the risks and improving storm water resiliency across town. The Master Plan will also be updated as required by State Law.

Department / Board / Committee	Description and Role in Risk Reduction
	The Montclair Department of Health and Human Services provides a variety of services and programs through its various divisions. Our Nurses help prevent epidemics and spread of disease through Communicable Disease Surveillance and Reporting, vaccination clinics and school vaccination audits. The Environmental Division protects the community against environmental hazards and food-borne outbreaks by conducting investigations and inspections, and following through with compliance measures. The Mission of the Montclair's Office of Sustainability is to: implement cost-saving energy reduction and waste prevention measures for the Township; provide information on environmental stewardship, public wellness, and economic responsibility to residents, schools, local businesses, and the municipal operations; and, as the liaison between the municipality and the Montclair Environmental Commission, to help create policies that protect our natural environment, the health and safety of residents, and the resilience of Montclair now and in the future. The Montclair Historic Preservation Commission (MHPC), established by ordinance in 1994, is responsible for protecting Montclair's architectural heritage and increasing public awareness of the unique historical and cultural dimensions of the Township's buildings, streetscapes, and landscapes.

The table below summarizes the Township of Montclair's staff with skills and expertise that contribute to risk reduction.

Table 14-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Municipal Planner- Janice Talley
Engineer	Noberto Hernandez
Stormwater Officer	Noberto Hernandez
Resilience / Sustainability Officer	Lisa Johnson
Grant Writer	Each Department is responsible for their own applications
Staff with benefit / cost analysis expertise	Community Services (Public Works)
Staff trained in conducting substantial damage determinations	Community Services (Public Works)
Staff trained in GIS	Planning Department
Staff that provide support to socially vulnerable populations	The People with Disabilities Advisory Committee (PwD) is charged with promoting the welfare of residents with disabilities by developing and maintaining community awareness of people with disabilities, and serving as a resource for residents and visitors. It is both an advocate for members of the Montclair community living with disability and an advisor to the Township Council regarding such individuals.

Staff	Description and Role in Risk Reduction
	The Montclair Housing Commission is responsible for implementing Montclair Township's Affordable Housing Strategy and monitoring the Township's efforts in this area and is supported by municipal staff. The Commission works closely with local non-profit housing organizations, including HOMECorp and the Essex Community Land Trust, in advancing affordable housing initiatives. The Senior Citizens Advisory Committee (SCAC) assesses services and issues important to Township seniors, makes recommendations to the Council and staff on programs and policies, and serves as a liaison to seniors throughout town. Montclair Community Intervention Alliance (MCIA) administers a State-funded grant supporting local groups that promote substance abuse prevention and advises the Council on related matters. The Civil Rights Commission recommends programs designed to eliminate discrimination, addresses problems involving tensions in the community, and reviews the Township Affirmative Action Policy. The CRC has four committees: Public Safety (Police and Fire department issues), Education, Affordable Housing, and Diversity, Equity and Inclusion (DEI).
Additional staff with skills and expertise that contribute to risk reduction	None identified

The table below summarizes development and permitting capabilities of the Township of Montclair.

Table 14-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	The Planning Department issues zoning permits and oversees the development review and approval process. The Building Department issues building permits and Certificates of Occupancy.
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	The Planning Department coordinates the environmental review of all development applications. The Township Engineer handles the environmental review of all building permit applications that were not subject to prior approval through the Planning Department.
How does your jurisdiction inventory land available for new development?	Montclair is fully developed with very little vacant land. All new development involves redevelopment and adaptive reuse.
What percentage of your jurisdiction is available for new development?	There are only a handful of parcels that are undeveloped in Montclair, less than 1%.

14.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Montclair.

Table 14-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible to use

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible to use
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible to use
Capital improvements funding	Yes	Dam repair and culvert cleanups
Open space acquisition programs	No	-
Impact fees for developers of new homes	Yes	Stormwater control and upgrades.
User fees for water, sewer, gas, or electric	Yes	Water, sewer, and parking
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Upgrades for storm water management through taxes.
Ability to incur debt through bonds	Yes	Through general obligation bonds
Other financial resources available for hazard mitigation	Yes	Grants, various improvement grants for infrastructure.

14.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Montclair.

Table 14-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Rave Mobile Safety warning system
Public Information Officer	The Township of Montclair supports a full-time position of Communications Director (in addition to standard I.T. personnel), and this staff-person has created a comprehensive Communications Strategy for connecting with our entire community
Website	The Engineering section of the municipal website (https://www.montclairnjusa.org/Home) has information on floodplain management, steep slopes, and stormwater management.
Social media	Facebook, X (formerly Twitter), YouTube, Instagram
Public safety campaigns	Safe Streets, Flood insurance, Hazard Mitigation Survey
Newsletters	Yes, the first edition will be issued in January 2025
Hazard education programs for schools	Fire prevention education reduces the risk of accidental fires.
Outreach to socially vulnerable populations	Senior Services/Lifelong Montclair provides events and classes related to health and education and general information for Montclair's older residents.
Other outreach capabilities	The Office of Information Technology is responsible for all municipal department information technology core services, TV34 Station (government access channel which provides community programming), and maintenance-based systems.

14.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Montclair.

Table 14-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Engineering permit reviews, private construction inspections, MS4 inventory mapping, routine MS4 inspection and cleanings
What local department is responsible for floodplain management?	Department of Community Services
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	Unknown
Summarize the jurisdiction's Substantial Damage determination procedures.	In accordance with NFIP requirements/recommendations
Summarize the jurisdiction's Substantial Improvement procedures.	In accordance with NFIP requirements/recommendations
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

Source(s):

14.3.6 Community Classifications

Table 14-14 summarizes the Township of Montclair's participation in community classification programs.

Table 14-14. Community Classifications

Program	*Participation Status / Classification*	*Date Classified*
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	2012
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Silver	December 13, 2022
Other Programs	Fire ISO Protection Class 2	2016/2017

Program	Participation Status / Classification	Date Classified
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	The Montclair Fire Department is currently engaged in the planning process to become ISO Class 1. BCEGS is currently being revalued and a new rating will be given in 2025.	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

14.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Montclair has in place and will use to prepare for changes in risk due to climate change.

Table 14-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Precipitation and Flooding, Extreme Heat, Emerging Contaminants (forever chemicals, microplastics, etc.), Air Quality, Hurricanes and Wind, & Drought
What information does the jurisdiction use to understand potential climate change impacts?	Montclair uses data provided by the EPA, NJDEP, Research Universities such as Rutgers and Montclair State, PSE&G, BPU, Sustainable Jersey, and community outreach through surveys and feedback.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Climate Action Plan, Conservation Plan Element, Stormwater Management Plan Element, Unified Land Use and Circulation Plan Element. Stormwater Management Ordinance, Tree Preservation Ordinance, Native Vegetation Ordinance, Ban on Gasoline-Powered Leaf Blowers, Participation in NJDEP's Resilient NJ Program and Stormwater Utility Feasibility Study. Other strategies include increasing Montclair's urban tree canopy and reducing the use of single use plastics.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	The Office of Sustainability (Lisa Johnson) and the Planning Dept. (Janice
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	The Township actively pursues grant opportunities from both state and federal agencies, allocates resources within its annual budget to support sustainability and climate action programs, and reassesses rates and fees for municipal services to align with the costs of implementing and maintaining climate adaptation measures.
How does the jurisdiction educate the public on potential climate change impacts?	At council meetings, public events, the Township website, social media, newsletters, and direct contact with constituents.

14.3.8 Capability Assessment Summary

The Township of Montclair's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Montclair determined the following hazard capability effectiveness ratings.

Table 14-16. Township of Montclair Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

14.3.9 Opportunities to Improve Capabilities and Integration

- The Township lacks a Substantial Damage Response Plan.
- The Township will be required to develop a Watershed Improvement Plan by December 2027.

14.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Montclair were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Montclair reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the calculated hazard rankings.

The Township of Montclair agreed upon the following hazard rankings.

Table 14-17. Township of Montclair Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Low
Severe Weather	High

Hazard	*Hazard Ranking*
Severe Winter Weather	Medium
Wildfire	High

14.5 Jurisdictional Mitigation Strategy

14.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 14-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Montclair-001	**Develop and implement a post-event damage assessment program:** Develop and implement a post-event damage assessment program, including the following elements: • Conduct public outreach/education (see Public Education and Awareness Initiatives above) to inform property owners of the need to report property damage and obtain required permitting when making repairs. • Develop and organize local resources to conduct post-event damage assessments, including substantial damage determinations as warranted. Develop an inventory (file system and/or database) of losses (including loss of service, property damage, economic losses, etc.) as reported to and/or identified by the Township (e.g., building permit process).	Township of Montclair	In Progress. The County is leading a post event damage assessment application roll out.	Yes	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Montclair-002	**Township microgrid:** Acquire funding and implement the microgrid according to the specifications of the previously completed assessment.	Department of Community Services	In Progress. Main critical buildings have generators but installation of the microgrid is needed.	Yes	-
2020-Montclair-003	**Yantacow Brook Park Dam:** The township will perform an engineering analysis to determine what repairs are necessary. The township will then perform the necessary repairs and improvements to bring the dam up to NJ DEP requirements.	Department of Community Services	Complete. New concrete poured on the dam, fixing the initial issues.	No, completed	-
2020-Montclair-004	**Power line mitigation:** Place utilities underground in identified problem areas, especially where utilities are located in rear yards and near critical facilities. In other areas, undergo tree trimming operations.	Department of Community Affairs	Ongoing Capability. County roads now are trimmed on roughly an annual basis. PSE&G does utility line clearing.	No, ongoing capability	-
2020-Montclair-005	**Emerald Ash Borer Infestation:** Perform an updated survey to determine which trees in the township are infected. Remove and treat infested trees.	Department of Community Services	Ongoing Capability. Trees have been identified or removed.	No, ongoing capability	-
2020-Montclair-006	**Stormwater Upgrades:** Continue to upgrade underground infrastructure.	Township Engineering	In Progress. Sewer line project in 2024. Pipes replaced as needed.	Yes	-
2020-Montclair-007	**Outreach to critical facilities:** The FPA will conduct outreach to facility managers to alert them of their	FPA	In Progress, outreach is conducted ahead of flood events.	Yes	Focus on outreach to non-critical facilities and lifeline services for expanded

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	exposure to flooding and possible mitigation actions.				floodplains, localized flooding, etc.
2020-Montclair-008	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to flood-prone property owners, including RL property owners (21 RL), and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding (high-risk areas).	FPA, Homeowners	In Progress, NJOEM has conducted outreach	Yes	-

14.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Montclair identified the following mitigation efforts completed since the last HMP:

- None identified

14.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Montclair identified the following issues that require mitigation.

- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- The Ambulance Unit building is located in the 1% floodplain. The structure has been flooded numerous times, resulting in damages and loss of services.
- Stormwater components in the Township may be outdated and undersized. Stormwater flooding is a repetitive issue, including in areas outside the floodplain.
- The Library and Social Services buildings are critical facilities that lack backup power. The Library is a warming and cooling shelter. The facilities neighbor each other and could be powered by a single generator.
- Urban heat island impact results in high temperatures in the Township. Many shade trees have been lost over time, increasing extreme heat.
- The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.
- In 2017, Montclair was awarded a $142,000 grant from NJ Board of Public Utilities (NJBPU) for a Town Center Distributed Energy Resource (TCDER) Microgrid Feasibility Study, to determine whether Montclair would be an appropriate location for a Microgrid, to reduce energy costs through efficiency and provide resiliency and uninterrupted power for critical facilities during outages or disruption. The report, completed in 2018, has been reviewed by NJBPU for possible further incentives. It identifies Mountainside Hospital, Montclair Fire Headquarters and Emergency Management Center, Glenfield Middle School, our Water Bureau's Glenfield Well, NJ Transit's Bay Street Station, and Pine Ridge Senior Living housing complex as six facilities to be connected by the microgrid.
- The Animal Shelter is a critical facility that lacks backup power.

- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 29 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The Yantacaw Brook Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (12/24/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.

14.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Montclair's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 14-19. Township of Montclair 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Montclair-01	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-Montclair-02	Watershed Improvement Plan	X	X		X	X				
2025-Montclair-03	Ambulance Unit Flood Mitigation					X		X	X	
2025-Montclair-04	Stormwater System Mapping and Upgrades					X		X	X	
2025-Montclair-05	Library & Social Services Building Backup Power			X	X	X	X	X	X	X
2025-Montclair-06	Plant and Maintain Shade Trees				X					
2025-Montclair-07	Underground Detention Facilities					X		X	X	
2025-Montclair-08	Town Center Distributed Energy Resource Microgrid			X	X	X	X	X	X	X
2025-Montclair-09	Animal Shelter Backup Power			X	X	X	X	X	X	X

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Montclair-10	Repetitive Loss Mitigation					X		X		
2025-Montclair-11	Yantacaw Brook Dam					X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 14-20. Township of Montclair 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Montclair-01	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Montclair-02	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Montclair-03	Ambulance Unit Flood Mitigation																
2025-Montclair-04	Stormwater System Mapping and Upgrades	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Montclair-05	Library & Social Services Building Backup Power	1	0	1	1	1	0	0	1	1	1	1	0	1	1	10	Medium
2025-Montclair-06	Plant and Maintain Shade Trees	1	0	1	1	1	1	1	1	1	0	1	1	0	1	11	High
2025-Montclair-07	Underground Detention Facilities	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	High
2025-Montclair-08	Town Center Distributed Energy Resource Microgrid	1	0	0	1	0	0	0	1	1	1	1	0	1	1	8	Medium
2025-Montclair-09	Animal Shelter Backup Power	1	0	1	1	1	0	0	0	1	1	1	0	1	1	9	Medium
2025-Montclair-10	Repetitive Loss Mitigation	1	1	1	1	0	1	1	0	1	1	1	1	0	1	10	High
2025-Montclair-11	Yantacaw Brook Dam	0	1	1	1	1	0	1	1	1	0	1	0	1	1	10	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Montclair-01: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Montclair-02: Watershed Improvement Plan

Lead Agency:	Engineer	
Supporting Agencies:	NJ DEP	
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak	
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.	
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.	
Estimated Cost:	Medium for planning, High for implementation of identified projects	
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Completion required by December 2027	
Goals Met:	1, 2, 5	
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.	
Impact on Socially Vulnerable Populations:	TBD by identified projects	
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.	
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.	
Impact on Capabilities:	This action will improve stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.	
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Montclair-03: Ambulance Unit Flood Mitigation

Lead Agency:	Ambulance Unit	
Supporting Agencies:	Floodplain Administrator	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Ambulance Unit building is located in the 1% floodplain. The structure has been flooded numerous times, resulting in damages and loss of services.	
Description of the Solution:	The Township will secure funding to waterproof the basement area and utilities of the Ambulance Unit building and make drainage upgrades on site.	
Estimated Cost:	Medium	
Potential Funding Sources:	BRIC, HMGP, Ambulance Unit budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6	
Benefits:	The flood risk to the Ambulance Unit will be reduced, cutting back on disruptions in service.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	The Ambulance Unit is considered a critical facility and lifeline.	
Impact on Capabilities:	This action improves and maintains emergency response capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of flooding. This action addresses current and future flood risk.	
Mitigation Category:	Property Protection, Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Relocate the Ambulance Unit	To maintain response time, the Unit cannot be relocated
	Elevate the structure	The building construction type and age makes elevation unlikely to be possible

2025-Montclair-04: Stormwater System Mapping and Upgrades

Lead Agency:	DPW	
Supporting Agencies:	Engineer	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	Stormwater components in the Township may be outdated and undersized. Stormwater flooding is a repetitive issue, including in areas outside the floodplain.	
Description of the Solution:	The Township DPW will map the full stormwater system, inventory components, and identify components in need of replacement or upsizing. Components identified for replacement and upsizing will be replaced and upsized.	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, HMGP, municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2	
Benefits:	Full system will be mapped with upgrades and maintenance prioritized appropriately.	
Impact on Socially Vulnerable Populations:	If cost-effective upgrades are identified, they may be implemented in flood prone areas that could reduce their overall risk to loss of life and property for socially vulnerable populations	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Transportation routes will be more likely to remain open if stormwater flooding is mitigated.	
Impact on Capabilities:	This action improves and maintains emergency response capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of flooding. This action addresses current and future flood risk.	
Mitigation Category:	Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Replace all components with same size	Undersized components likely to continue contributing to flooding
	Install rain gardens at all locations that experience stormwater flooding	Limited room and limited decrease in stormwater flooding volumes

2025-Montclair-05: Library & Social Services Building Backup Power

Lead Agency:	OEM	
Supporting Agencies:	Engineer, DPW	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Library and Social Services buildings are critical facilities that lack backup power. The Library is a warming and cooling shelter. The facilities neighbor each other and could be powered by a single generator.	
Description of the Solution:	The Engineer will determine the appropriate design and size of a generator to power the two facilities. Public Works will oversee installation of a fixed mounted generator and necessary electrical components to supply backup power. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	Medium	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6	
Benefits:	This action protects continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	The Social Services building provides important services to socially vulnerable populations.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Montclair-06: Plant and Maintain Shade Trees

Lead Agency:	DPW	
Supporting Agencies:	Environmental Commission	
Hazard(s) of Concern:	Extreme Temperature	
Description of the Problem:	Urban heat island impact results in high temperatures in the Township. Many shade trees have been lost over time, increasing extreme heat.	
Description of the Solution:	The Township will identify suitable locations for the planting of shade trees. Public works will be responsible for planting and the care for shade trees in public rights of way. The Township will educate and encourage private property owners to maintain their own shade trees on their property.	
Estimated Cost:	Medium	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 2 years	
Goals Met:	1, 2	
Benefits:	This action will result in the establishment of shade trees which will reduce high temperatures and urban heat island impacts.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations often are more at risk for extreme heat impacts on health and may lack the financial means to cool their homes during extreme heat events.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to increase average temperatures, making extreme heat events more frequent and severe. This action aims to address the increase in heat risks.	
Mitigation Category:	Natural Resource Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Expand cooling center capacities	Limited buildings with space and not all residents are likely to move to cooling centers during heat events.
	Distribute air conditioning to at risk residents	Costly.

2025-Montclair-07: Underground Detention Facilities

Lead Agency:	Engineer	
Supporting Agencies:	DPW	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Flood	
Description of the Problem:	The Township regularly experiences stormwater flooding. Increase frequency of heavy rainfall events overwhelm stormwater systems in the Township. Additional capacity is needed to store stormwater in order to reduce the rate of downstream flow to prevent flooding.	
Description of the Solution:	The Township will undertake a study to identify suitable locations for underground detention that will allow for storage of stormwater. This is likely to include Township owned parking lots in areas prone to stormwater flooding. The Township will implement cost effective underground detention projects identified by the study.	
Estimated Cost:	Medium	
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2	
Benefits:	This action will result in a decrease in stormwater flowing downstream and an increase in capacity in the stormwater system, decreasing flooding.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will improve the capabilities of the water lifeline for the stormwater system.	
Impact on Capabilities:	This action will increase the Township's stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of rainfall events. This action aims to address the increased flood risk related to climate change	
Mitigation Category:	Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Rain gardens	Lack of space and likely low change in stormwater volumes.
	Above ground detention	Not sufficient space.

2025-Montclair-08: Town Center Distributed Energy Resource (TCDER) Microgrid

Lead Agency:	OEM
Supporting Agencies:	Engineer, DPW
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	In 2017, Montclair was awarded a $142,000 grant from NJ Board of Public Utilities (NJBPU) for a Town Center Distributed Energy Resource (TCDER) Microgrid Feasibility Study, to determine whether Montclair would be an appropriate location for a Microgrid, to reduce energy costs through efficiency and provide resiliency and uninterrupted power for critical facilities during outages or disruption. The report, completed in 2018, has been reviewed by NJBPU for possible further incentives. It identifies Mountainside Hospital, Montclair Fire Headquarters and Emergency Management Center, Glenfield Middle School, our Water Bureau's Glenfield Well, NJ Transit's Bay Street Station, and Pine Ridge Senior Living housing complex as six facilities to be connected by the microgrid.
Description of the Solution:	Acquire funding and implement microgrid according to specifications of previously completed assessment.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, NJBPU, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	6
Benefits:	This action protects the identified area from power losses.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of critical facilities and essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	-
Wind turbines	Not sufficient enough space
Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Montclair-09: Animal Shelter Backup Power

Lead Agency:	OEM	
Supporting Agencies:	Engineer, DPW	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Animal Shelter is a critical facility that lacks backup power.	
Description of the Solution:	The Engineer will determine the appropriate design and size of a generator to power the facility. Public Works will oversee installation of a fixed mounted generator and necessary electrical components to supply backup power. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	Medium	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	6	
Benefits:	This action protects continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Montclair-10: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 29 repetitive loss properties and 3 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Levee around floodplain / Costly, not enough room Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Montclair-11: Yantacaw Brook Dam

Lead Agency:	Engineer
Supporting Agencies:	Dam manager, NJDEP Bureau of Dam Safety, County Engineer
Hazard(s) of Concern:	Flood
Description of the Problem:	The Yantacaw Brook Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (12/24/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
Description of the Solution:	The municipal engineer will work with dam managers, the NJDEP Bureau of Dam Safety, and the County Engineer to review the most recent inspections of dams in the municipality that have resulted in a poor or unsatisfactory safety rating, identify the deficiencies, determine the necessary repairs and improvements necessary to address the deficiencies, identify available funding sources for the identified repairs/improvements, and implement the cost-effective repairs/improvements.
Estimated Cost:	Low for initial assessment of options, TBD for total cost based on mitigation actions selected
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), NJDEP, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	Dam failure will be avoided, which will reduce the risk of harm to people and property downstream. Certain safety requirements will be met that can allow for funding to be received for further mitigation projects.
Impact on Socially Vulnerable Populations:	The most vulnerable populations may live directly downstream of the dam and lack the ability to receive notifications of dam failure or evacuate when notified. Preventing dam failure allows those communities to remain intact and reduces the risk of loss of life and property in those areas.
Impact on Future Development:	Future development downstream of dams will also be protected from dam failure.
Impact on Critical Facilities/Lifelines:	Critical roads and utilities will be protected from potential damage or loss from unintended dam releases.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is resulting in an increase to annual precipitation. Much of this increase is in the form of heavy rainfall events. Consideration should be taken for increases in frequency and severity of rainfall events to ensure that the dam is designed to withstand these increases.
Mitigation Category:	Structural Projects
CRS Category:	Medium
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Work without County Engineer involvement / Improvements made but may lack appropriate support from County, including data and potential funding access
	Remove dam / Without proper analysis, dam removal may increase flooding risk

14.6 Jurisdictional Hazard Mitigation Team

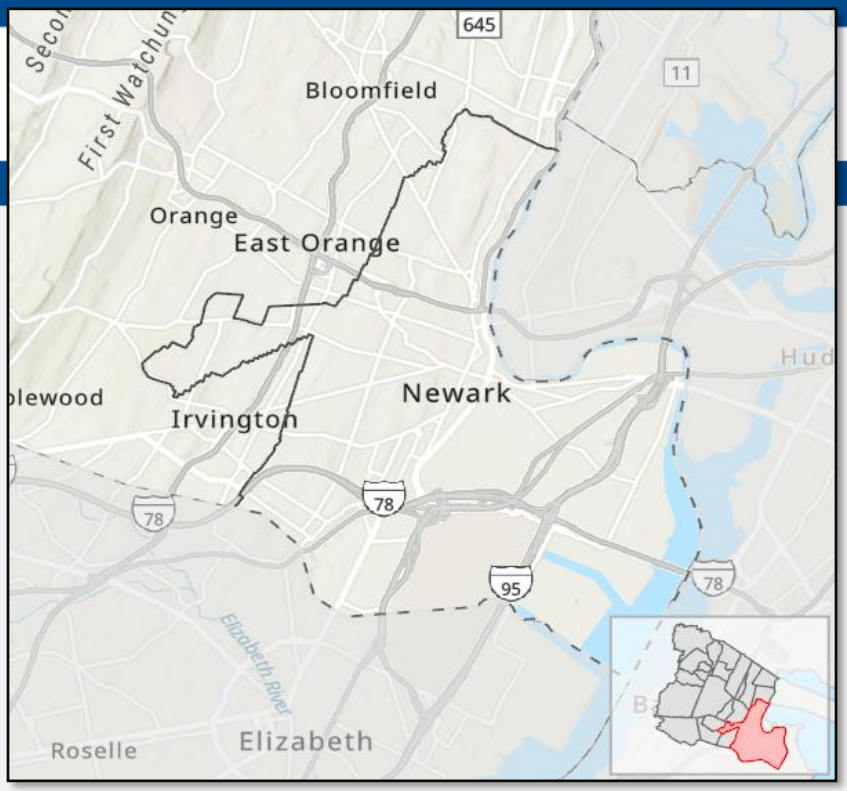
Table 14-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Carmine Davino, Code Enforcement Supervisor	Name and Title:	Tony Fan, Chief Information Officer/Office of Information Technology
Address:	205 Claremont Avenue, Montclair, NJ 07042	Address:	205 Claremont Avenue, Montclair, NJ 07042
Phone Number:	973-509-4904	Phone Number:	973-509-4927
Email:	cdavinojr@montclairnjusa.org	Email:	tfan@montclairnjusa.org
NFIP Floodplain Administrator			
Name and Title:	Norberto Hernandez, Township Engineer and Floodplain Administrator		
Address:	205 Claremont Avenue, Montclair, NJ 07042		
Phone Number:	973-509-5707		
Email:	nhernandez@montclairnjusa.org		

Table 14-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Tony Fan, Chief Information Officer/Office of Information Technology	Attended annex support meeting, contributed to mitigation strategy
Carmine Davino, Code Enforcement Supervisor	Attended annex support meeting, contributed to mitigation strategy
Norma Tassy, Director of Administration, Enforcement, and Environmental Affairs	Attended annex support meeting, contributed to mitigation strategy
Austin Ashley, Director of Community Services	Attended annex support meeting, contributed to mitigation strategy
Norberto Hernandez, Township Engineer and Floodplain Administrator	Attended annex support meeting, contributed to mitigation strategy
Chief Duncan, Fire Department	Attended annex support meeting, contributed to mitigation strategy
Michael Lynch, Acting Superintendent	Attended annex support meeting, contributed to mitigation strategy
Janice Talley, Planner	Attended annex support meeting, contributed to mitigation strategy

City of Newark



POPULATION STATISTICS

307,188
TOTAL POPULATION (2023 ACS)

0.10%
Change in population since 2010 Census

113,748
TOTAL HOUSEHOLDS

AT RISK POPULATION

33,493
Population Over 65

20,256
Population Under 5

49,938
Living With Disability

3,272
Households Without Vehicle

85,699
People Renting Homes

POVERTY AND LANGUAGE

37,814
Households Below Poverty Level

71,362
Population With English as 2nd Language

POPULATION AND BUSINESSES

333,521
Daytime Population

7,897
Total Businesses

128,392
Total Employees

FLOOD VULNERABILITY

365
Number of People in 1% SFHA

598
Number of Buildings in 1% SFHA

16
Community Lifelines in 1% SFHA

15 CITY OF NEWARK

15.1 JURISDICTIONAL PROFILE

The City of Newark is located west of Manhattan, south of the Township of Belleville, and east of the City of East Orange along the Newark Bay. Both Newark Liberty International Airport and the Port of Elizabeth are located south and east of Newark (City of Newark New Jersey 2014).

On April 11, 1836 Newark was incorporated as a City but its origin dates back to the Newark Tract in October 1693. Newark's Branch Brook Park is the oldest county park in the country and is home to the largest collection of cherry blossom trees in the country. The 1967 Newark Riots were a result of urban decline experienced in the city during the early 20th Century. Newark has experienced a revitalization since the late 20th Century and early 21st Century (City of Newark New Jersey 2014).

Since the 1950's, the City of Newark has operated using the Mayor-Council for of government. The Council includes nine members who serve five-year terms. Five members are elected at large and four are elected by the wards the individuals represent (City of Newark New Jersey 2014).

The City is home to numerous socially vulnerable populations and underserved communities. The Ironbound composes most of Newark's East Ward City Council district, covering four square miles. Also referred to as "Down Neck," the Ironbound is a multi-ethnic, largely working-class neighborhood of 50,000. German, Lithuanian, Italian and Polish immigrants settled in Ironbound in the 19th century. In the early 20th century, Black Americans arrived during the famed Great Migration from the Jim Crow era South, along with large numbers of Portuguese and Spanish immigrants. In the latter half of the 20th century immigrants from Central and South America, attracted by the Iberian flavor and multilingual nature of Ironbound, joined the community. These successive waves of migration and immigration all contributed to the richness of Ironbound's cultural diversity. Immigration to Ironbound continues to the present, and now two out of three Ironbound residents have come to the U.S. as immigrants (Ironbound Community Corporation n.d.). Various social vulnerabilities are present including:

- 25% of residents live in poverty.
- 26% of households have an income of less than $25,000; 58% less than $50,000.
- 20% of families have single heads of households.
- For more than 80% of residents, English is not a first language at home. Three languages – Spanish, Portuguese, and English – can be heard throughout the community.
- Ironbound's elementary schools – five built in the 19th century – are severely overcrowded.
- Each year, large numbers of five-year-old children cannot attend kindergarten due to lack of space.
- As in most of Newark, Ironbound's children suffer from high rates of asthma and other respiratory ailments, which impacts their daily lives and causes school absences that affect their educational advancement.
- Thousands of residents are "undocumented", live in fear, and are often the victims of crime and labor exploitation.

The South Ward has similar environmental justice issues as the Ironbound. The South Ward neighborhood is disproportionately burdened with cumulative impacts of pollution impacting the health and quality of life of the residents (South Ward Environmental Alliance 2022).

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

15.2 Jurisdictional Risk Assessment

The following sections assess the City of Newark's risk to the hazards of concern identified for the 2025 HMP update.

15.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the City of Newark's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the City experienced during hazard events since the last hazard mitigation plan update.

Table 15-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The City was subject to closures and masking/social distancing requirements.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	The City did not have information recorded on local impacts from this event.
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	The City did not have information recorded on local impacts from this event.

15.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

Flooding in Newark is focused primarily within the mapped Special Flood Hazard Area. Passaic Valley Sewage Commission has experienced significant flooding in the past but has undergone significant remediation to address flood risk.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the City of Newark.

Table 15-2. NFIP Summary

Active NFIP Policies	*Total Premium + Policy Fee*	*Number of Losses*	*Total Net Payment*	*Repetitive Loss (RL) Properties*	*Severe Repetitive Loss (SRL) Properties*
225	$637,861	338	$25,408,294	26	7

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 15-3. Flood Exposure of Community Lifeline Facilities

Name	*Type*	*1% Flood*
Passaic Valley Sewerage Commission	Wastewater Treatment Plant	X
Pvsc Newark Secondary Wastewater Treatment Plant	Wastewater Treatment Plant	X
Propane Power Corp.	Energy	X
Elan Chemical Company	Chemical Storage	X
General Chemical Newark Plant Warf	Chemical Storage	X
Bridge Street	Highway Bridge	X
Clay Street	Highway Bridge	X
Riverside Villa	Newark Housing Authority	X
Amerada Hess - Doremus Terminal	Oil Facility	X
Sun Oil Pipe Line Company Newark Termina	Oil Facility	X
Port Newark Channel	Port	X
Port Newark Marine Facility 1	Port	X
Port Newark Marine Facility 2	Port	X
Port Newark Marine Facility 3	Port	X
Central Maintenance Facility	Bus	X
Essex County Correctional Facility	Correctional Institution	X

Source: Essex 2025; FEMA 2020

15.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. In the past 20 years, successful redevelopment projects in the Ironbound section of Newark have facilitated mixed use growth, inclusive of residential development. The City of Newark has required all new development projects to upgrade the sewer and stormwater basins affected be the project. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the City of Newark, including major residential/commercial/industrial development and major infrastructure development.

Table 15-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
Development in the City of Newark has been primarily focused on redevelopment in the last five (5) years and will continue to do so moving forward.					

15.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the City of Newark that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 15-1. City of Newark Community Lifelines

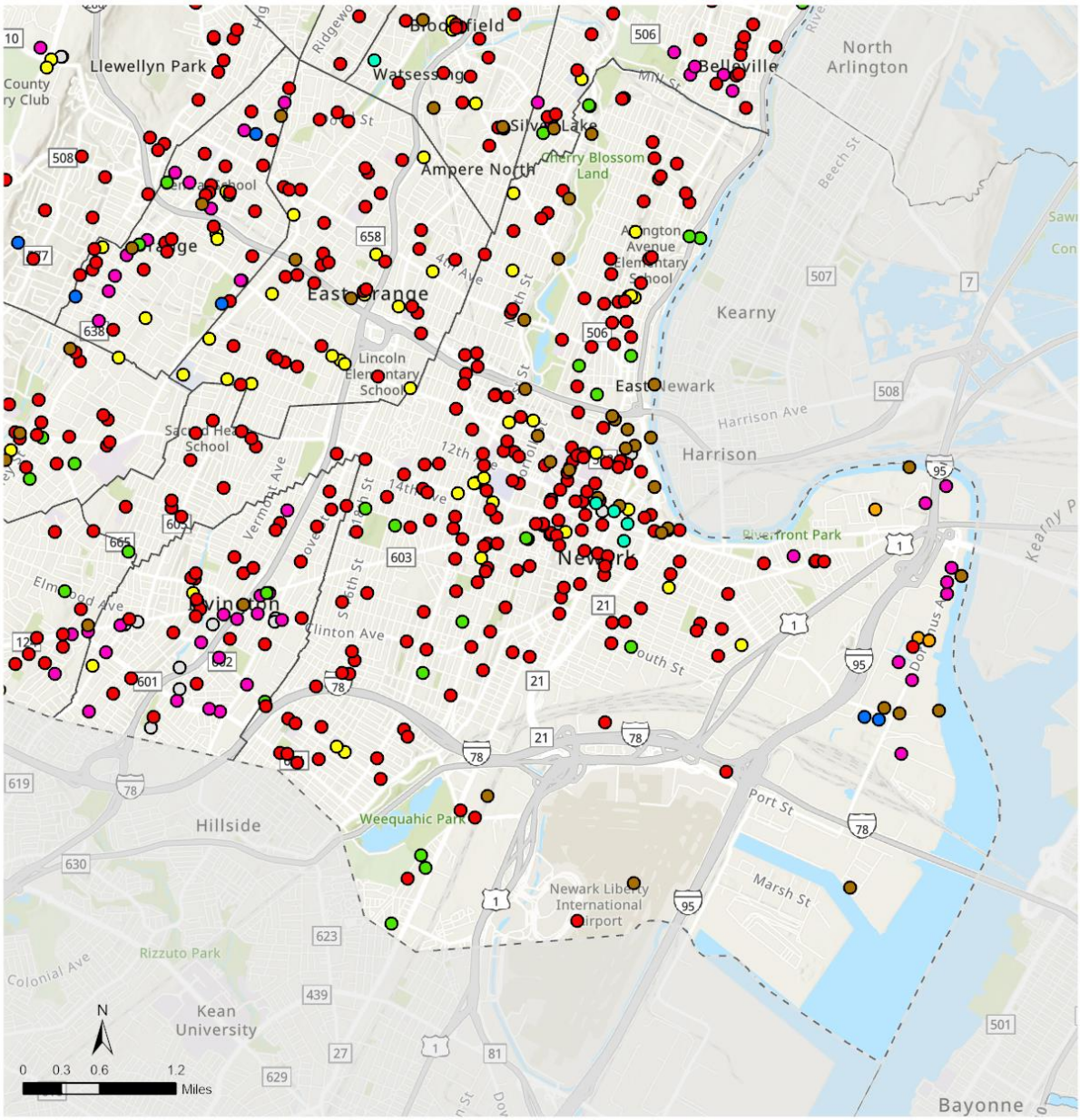
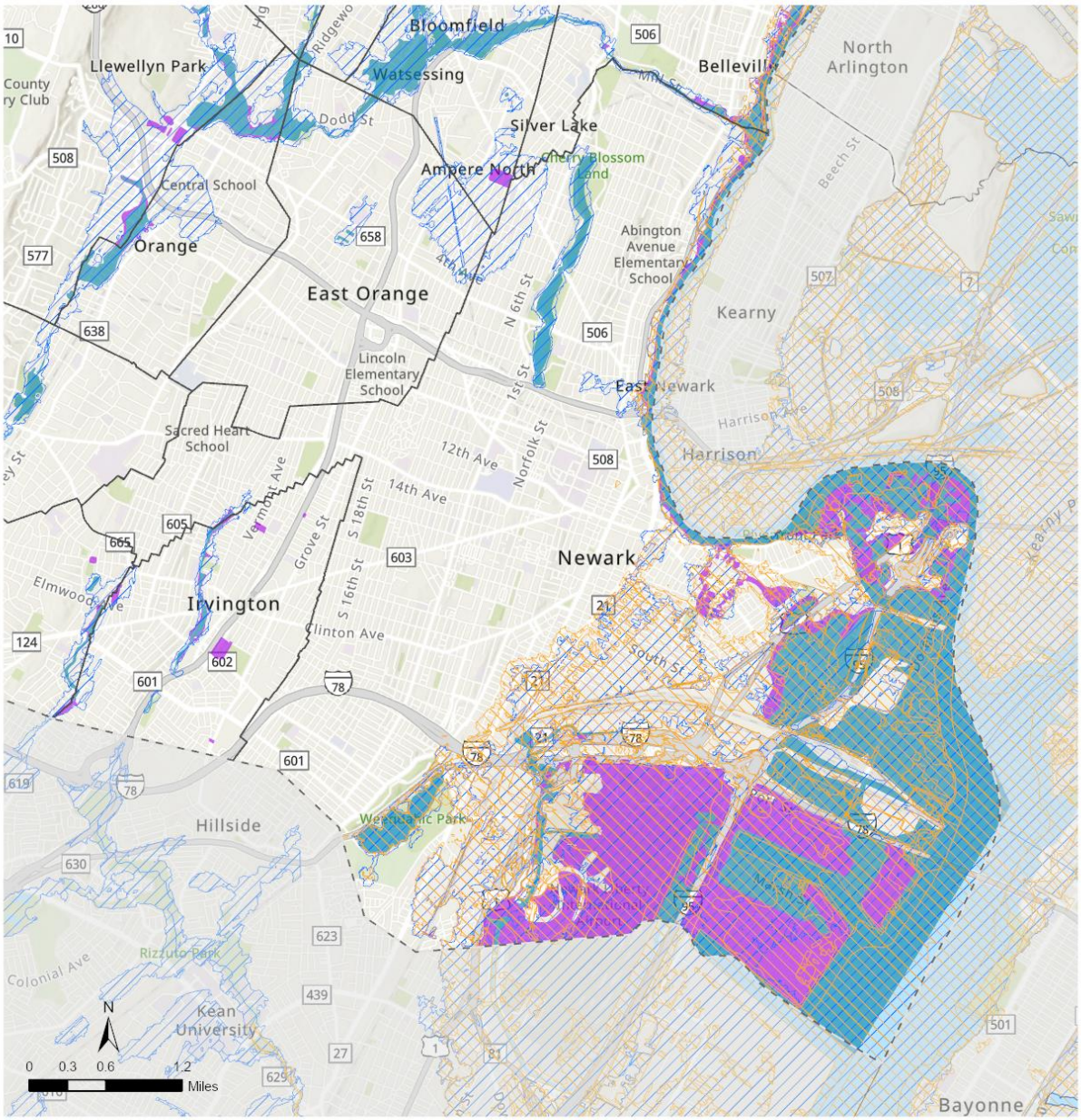


Figure 15-2. City of Newark Flood-Related Hazards

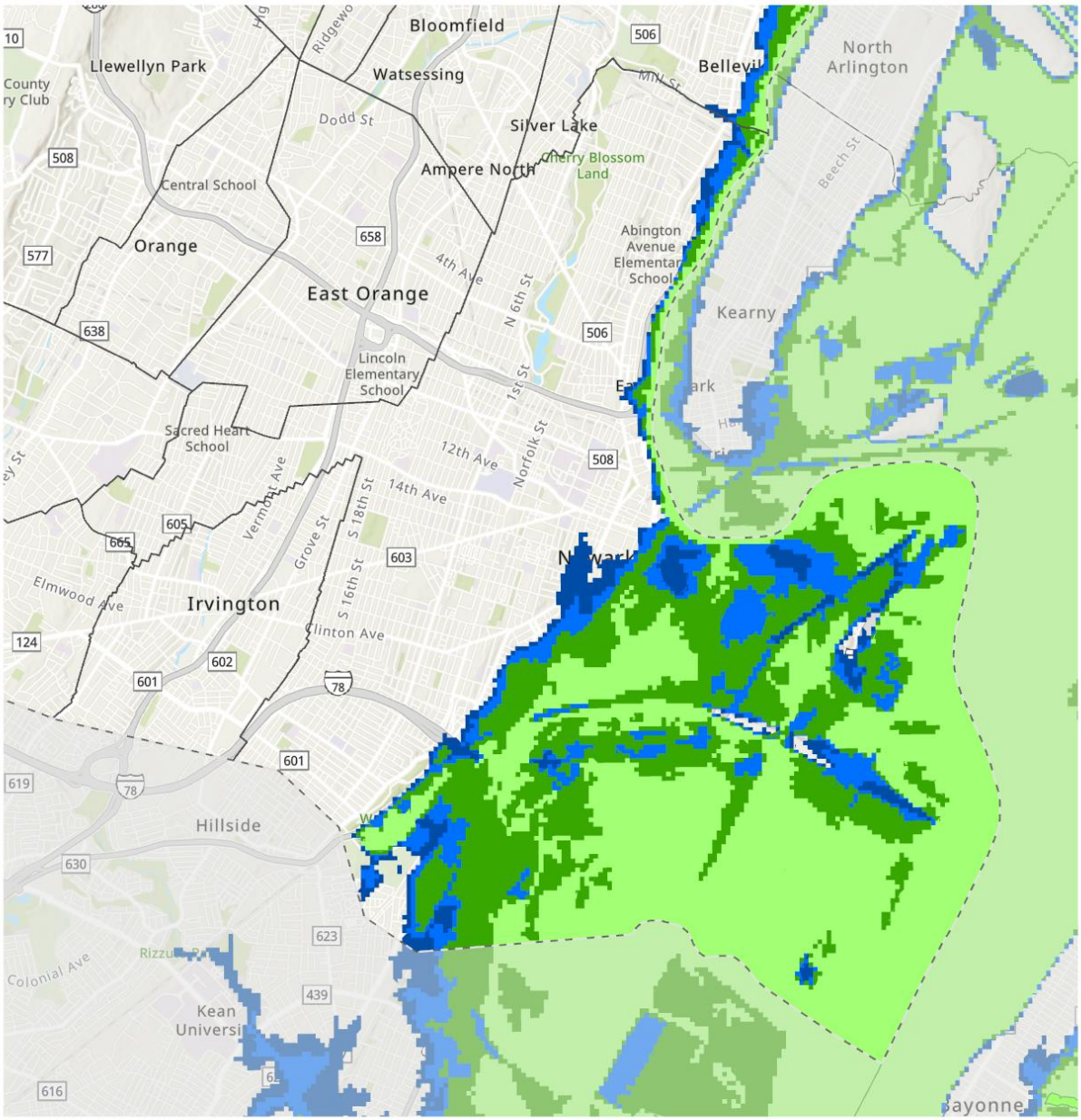


Newark City: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 15-3. City of Newark Storm Surge Hazard



Newark City: Storm Surge

N

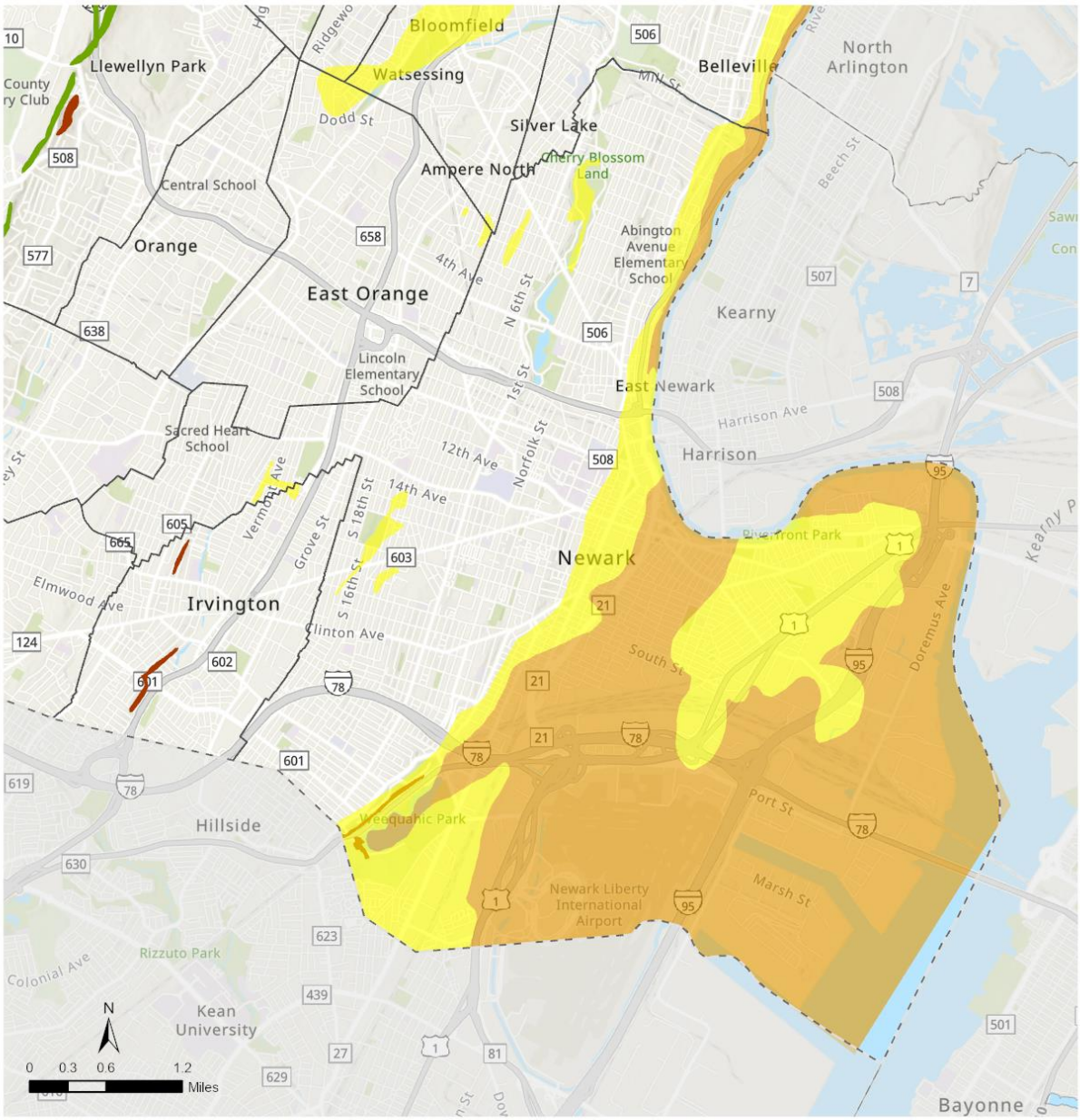
0 0.3 0.6 1.2 Miles

Category 1 Hurricane
Category 2 Hurricane
Category 3 Hurricane
Category 4 Hurricane

Essex County
Municipality

Sources: NJ Office of GIS, Rutgers University/NOAA
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 15-4. City of Newark Geological Hazards



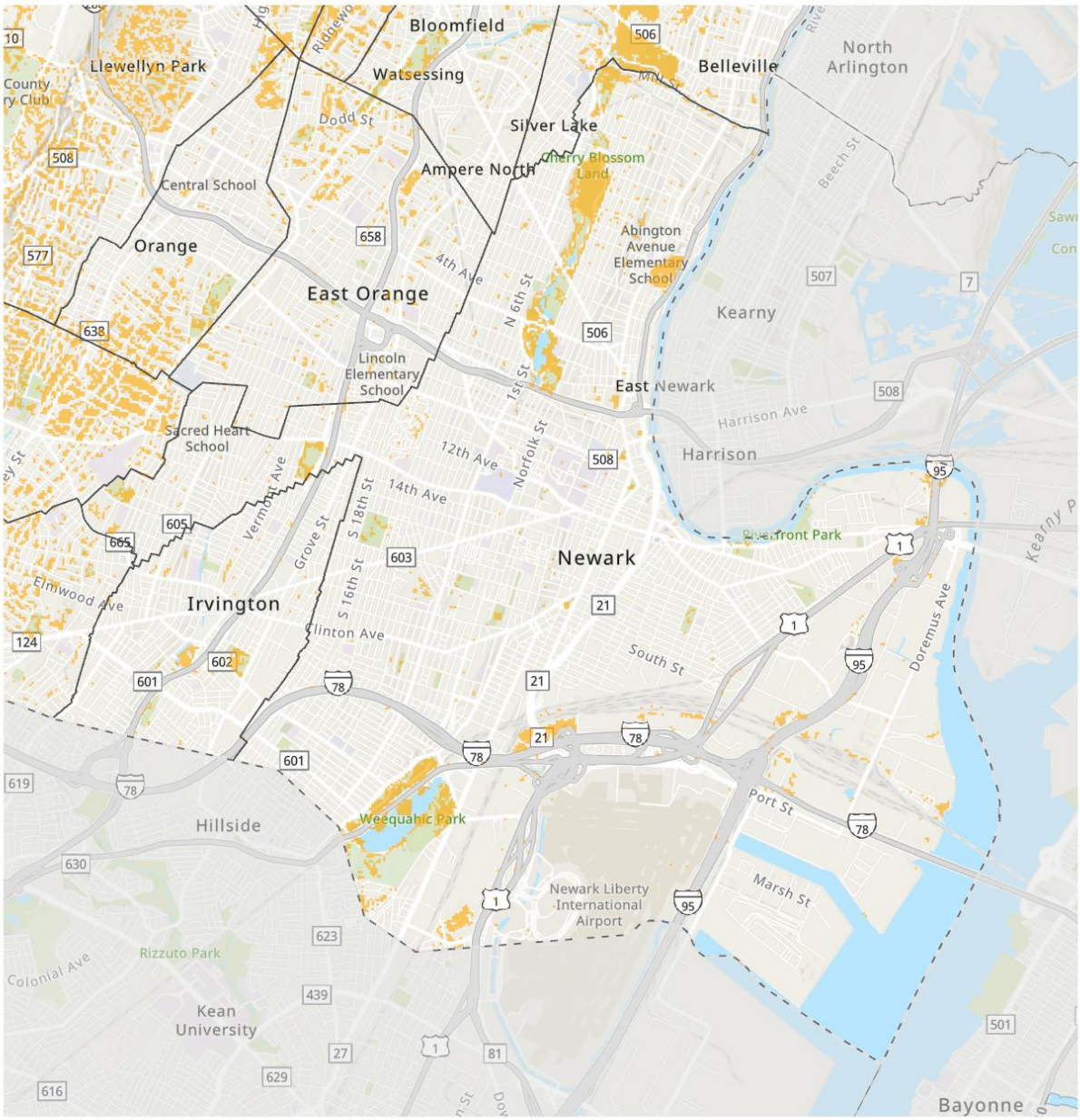
Newark City: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 15-5. City of Newark Wildfire Hazard



Newark City: Wildfire Hazard Potential

N

0 0.3 0.6 1.2 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

15.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the City of Newark, climate change is likely to have the following impacts:

- Climate change is likely to increase coastal flooding events due to sea level rise and increased severity of coastal storms.
- Climate change is likely to increase heavy rainfall events, leading to more urban flooding.

15.2.5 Risk Assessment Summary

- The City has 26 repetitive loss properties and 7 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The Department of Water & Sewer Utilities building lacks backup power. The facilities continual operation is critical for the City's water and wastewater system.
- The Essex Hudson Greenway is an approximately nine-mile, 100-foot-wide former rail line spanning Essex and Hudson Counties through eight municipalities – Montclair, Glen Ridge, Bloomfield, Belleville, Newark, Kearny, Secaucus, and Jersey City. This region has experienced various problems impacting the approximately 1.5 million people (16% of the state population) in the surrounding area:
    - Flooding issues
    - Lack of green space for outdoor recreation
    - Alternative transportation needs
    - Air quality issues
- While the Passaic River has always come through Newark, it is now going to come increasingly higher and heavier. The effects of climate change mean more extreme and unpredictable weather, as well as an inevitably rising tide in coastal and riparian areas such as Newark, the effects of which were seen by the damage done by Hurricane Sandy in 2012 and Tropical Storm Ida in 2021 (NJ Spotlight News 2024).
- The City of Newark's Department of Water & Sewer Utilities has rolled out an initiative called RainReady Newark designed to increase the city's resilience to stormwater. The program plans to use natural processes to capture, filter, and absorb rainwater. Other proposed stormwater infrastructure plans include a project along eastern Ferry Street in the Ironbound in the direction of Kearny and Jersey City. The plan includes an enhanced amount of trees, as well as stormwater planters and porous concrete panels designed to absorb stormwater and reduce runoff. Dozens of potential project sites have been earmarked for the Ironbound (NJ Spotlight News 2024).
- The City has 26 repetitive loss properties and 7 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- Flooding is a recurring issue along the Vailsburg Ditch which drains South Orange, Irvington, and finally Newark. Despite being the highest elevation in the City, this channelized ditch routinely floods areas mapped outside the floodplain. Basements in the area are regularly flooded. The concrete walls of the ditch are degraded and need fortifying, and need to take into account modern levels of run off and heavy rainfall events.

15.3 Jurisdictional Capability Assessment

The City of Newark performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Section 16.

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

15.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the City of Newark.

Table 15-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Newark360 Master Plan, 2018	Planning and Zoning
Impact on Risk Reduction: The Master Plan guides long term development in the City.			
Capital Improvement Plan	Yes	Capital Improvement Plan	Engineering
Impact on Risk Reduction: The Capital Improvements Plan is revised annually by Department directors.			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan	Newark Water and Sewer
Impact on Risk Reduction: This plan details the Cities approach to managing stormwater, ensuring compliance with regulations, and addressing water quality challenges.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan	Newark Water and Sewer
Impact on Risk Reduction: The SPPP outlines strategies for preventing stormwater pollution.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Master Plan	Urban Forestry Team
Impact on Risk Reduction: In 2024, the urban forestry team was revitalized with an increase in staff and an increase in responsibilities. Primarily, this involved the planting of trees and the creation of the Tree Manual which describes in detail the City's policies and procedures with regards to trees for residents and City employees alike. The Tree Manual sets the standards and practices that are to be followed by every City department as well as the residents, contractors, and builders. The City's urban forestry crew has been receiving more training and members have been encouraged to take more initiative when it comes to managing the City's urban forest. The crew has shown an interest in increasing their knowledge, skills, and responsibilities. Planting locations are being surveyed in their hundreds with the expectation that the City will be able to plant 1,000 trees per season for the next few years. Areas of low canopy cover are being prioritized and the City is partnering with community organizations to generate more planting opportunities. The City is planning an inventory of all street trees which will be added to the inventory being developed during inspections requested by residents. This inventory is being managed utilizing software specifically created for tree inventories. The City's tree crew along with the contractors are being managed utilizing this software as well. After the inventory is complete, the City will begin the process of writing a new community forestry management plan. This plan will be structured so that all goals are quantifiable and measurable.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	Redevelopment Plans	Planning and Zoning
Impact on Risk Reduction: Plans include Newark Riverfront, South Bergen Street, Old Third Ward, Living Downtown.			

The table below summarizes the emergency response and recovery plans that guide the City of Newark to prepare for, respond to, and recover from hazard events.

Table 15-6. Emergency Response and Recovery Planning Capabilities

Plan Name	*Capability in Place? (Yes/No)*	*Name and Date*	*Department/Agency Responsible*
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to natural and non-natural disaster events. The plan is updated every 2 years.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the City of Newark.

Table 15-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	*Capability in Place? (Yes/No)*	*Code Citation (code chapter, date)*	*Department/Agency Responsible*
Building Code	Yes	Title VII State Uniform Construction Code Enforcing Agency	Construction Official
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
There is hereby established in the City, a State Uniform Construction Code Enforcing Agency, consisting of a Construction Official, Building Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official, and such other subcode officials for such additional subcodes as the Commissioner of the New Jersey Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the Chief Administrator of the Enforcing Agency.			
Zoning or Land Use Regulations	Yes	Title XLI Zoning and Land Use Regulations	Central Planning Board
Impact on Risk Reduction: The purpose of this Title is to promote the health, safety and general welfare of the City of Newark and its people by advancing the purposes of the Municipal Land Use Law set forth at N.J.S.A. 40:55D-2 and by ensuring that all land development in the City meets the applicable requirements of Federal, State and local laws. In order to fulfill this purpose, it is the intent of this Title to provide regulations that are consistent with the City's Master Plan, that implement the Master Plan's Land Use Plan Element, and that advance the general concepts and recommendations of the Master Plan.			
Subdivision Regulations	Yes	Title XLI Zoning and Land Use Regulations Chapter 41:13	Central Planning Board
Impact on Risk Reduction: The purpose of this Chapter shall be to provide rules, regulations, and standards to guide land subdivision in the City in order to promote the public health, safety, convenience and general welfare of the City. It shall be administered to insure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for pedestrian, bicycle, and vehicular circulation, utilities, and services.			
Site Plan Regulations	Yes	Title XLI Zoning and Land Use Regulations Chapter 41:15	Central Planning Board
Impact on Risk Reduction: The purpose of this Chapter shall be to establish the mandatory requirements that shall be met prior to site plan approval and those standards to be utilized in the site plan review process. This Chapter shall be applicable to the development of all lands within the City of Newark, New Jersey, in order to promote the public health, safety, and general welfare of the City.			
Stormwater Regulations	Yes	Title XLI Zoning and Land Use Regulations Chapter 41:17	Planning and Zoning
Impact on Risk Reduction: It is the purpose of this Chapter to establish minimum stormwater management requirements and controls for "major development" and "minor development." This Chapter sets forth the minimum design and performance standards for groundwater recharge, stormwater runoff quantity, and stormwater runoff quality to be met through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and non-structural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. Green infrastructure practices not only address stormwater runoff but may also result in multiple benefits, including providing open space and beautifying neighborhoods, cooling and cleansing the air, reducing asthma and heat-related illnesses, and saving on heating and cooling energy costs. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or variety of potential pollutants. Multiple stormwater management best management practices (BMPs) may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Title XII Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
It is the purpose of this Title to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed: a. To protect human life and health; b. To minimize expenditure of public money for costly flood control projects; c. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; d. To minimize prolonged business interruptions; e. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard; f. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; g. To ensure that potential buyers are notified that property is in an area of special flood hazard; and h. To ensure that those who occupy the areas of special flood hazards assume responsibility for their actions. The Chapter does not follow the code coordinated ordinance from NJDEP and will need to be updated to meet NFIP requirements.			
Environmental Protection Regulations	Yes	Title XXVII Parks, Trees and Plants Chapter 27:1 Trees and Shrubbery; Title XXVIII Soil Erosion and Sediment Control	Planning and Zoning
Impact on Risk Reduction: Chapter 27:1 sets restrictions on the cutting and planting of trees and plants. Title XXVIII has provisions to control soil erosion and sedimentation and to prevent related environmental damage by requiring adequate provisions for surface water retention and drainage and by requiring protection for surface water retention and drainage and by requiring protection of exposed soil surfaces in order to promote the safety, public health, convenience and general welfare of the City.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Newark's Environmental Justice and Cumulative Impacts Ordinance is the first of its kind in the United States. This ground-breaking law requires companies and other applicants that want to work in Newark to prove they are not adding to Newark's existing pollution. As part of the Ordinance, applicants proposing new development or modification of an existing development who are also required to apply for an environmental permit from the New Jersey Department of Environmental Protection or whose application is considered a significant land-use change, are required to fill out an additional form that the Environmental Commission reviews. The Environmental Commission then provides written commentary to the Central Planning Board and Zoning Board of Adjustment.			

15.3.2 Administrative and Technical Capabilities

The table below summarizes the City of Newark's departments, boards, and committees that contribute to risk reduction.

Table 15-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	*Description and Role in Risk Reduction*
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Central Planning Board is entrusted with preparation of the City's Master Plan, review of applications for development for site plan and subdivision approval, and make recommendations to the Municipal Council on any proposed changes to the Zoning Ordinance. The Zoning Board of Adjustment is entrusted with principal duties to hear appeals to decisions of the Central Planning Board or Planning & Zoning Staff, to grant variances from the strict application of the zoning ordinance and to rule on 'use' applications.
Planning Department	The Office of Planning and Zoning in the Department of Economic and Housing Development is responsible for all planning and zoning board approvals.
Public Works / Highway Department	The Department of Public Works is responsible for City upkeep, parks & Grounds, street maintenance, and maintenance of the City's buildings and service centers. Newark Water and Sewer works to serve customers with outstanding service by providing reliable and cost-effective water services in accordance with best practices, while meeting and exceeding the New Jersey State Safe Drinking Water Act and federal regulations. Water & Sewer works to ensure the collection and delivery of sewage generated in the city to the designated treatment facilities to protect waterways from pollution.
Construction / Building / Code Enforcement Department	The Office of Uniform Construction Code (UCC) provides comprehensive administration and enforcement pertaining to construction codes, providing administration and enforcement of those rules throughout the City of Newark. This department is responsible for the issuance of building permits and inspection services for the construction, renovation, and rehabilitation of new and old buildings, both residential and commercial, in the city's neighborhoods. The Office of Code Enforcement ensures the health, safety, and resilience of the built environment for the City of Newark. This Division provides a variety of services related to statewide Fire Prevention and Building Code.
Engineering Department	The Department of Engineering prepares, maintains, operates, and repairs the City of Newark's infrastructures. This department is responsible for improvements and enhancements including: roadways, traffic and transportation, municipal parks, and the issuance of all construction permits. This department consists of the following divisions: • Building Division (UCC) • Code Enforcement • Traffic and Signals Traffic and Signals provides comprehensive planning, development, construction management, replacement, and operation of the city's transportation infrastructure to ensure the safety and ride-ability of city streets.

Department / Board / Committee	Description and Role in Risk Reduction
Parks and Recreation Department	The Department of Recreation, Cultural Affairs and Senior Services provides a holistic approach to providing services of high-quality programs offering a mix of academic support, community development, arts & craft, sports, and a host of other structured activities that will engage residents.
Open Space Board / Committee	Newark Open Space and Recreational Trust Fund Advisory Board
Environmental Board / Commission	The Newark Environmental Commission is charged to advise the Mayor and the Municipal Council on issues of the environment and sustainability. The Commission worked with environmental justice groups throughout New Jersey to gain passage of Newark's Environmental Justice and Cumulative Impacts Ordinance the first of its kind in the United States. This ground-breaking law requires companies and other applicants that want to work in Newark to prove they are not adding to Newark's existing pollution. As part of the Ordinance, applicants proposing new development or modification of an existing development who are also required to apply for an environmental permit from the New Jersey Department of Environmental Protection or whose application is considered a significant land-use change, are required to fill out an additional form that the Environmental Commission reviews. The Environmental Commission then provides written commentary to the Central Planning Board and Zoning Board of Adjustment. Additionally, the Environmental Commission has adopted an Environmental Resource Inventory which is a comprehensive analysis of Newark's existing environmental health. The Newark Green Team is an information and communications hub for sustainability efforts in the City of Newark.
Emergency Management / Public Safety Department	The Department of Public Safety is comprised of the Police Division, Fire Division, the Communications Division, and the Office of Emergency Management and Homeland Security. The Division of Emergency Management and Homeland Security (OEM) is responsible for coordinating training, preparedness and response to man-made and natural disasters. These events include blizzards, hurricanes, extreme heat, acts of terrorism and special events. The Division of OEM works with its public and private partners to accomplish this goal.
Fire Department	The Fire Division is also tasked with protecting the lives and property of the citizens of the City of Newark. They accomplish this by fighting fires and responding to sudden medical emergencies and exposure to dangerous conditions whether natural or man-made. Each year, the Fire Division responds to over 16,720 calls for service.
Additional departments, boards, and committees	Newark DIG's (Doing Infrastructure Green) primary goal is the establishment of sustainable green infrastructure as the first line of defense to better manage stormwater runoff, improve water quality and resiliency to flooding, and reduce combined sewer overflows (CSOs), with a focus on the Passaic River and its tributaries. DIG is committed to continuously improving the quality of life, health, and viability of the City of Newark and its residents through the use of strategic collaborative methods including: community-driven urban

Department / Board / Committee	Description and Role in Risk Reduction
	design, public policy planning, environmental and social justice advocacy, education, and local capacity building. The landmark & Historic Preservation Commission's activities include nomination of landmarks to the historic registers; intervention on behalf of threatened landmarks; implementation of educational initiatives; provision of technical assistance; and collaboration with other nonprofit agencies.

Source(s): (Newark DIG n.d.)

The table below summarizes the City of Newark's staff with skills and expertise that contribute to risk reduction.

Table 15-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Planning and Zoning
Engineer	Department of Engineering
Stormwater Officer	Water & Sewer Utilities
Resilience / Sustainability Officer	Office of Sustainability
Grant Writer	Economic and Housing Development, Administration
Staff with benefit / cost analysis expertise	Engineering, Economic and Housing Development, Administration
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	Engineering, Economic and Housing Development, Office of Management and Budget
Staff that provide support to socially vulnerable populations	The mission of the Department of Economic and Housing Development is to create economic opportunity for Newark residents and enhance the vibrancy of the city. The Department of Health and Community Wellness provides primary health care access, social & environmental services to all citizens, allowing them to attain an optimal level of health & well-being.
Additional staff with skills and expertise that contribute to risk reduction	None

The table below summarizes development and permitting capabilities of the City of Newark.

Table 15-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Planning and Zoning
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Flood
How does your jurisdiction inventory land available for new development?	Unknown
What percentage of your jurisdiction is available for new development?	Unknown

15.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the City of Newark.

Table 15-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Administration
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Administration
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Accessible
Capital improvements funding	Yes	Administration, City Surveyor's Office
Open space acquisition programs	Yes	Water & Sewer Utilities
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	No	-
Stormwater utility fees	Yes	The City of the Newark is the first municipality in the state to establish a stormwater utility fee. Stormwater fees are based on the amount of stormwater runoff a property contributes to the City's stormwater management system.
Authority to levy taxes for specific purposes	Yes	Yes - Administration, Office of Partnerships and Grants Management
Ability to incur debt through bonds	Yes	Though general obligation bonds (Administration and Department of Finance), through special tax bonds (Administration, Office of Special Taxes [example: Rental Car Tax), and through private activity bonds (Administration, Department of Finance)
Other financial resources available for hazard mitigation	No	-

15.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the City of Newark.

Table 15-12. Development and Permitting Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	The City can utilize the following to communicate warnings during hazard events: CodeRed, City website, Department of Public Safety Website, Facebook, Social Media, Reverse 911, Message Boards
Public Information Officer	The Department of Communications reports to the Mayor's office and oversees external and internal communications, public relations and events, brand identity, and communications/marketing strategy for the City of Newark. The Department also manages the branding and direction of city of Newark website and NewarkTV government access channel.

Outreach Capability	Description and Role in Risk Reduction
Website	The Department of Public Safety page hosts information on all hazards impacting the City.
Social media	Facebook, Instagram
Public safety campaigns	In an effort to get more Newark Residents to engaged in environmental sustainability, the Office of Sustainability organized an Earth Day Call to Action. More than 50 City employees, including Mayor Ras Baraka, planted nearly 30 trees in a neighborhood particularly affected by the high heat index. The effort brought City employees together with residents to beautify the area, improve the air quality and build community
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	Department of Economic and Housing Development Department of Health and Community Wellness With an incredibly diverse population, including those of various backgrounds, languages, consistent outreach and education among all groups is a challenge. While the City's hazard outreach and education programs have continued to improve, additional improvements are needed to expand the reach underserved communities and socially vulnerable populations.
Other outreach capabilities	Greenfair, Farmers Markets

15.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the City of Newark.

Table 15-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit review, inspections
What local department is responsible for floodplain management?	Engineering
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	Unknown
Summarize the jurisdiction's Substantial Damage determination procedures.	Follow NFIP requirements
Summarize the jurisdiction's Substantial Improvement procedures.	Follow NFIP requirements

Floodplain Administration	Comments
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	Unknown
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Yes, state freeboard requirements exceed NFIP requirements.

15.3.6 Community Classifications

Table 15-14 summarizes the City of Newark's participation in community classification programs.

Table 15-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	
Sustainable Jersey Municipal Certification	Bronze	November 4, 2024
Other Programs	Fire ISO Protection Class 4	2011
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

15.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the City of Newark has in place and will use to prepare for changes in risk due to climate change.

Table 15-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	The City is likely to experience more extreme temperature events. Heavy rainfall events are likely to increase flood risk.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	No

Adaptive Capacities	Comments
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not underway
How does the jurisdiction educate the public on potential climate change impacts?	Not underway

15.3.8 Capability Assessment Summary

The City of Newark's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The City of Newark determined the following hazard capability effectiveness ratings.

Table 15-16. City of Newark Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

15.3.9 Opportunities to Improve Capabilities and Integration

- With an incredibly diverse population, including those of various backgrounds, languages, consistent outreach and education among all groups is a challenge. While the City's hazard outreach and education programs have continued to improve, additional improvements are needed to expand the reach underserved communities and socially vulnerable populations.
- The City lacks a Substantial Damage Response Plan.
- The City will be required to develop a Watershed Improvement Plan by December 2027.

15.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the City of Newark were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the City's reduction of risk through current capabilities.

The City of Newark reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the City discussed the following local factors that led to modifying the hazard rankings:

- The City changed the hazard ranking for drought from medium to low, noting that the City has its own extensive weather supply and operates two separate water sources to provide water to residents and businesses.
- The City agreed with the remainder of the calculated hazard rankings.

The City of Newark agreed upon the following hazard rankings.

Table 15-17. City of Newark Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temperature	High
Flood	Medium
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

15.5 Jurisdictional Mitigation Strategy

15.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 15-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Newark-001	**420 Sandford Avenue Firehouse:** The city will perform a feasibility assessment to determine the best course of action to correct the settling issue and fix foundation issues. The city will then implement the most effective identified strategy.	Engineering Department	No Progress	No, no longer a priority.	-
2020-Newark-002	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Brook, Drakes Lane, Lennox Avenue, and Lincoln Place areas that experience frequent flooding (high-risk areas).	NFIP Floodplain Administrator, supported by homeowners	In Progress: NJOEM has conducted outreach to all repetitive loss property owners in the state and is coordinating interest in potential mitigation.	Yes	-
2020-Newark-003	**Hire additional IT support/staff for OEM:** OEM will hire additional support staff to specialize in IT to aid outreach and emergency messaging.	OEM	No Progress	No, no longer a priority.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Newark-004	**McClellen St. stormwater pumping station:** City will complete the project, which includes widening the roadway, installing a new drainage system, and adding a pump.	Newark Engineering, NJ DOT	No Progress	No, no longer a priority.	-
2020-Newark-005	**Meadowland stormwater pumping station and emergency power supply:** Installation of emergency backup electric generators so the pump station can remain operational during power outages to prevent flooding at Newark Airport and the low-lying areas of the East and South Wards during hurricanes and/or heavy rain events.	Newark Water and Sewer Utilities	No Progress	No, no longer a priority.	-
2020-Newark-006	**Peddie St. outfall improvements:** Replacement of undersized, failing netting facility and removal of sediment from the Peddie Ditch that causes impediments restricting the flow of water in the existing pipe.	Newark Water and Sewer Utilities	No Progress	No, no longer a priority.	-
2020-Newark-007	**Frelinghuysen/Empire/Meeker St. stormwater improvements:** This project would remove the blockage and restore the capacity of the Queen Ditch so the existing Queen Street Outfall and the connected upstream sewers can drain and provide stormwater conveyance as designed.	Newark Water and Sewer Utilities	No Progress	No, no longer a priority.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Newark-008	**Newark Adams, South, and Wheeler Avenue Drainage Improvements Project:** The city will continue to make drainage improvements on the identified roadways.	Newark Office of Emergency Management	No Progress	No, no longer a priority.	-
2020-Newark-009	**Newark Meadowlands Storm Water Pump Station Project:** Installation of Stormwater Pump Station.	Newark Office of Emergency Management, Port Authority	No Progress	No, no longer a priority.	-
2020-Newark-010	**Encourage compliance with FEMA's Preliminary Work Maps:** The city will work to ensure all construction meets the elevation requirements of Preliminary Work Map standards.	Newark Engineering	In Progress, the update of the Flood Damage Prevention Ordinance will address	Yes	Include of update of Flood Damage Prevention Ordinance.
2020-Newark-011	**Newark Flanking Plan:** The city will support the USACE Newark Flanking Plan.	USACE, City Administration	No Progress	No, no longer a priority.	-
2020-Newark-012	**Train FPA to become CFM:** The city will support the training of the FPA to become a CFM.	City FPA	No Progress	No, no longer a priority.	-
2020-Newark-013	**Include increased stormwater standards in municipal codes:** The city will explore updating construction requirements to include more stringent stormwater standards.	Administration	Complete. NJDEP has updated the model stormwater ordinance that must be followed in the State of New Jersey.	No, complete.	-
2020-Newark-014	**Determine ability of water system to handle harmful algal blooms:** The city will work to determine the system's ability to handle harmful algal blooms	Public Works	No Progress	No, HABs are not being considered in this planning effort	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	and identify any necessary actions that should be taken.				
2020-Newark-015	**Update the Stormwater Ordinance:** The city will update the ordinance.	Administration	Complete. NJDEP has updated the model stormwater ordinance that must be followed in the State of New Jersey.	No, complete.	-
2020-Newark-016	**Update the Flood Damage Prevention Ordinance:** The city will update the ordinance.	Administration	No progress	Yes	-
2020-Newark-017	**Conduct outreach to hazard-prone critical facility operators:** The city will conduct outreach to operators of critical facilities to educate them on their hazard exposure and possible mitigation actions.	OEM	Ongoing capability	No, ongoing capability	-

15.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Newark identified the following mitigation efforts completed since the last HMP:

- None identified

15.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the City of Newark identified the following issues that require mitigation.

- The Department of Water & Sewer Utilities building lacks backup power. The facilities continual operation is critical for the City's water and wastewater system.
- With an incredibly diverse population, including those of various backgrounds, languages, consistent outreach and education among all groups is a challenge. While the City's hazard outreach and education programs have continued to improve, additional improvements are needed to expand the reach underserved communities and socially vulnerable populations.
- The Essex Hudson Greenway is an approximately nine-mile, 100-foot-wide former rail line spanning Essex and Hudson Counties through eight municipalities – Montclair, Glen Ridge, Bloomfield, Belleville, Newark, Kearny, Secaucus, and Jersey City. This region has experienced various problems impacting the approximately 1.5 million people (16% of the state population) in the surrounding area:
    - Flooding issues
    - Lack of green space for outdoor recreation
    - Alternative transportation needs
    - Air quality issues
- While the Passaic River has always come through Newark, it is now going to come increasingly higher and heavier. The effects of climate change mean more extreme and unpredictable weather, as well as an inevitably rising tide in coastal and riparian areas such as Newark, the effects of which were seen by the damage done by Hurricane Sandy in 2012 and Tropical Storm Ida in 2021 (NJ Spotlight News 2024).
- The City of Newark's Department of Water & Sewer Utilities has rolled out an initiative called RainReady Newark designed to increase the city's resilience to stormwater. The program plans to use natural processes to capture, filter, and absorb rainwater. Other proposed stormwater infrastructure plans include a project along eastern Ferry Street in the Ironbound in the direction of Kearny and Jersey City. The plan includes an enhanced amount of trees, as well as stormwater planters and porous concrete panels designed to absorb stormwater and reduce runoff. Dozens of potential project sites have been earmarked for the Ironbound (NJ Spotlight News 2024).
- The City has 26 repetitive loss properties and 7 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- Flooding is a recurring issue along the Vailsburg Ditch which drains South Orange, Irvington, and finally Newark. Despite being the highest elevation in the City, this channelized ditch routinely floods

areas mapped outside the floodplain. Basements in the area are regularly flooded. The concrete walls of the ditch are degraded and need fortifying, and need to take into account modern levels of run off and heavy rainfall events.

- The City's flood damage prevention ordinance requires update to the Code Coordinated Ordinance.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

15.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The City of Newark's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 15-19. City of Newark 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Newark-01	Department of Water & Sewer Utilities Backup Power			X	X	X	X	X	X	X
2025-Newark-02	Outreach and Education Improvements	X	X	X	X	X	X	X	X	x
2025-Newark-03	Essex Hudson Greenway				X	X				
2025-Newark-04	East Ward Floodwalls					X				
2025-Newark-05	RainReady Newark					X		X		
2025-Newark-06	Repetitive Loss Mitigation					X		X		
2025-Newark-07	Vailsburg Ditch Improvements					X		X		

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Newark-08	Code Coordinated Ordinance					X				
2025-Newark-09	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-Newark-10	Watershed Improvement Plan	X	X		X	X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 15-20. City of Newark 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Newark-01	Department of Water & Sewer Utilities Backup Power	1	0	1	1	1	0	0	1	1	1	1	0	1	1	10	Medium
2025-Newark-02	Outreach and Education Improvements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2025-Newark-03	Essex Hudson Greenway	1	1	1	1	1	1	1	1	1	1	0	1	0	1	12	High
2025-Newark-04	East Ward Floodwalls	1	1	1	1	1	1	0	1	1	1	1	0	0	1	11	High
2025-Newark-05	RainReady Newark	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Newark-06	Repetitive Loss Mitigation	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-Newark-07	Vailsburg Ditch Improvements	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-Newark-08	Code Coordinated Ordinance	1	1	1	1	1	1	1	1	1	0	1	1	1	1	13	High
2025-Newark-09	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Newark-10	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Newark-01: Department of Water & Sewer Utilities Backup Power

Lead Agency:	OEM	
Supporting Agencies:	Engineer, Public Works, Department of Water & Sewer Utilities	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	The Department of Water & Sewer Utilities building lacks backup power. The facilities continual operation is critical for the City's water and wastewater system.	
Description of the Solution:	The Engineer will determine the appropriate sized generator needed to power the Department of Water & Sewer Utilities building. Public Works will oversee installation of a fixed mounted diesel powered generator and necessary electrical components to supply backup power to the building. Public Works will be responsible for maintenance and testing of the generator following installation.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 6	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for utility workers to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Newark-02: Outreach and Education Improvements

Lead Agency:	Public Safety	
Supporting Agencies:	Health & Community Wellness, Stakeholder groups	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	With an incredibly diverse population, including those of various backgrounds, languages, consistent outreach and education among all groups is a challenge. While the City's hazard outreach and education programs have continued to improve, additional improvements are needed to expand the reach underserved communities and socially vulnerable populations.	
Description of the Solution:	The City's Public Safety Department and Health & Community Wellness Department will work with stakeholder groups to identify communities in need of outreach improvements, develop and deploy new natural hazard outreach techniques including leveraging stakeholder groups wherever possible.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	2 years	
Goals Met:	3, 7	
Benefits:	Increased education and outreach	
Impact on Socially Vulnerable Populations:	This action specifically targets socially vulnerable populations and underserved communities which have increased outreach and education challenges.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the Township's education capabilities.	
Climate Change Considerations:	This action will include climate change related outreach.	
Mitigation Category:	Public Education and Awareness	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Encourage stakeholder groups to independently develop outreach	Hazard outreach may not meet City's expectations
	Refer residents to FEMA outreach	Outreach will not be targeted specifically to reach socially vulnerable populations

2025-Newark-03: Essex Hudson Greenway

Lead Agency:	NJ DEP
Supporting Agencies:	NJ TRANSIT, NJ Department of Transportation
Hazard(s) of Concern:	Extreme Temperature, Flood
Description of the Problem:	The Essex Hudson Greenway is an approximately nine-mile, 100-foot-wide former rail line spanning Essex and Hudson Counties through eight municipalities – Montclair, Glen Ridge, Bloomfield, Belleville, Newark, Kearny, Secaucus, and Jersey City. This region has experienced various problems impacting the approximately 1.5 million people (16% of the state population) in the surrounding area: • Flooding issues • Lack of green space for outdoor recreation • Alternative transportation needs • Air quality issues NJDEP has established the Greenway as the state's newest state park.
Description of the Solution:	NJ DEP will use $20 million in federal American Rescue Plan funds to transform the former rail line into a linear recreation and transit corridor. The multimillion-dollar project will include tree planting and the construction of green infrastructure, mitigating local flooding issues and improving air quality within several overburdened communities. The Greenway will properly manage the water that falls onto its property through effective stormwater management to help prevent flooding and erosion. This will include green infrastructure techniques. Some portions of the Greenway are affected by pollution or contamination due to former industrial uses. The project will involve the remediation of soils, water, or other impacted elements to create a healthy and safe environment for plants, animals, and people.
Estimated Cost:	$20 million
Potential Funding Sources:	Federal American Rescue Plan funds
Implementation Timeline:	Groundbreaking is expected in 2025 with the first phase in Newark and Kearny completed within a year
Goals Met:	1, 7
Benefits:	The Greenway will transform a nine-mile stretch of former rail line in Essex and Hudson counties into a linear recreational and transit corridor. The Greenway will use green infrastructure to mitigate local flooding and improve air quality. By addressing localized stormwater, the Greenway will create a sustainable environment, support biodiversity, and enhance water quality.
Impact on Socially Vulnerable Populations:	The Greenway passes through overburdened communities (as defined by the New Jersey Environmental Justice Law, N.J.S.A. 13:1D-157) that suffer disproportionately from lack of access to open space, health concerns, and social determinants of health.
Impact on Future Development:	The Greenway is an opportunity to create a linear recreational and transit park enabling seamless walking, biking, and transit opportunities between Montclair and Jersey City, while serving as a catalyst for environmental improvements and economic development in the adjacent communities.
Impact on Critical Facilities/Lifelines:	The Greenway passes near the Newark light rail and NJ Transit's Frank R. Lautenberg Secaucus Junction train station, which provide direct access to New York's Penn Station. The Greenway's walking and biking paths will connect to these transportation lifelines.
Impact on Capabilities:	N/A

Climate Change Considerations:	Climate change is likely to increase extreme heat events. This action will increase green space that will cut back on urban heat island effects. Climate change is also likely to increase heavy rainfall events. This action will result in increased capture of stormwater	
Mitigation Category:	Structural Projects, Natural Resource Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Direct stormwater to local waterways	Decrease in water quality
	Direct stormwater to stormwater system	Overloading in capacity of stormwater system is likely

2025-Newark-04: East Ward Floodwalls

Lead Agency:	USACE
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood
Description of the Problem:	While the Passaic River has always come through Newark, it is now going to come increasingly higher and heavier. The effects of climate change mean more extreme and unpredictable weather, as well as an inevitably rising tide in coastal and riparian areas such as Newark, the effects of which were seen by the damage done by Hurricane Sandy in 2012 and Tropical Storm Ida in 2021 (NJ Spotlight News 2024).
Description of the Solution:	The U.S. Army Corps of Engineers, New York District, completed a study in partnership with the New Jersey Department of Environmental Protection (NJDEP), recommending a coastal storm risk management project in and surrounding tidal portions of Newark, NJ, due to the Passaic River, New Jersey. A Feasibility Cost Sharing Agreement (FCSA) for the study was executed between the USACE and NJDEP on October 28, 2014. The Recommended Plan is the Locally Preferred Plan and was approved by the Assistant Secretary of the Army for Civil Works (ASA(CW) in a memorandum dated 24 April 2019. The Recommended Plan includes six separate floodwall segments and one levee segment with an approximate total length of 4,850 linear feet at 14 feet North American Vertical Datum of 1988 (NAVD88). It includes seven road closure structures, one railroad closure structure, and an interior drainage system along low-lying areas. This plan reduces the risk of coastal storm damage for a large portion of Newark's Ironbound residential and commercial area.
Estimated Cost:	High
Potential Funding Sources:	USACE, NJ DEP
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	The project features would reduce damages from coastal storm surge from hurricanes and nor'easters.
Impact on Socially Vulnerable Populations:	The East Ward is home to numerous socially vulnerable populations. This action will protect these populations
Impact on Future Development:	This action will protect future development in the East Ward.
Impact on Critical Facilities/Lifelines:	This action will protect critical facilities in the East Ward.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is also likely to increase heavy rainfall events and storm surge events. This action will result in increased flood protection.
Mitigation Category:	Structural Projects
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Restore wetlands / Unable to hold back larger surge events Retreat / Not feasible

2025-Newark-05: RainReady Newark

Lead Agency:	Department of Water & Sewer Utilities
Supporting Agencies:	-
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Stormwater flooding is a repetitive issue in the City. The City's stormwater system is often overwhelmed by heavy rainfall events.
Description of the Solution:	The City of Newark's Department of Water & Sewer Utilities has rolled out an initiative called RainReady Newark designed to increase the city's resilience to stormwater. The program plans to use natural processes to capture, filter, and absorb rainwater. For example, a rain garden has been built at the intersection of Dr. Martin Luther King Jr. Blvd. and Central Avenue near the New Jersey Institute of Technology and Rutgers-Newark that includes highly absorbent plants and grass that will soak up excess rainwater and prevent or slow it down from flowing into the rest of downtown Newark. Other proposed stormwater infrastructure plans include a project along eastern Ferry Street in the Ironbound in the direction of Kearny and Jersey City. The plan includes an enhanced amount of trees, as well as stormwater planters and porous concrete panels designed to absorb stormwater and reduce runoff. Dozens of potential project sites have been earmarked for the Ironbound (NJ Spotlight News 2024).
Estimated Cost:	Medium
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	The project features will reduce and slow stormwater.
Impact on Socially Vulnerable Populations:	This action will support various locations home to socially vulnerable populations in the City of Newark.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is also likely to increase heavy rainfall events. This action will result in increased ability to handle heavy rainfall events.
Mitigation Category:	Natural Resource Protection, Structural Projects
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Add additional stormwater pumps / Costly and lack of space Upsize all stormwater components / Costly

.

2025-Newark-06: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 26 repetitive loss properties and 7 severe repetitive loss properties, but other properties may be impacted by flooding as well.	
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the City will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners	
Implementation Timeline:	3 years	
Goals Met:	2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.	
Mitigation Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Newark-07: Vailsburg Ditch Improvements

Lead Agency:	Engineer	
Supporting Agencies:	Public Works	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Flooding is a recurring issue along the Vailsburg Ditch which drains South Orange, Irvington, and finally Newark. Despite being the highest elevation in the City, this channelized ditch routinely floods areas mapped outside the floodplain. Basements in the area are regularly flooded. The concrete walls of the ditch are degraded and need fortifying, and need to take into account modern levels of run off and heavy rainfall events.	
Description of the Solution:	The walls of the ditch will be fortified, restored, and improved to increase level of protection. The ditch will be dredged to remove excess sediment to increase carrying capacity.	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2	
Benefits:	Reduction in flooding along the Vailsburg Ditch.	
Impact on Socially Vulnerable Populations:	Many socially vulnerable populations have been impacted by flooding from the Vailsburg Ditch in the past. This action will protect all populations with exposure to flooding from the Ditch.	
Impact on Future Development:	Future development/redevelopment will be protected from these improvements.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change has led to an increase in the frequency and severity of heavy rainfall events that have overwhelmed the ditch. This action will result in improvements to the ditch to meet modern and future runoff needs.	
Mitigation Category:	Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Move the Vailsburg Ditch underground to prevent flooding	Underground channels are not a feasible option.
	Buyout property owners in areas where flooding has occurred.	Property owners are currently unwilling to be bought out.

2025-Newark-08: Code Coordinated Ordinance

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Code Enforcement, Administration, NFIP State Coordinator, FEMA Regional Office
Hazard(s) of Concern:	Flood
Description of the Problem:	A recent audit of New Jersey's model ordinances by FEMA for conformance with NFIP, resulted in a review of existing local flood damage prevention ordinances. Based upon FEMA's review, specific language related to NFIP regulations was not consistent. Additionally, it was determined that better coordination was needed between the three sets of regulations that regulate development and construction in the floodplain. These regulations are: the NFIP implemented by local floodplain administrators, 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 local Construction Official. NJDEP used this feedback to develop a model Code Coordinated Ordinance and continues to work with municipalities to update flood damage prevention ordinances to the Code Coordinated Ordinance. The City's flood damage prevention ordinance requires update.
Description of the Solution:	After obtaining the appropriate review and concurrence by the NFIP State Coordinator and the FEMA Regional Office, the municipality will update and adopt the Code Coordinated Ordinance.
Estimated Cost:	Staff time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	The updated ordinance will improve floodplain management, meet NFIP requirements, and increase resilience of new and substantially improved structures in the floodplain.
Impact on Socially Vulnerable Populations:	The action will result in better regulation of construction standards within the Special Flood Hazard Area where significant risk to socially vulnerable populations exists.
Impact on Future Development:	The action will result in stronger regulation of construction standards for future development in the Special Flood Hazard Area.
Impact on Critical Facilities/Lifelines:	Critical facilities and lifelines located in the Special Flood Hazard Area will be required to meet the same requirements as general building construction that are set forth in the ordinance.
Impact on Capabilities:	This action will improve floodplain management capabilities through better outlining of responsibilities and administrative procedures.
Climate Change Considerations:	The updated ordinance includes the State's higher standards that are in place to address heightened flood risk due to climate change such as those for floodway rise and mandatory freeboard have been incorporated in these new model ordinances.
Mitigation Category:	Prevention
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Modify existing flood damage prevention ordinance / Time intensive Leave NFIP / Residents lose flood insurance coverage

2025-Newark-09: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Newark-10: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures , Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

15.6 Jurisdictional Hazard Mitigation Team

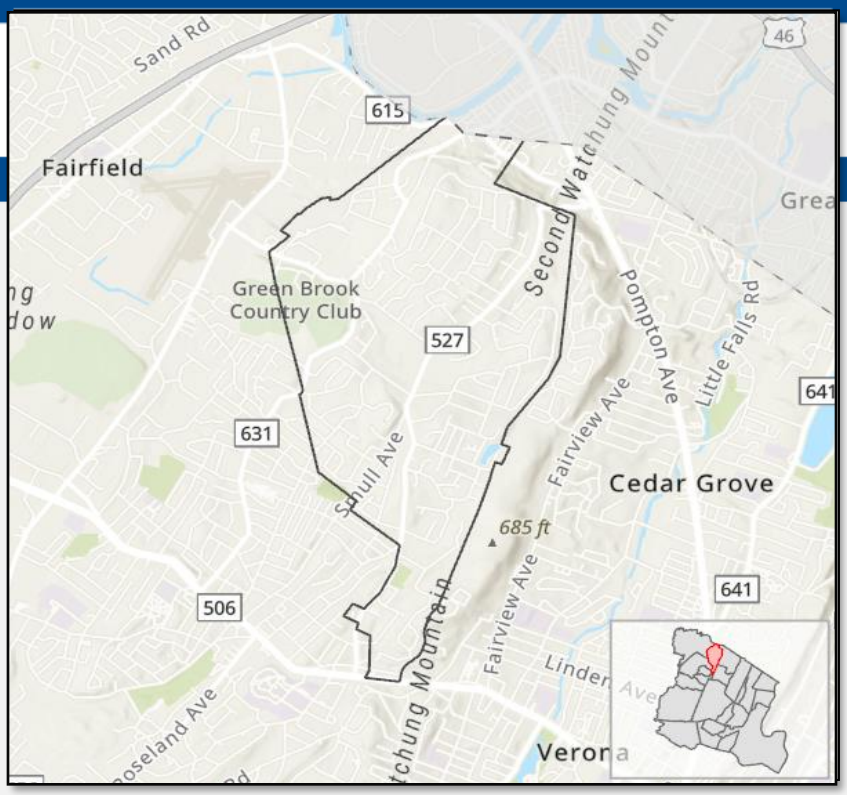
Table 15-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	John S. James, OEM Coordinator	Name and Title:	Juba Dowdell, OEM Deputy Coordinator
Address:	480 Clinton Avenue Newark, NJ 07108	Address:	480 Clinton Avenue Newark, NJ 07108
Phone Number:	973-991-8876	Phone Number:	973-902-1383
Email:	jamesjoh@ci.newark.nj.us	Email:	dowdellj@@ci.newark.nj.us
NFIP Floodplain Administrator			
Name and Title:	Delores Wooden, Director of Engineering		
Address:	480 Clinton Avenue Newark, NJ 07108		
Phone Number:	973-733-8520		
Email:	woodend@ci.newark.nj.us		

Table 15-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Juba Dowdell, OEM Deputy Coordinator	Attended annex support meeting, contributed to mitigation strategy
John S. James, OEM Coordinator	Provided information on previous events.

Borough of North Caldwell



POPULATION STATISTICS

6,622
TOTAL POPULATION (2023 ACS)

0.07%
Change in population since 2010 Census

2,220
TOTAL HOUSEHOLDS

AT RISK POPULATION

1,439
Population Over 65

469
Population Under 5

571
Living With Disability

12
Households Without Vehicle

57
People Renting Homes

POVERTY AND LANGUAGE

121
Households Below Poverty Level

379
Population With English as 2nd Language

POPULATION AND BUSINESSES

5,184
Daytime Population

97
Total Businesses

3,247
Total Employees

FLOOD VULNERABILITY

10
Number of People in 1% SFHA

6
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

16 Borough of North Caldwell

16.1 Jurisdictional Profile

The Borough of North Caldwell is bordered to the northwest by the Township of Fairfield, the west by the Township of West Caldwell, the southwest by the Borough of Caldwell, southeast by Township of Verona, east by the Township of Cedar Grove, and the north by the Township of Little Falls in Passaic County.

The land of North Caldwell was originally part of a tract of land known as Horseneck in 1701. The Borough of North Caldwell was incorporated in 1898. Well known for its beautiful homes, wooded roads, and healthy climate, the area is known as the "Denver of the East" (Borough of North Caldwell New Jersey 2014).

North Caldwell operates using the Mayor and Council government set-up (Borough of North Caldwell New Jersey 2014). According to the U.S. Census Bureau, the Borough has a total land area of 3.016 square miles, of which 3.011 square miles is land and 0.005 square miles is water.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

16.2 Jurisdictional Risk Assessment

The following sections assess the Borough of North Caldwell's risk to the hazards of concern identified for the 2025 HMP update.

16.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Borough of North Caldwell's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Borough experienced during hazard events since the last hazard mitigation plan update.

Table 16-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The Borough was subject to closures and masking/social distancing requirements.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Although the County was impacted, the municipality did not report significant local impacts

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Although the County was impacted, the municipality did not report significant local impacts

16.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

In addition to the floodplain, some streets have flooded during major storm events. However, FEMA flood maps generally are adequate for addressing the Borough's flood risk.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Borough of North Caldwell.

Table 16-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
31	$19,387	$9,827,000	32	$347,600	5	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.
Repetitive Loss and Severe Repetitive Loss data current as of 1/9/2025.

The Borough does not have a history of substantially damaged properties.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 16-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex 2025; FEMA 2020

16.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Borough of North Caldwell, including major residential/commercial/industrial development and major infrastructure development.

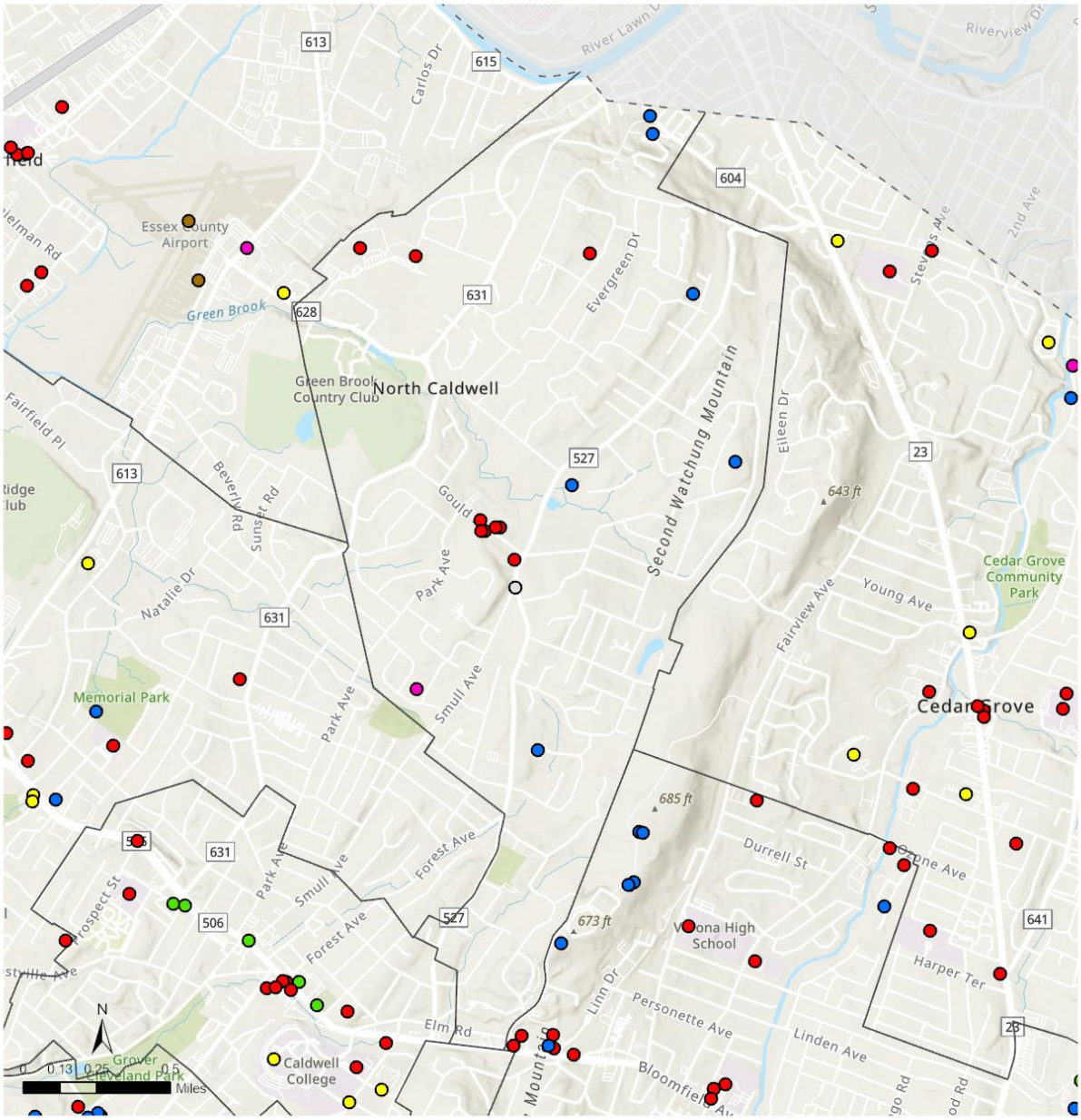
Table 16-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
Woodmont Property- Formerly Greenbrook Country Club	Residential Development	TBD	100 West Greenbrook Road		In Planning Board Approval- 2026?

16.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Borough of North Caldwell that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 16-1. Borough of North Caldwell Community Lifelines

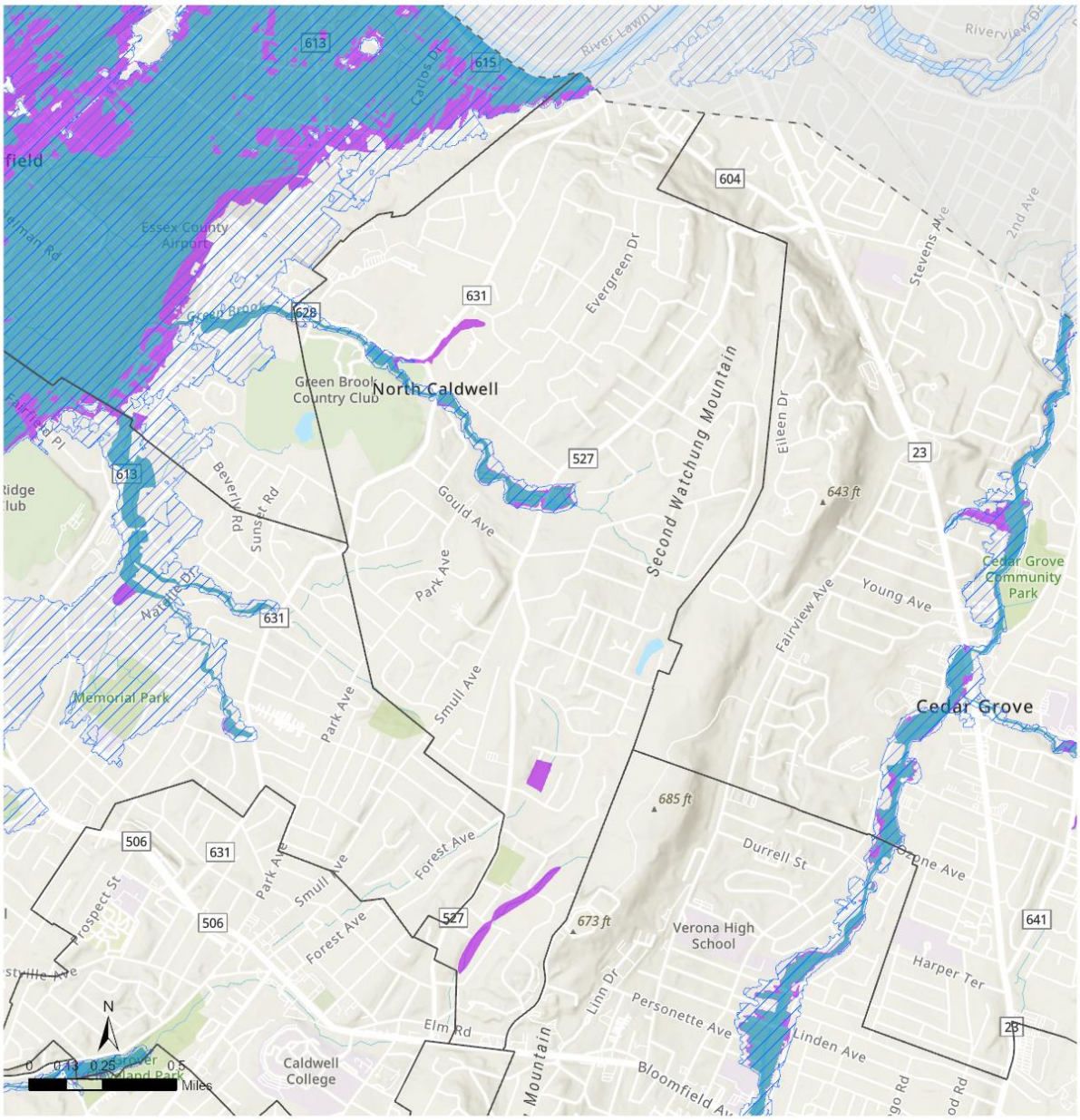


North Caldwell Borough: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 16-2. Borough of North Caldwell Flood-Related Hazards

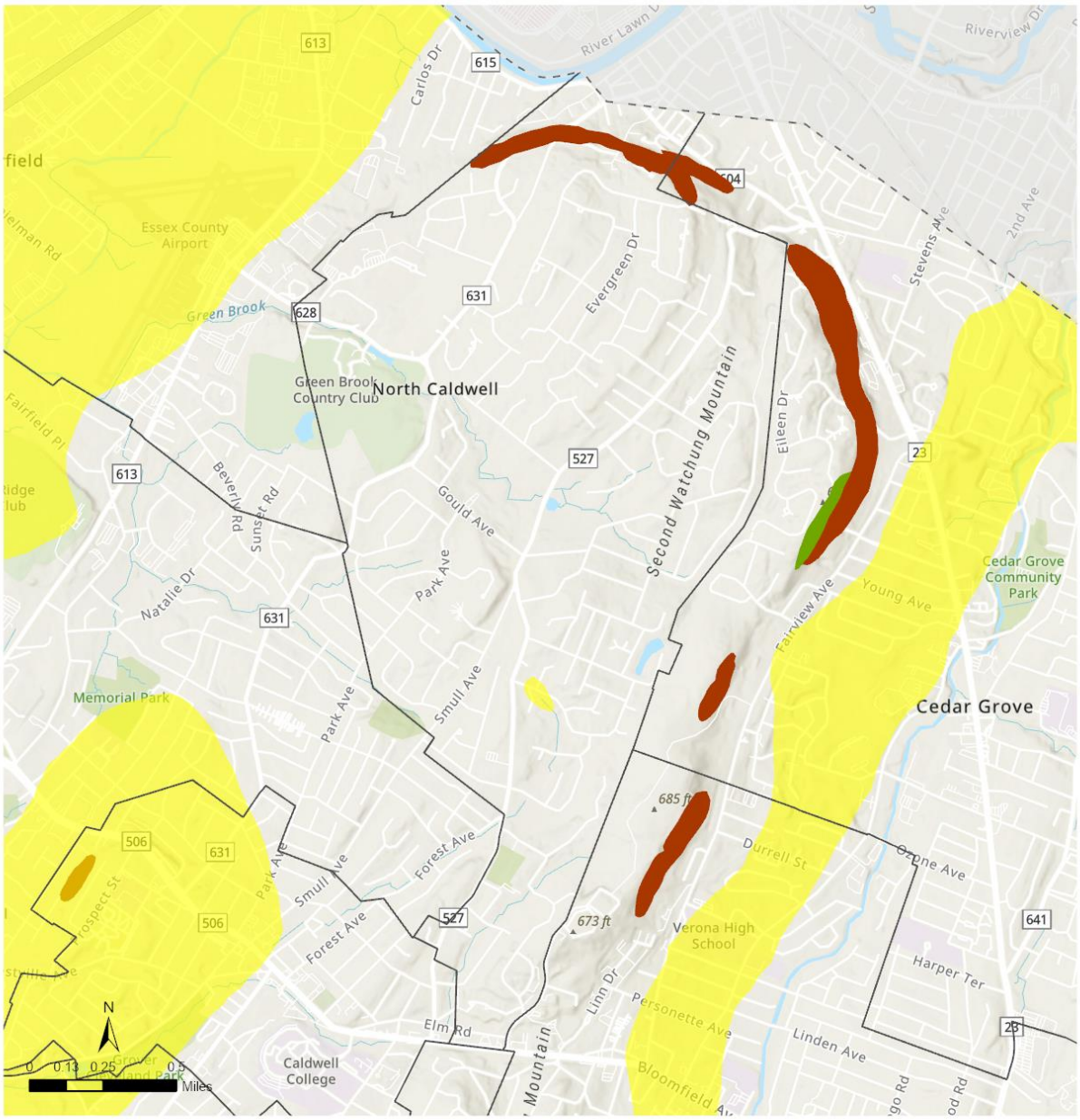


North Caldwell Borough: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 16-3. Borough of North Caldwell Geological Hazards



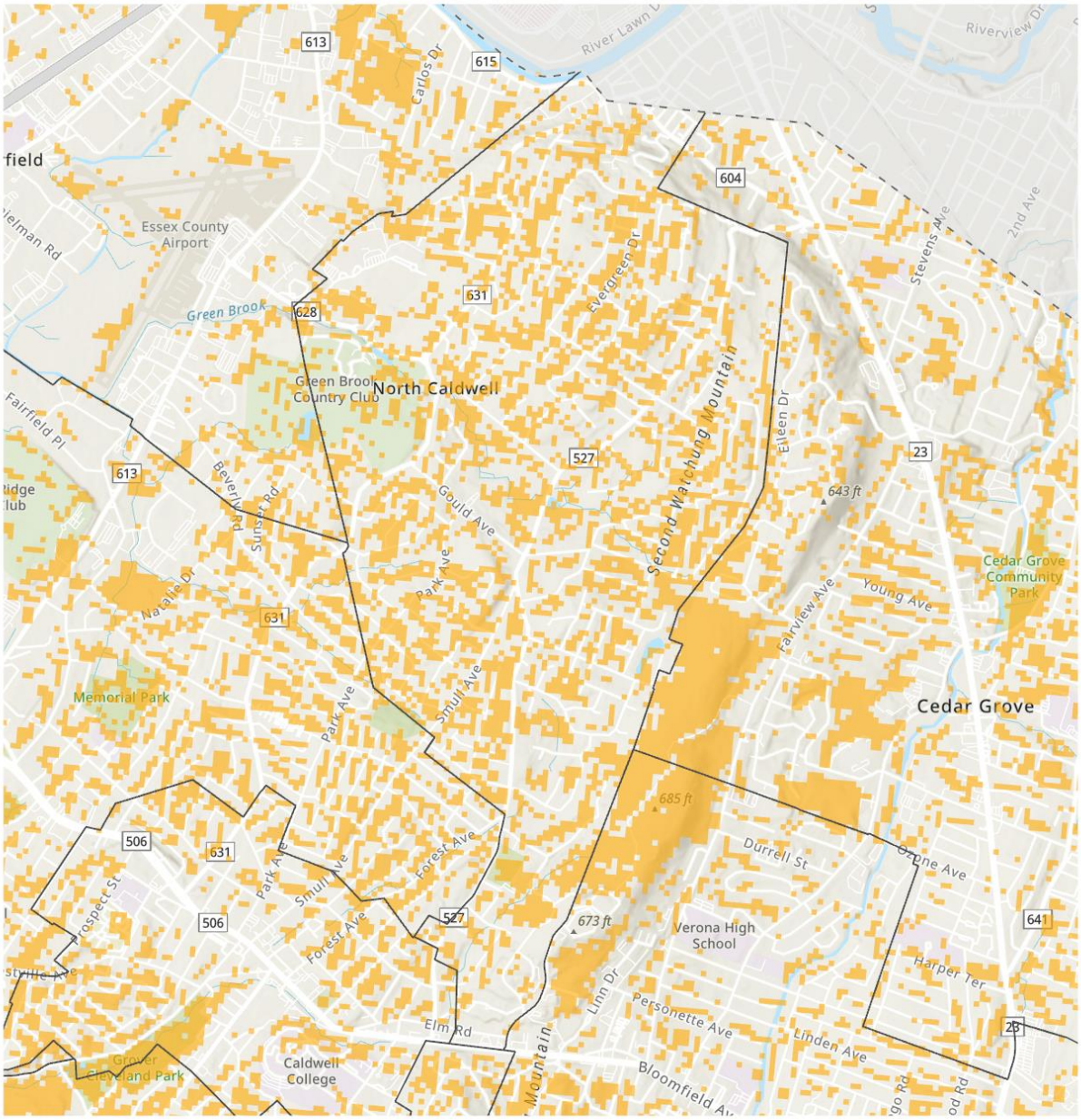
North Caldwell Borough: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 16-4. Borough of North Caldwell Wildfire Hazard



16.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Borough of North Caldwell, climate change is likely to have the following impacts:

- Heavy rainfall events, contributing to increased flooding frequency.

16.2.5 Risk Assessment Summary

- Walker's Pond, a recently acquired municipal property located at 400 Mountain Avenue, is overgrown and requires dredging and ongoing maintenance to ensure proper flow of stormwater infrastructure.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 5 repetitive loss properties, but other properties may be impacted by flooding as well.
- The Borough's water tank on Skyline Drive is in a remote location and lacks backup power in the event of utility interruption.
- There has been significant streambed and streambank erosion occurring along Green. Brook in North Caldwell which has impacts on the County's road and utility infrastructure. The affected road leads to the West Essex Regional Middle School and High School and could affect traffic to the schools. Riprap was installed but it eventually failed. A more substantial approach needs to be developed and installed. Green Brook Country Club borders the stream and was just sold to a new company likely to install town houses on the property.

16.3 Jurisdictional Capability Assessment

The Borough of North Caldwell performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

16.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Borough of North Caldwell.

Table 16-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan Reexamination 2019	Planning Board
Impact on Risk Reduction: The Master Plan guides long term development in the Borough.			
Capital Improvement Plan	Yes	Annual Budget	Administration
Impact on Risk Reduction: Capital improvement planning is performed using the annual budget.			
Stormwater Management Plan	Yes	Borough of North Caldwell Municipal Stormwater Management Plan, 2005	Planning Board
Impact on Risk Reduction: The Plan documents the strategy for the Borough to address stormwater management primarily in new development and redevelopment projects that involve greater than 1 acre of disturbance. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan, 2023	Stormwater Program Administrator
Impact on Risk Reduction: The plan includes review of the Borough's stormwater ordinances and a watershed improvement plan.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Plan includes working with the Police Department to mitigate crash locations through low cost treatments and perform before and after studies. Larger Capital projects to follow if needed.			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Borough of North Caldwell to prepare for, respond to, and recover from hazard events.

Table 16-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan (EOP)	Office of Emergency Management (OEM)
Impact on Risk Reduction: The Borough of North Caldwell has a state approved Emergency Operations Plan (EOP). This plan is constantly being revised and updated to maintain and raise the standards by which the Borough measures its effectiveness.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Emergency Operations Plan (EOP)	OEM
Impact on Risk Reduction: The Borough of North Caldwell has a state approved Emergency Operations Plan (EOP). This plan is constantly being revised and updated to maintain and raise the standards by which the Borough measures its effectiveness.			
Evacuation Plan	Yes	Emergency Operations Plan (EOP)	Office of Emergency Management (OEM)
Impact on Risk Reduction: The Borough of North Caldwell has a state approved Emergency Operations Plan (EOP). This plan is constantly being revised and updated to maintain and raise the standards by which the Borough measures its effectiveness.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Emergency Operations Plan (EOP)	Office of Emergency Management (OEM)
Impact on Risk Reduction: The Borough of North Caldwell has a state approved Emergency Operations Plan (EOP). This plan is constantly being revised and updated to maintain and raise the standards by which the Borough measures its effectiveness.			
Disaster Debris Management Plan	Yes	Emergency Operations Plan (EOP)	Office of Emergency Management (OEM)
Impact on Risk Reduction: The Borough of North Caldwell has a state approved Emergency Operations Plan (EOP). This plan is constantly being revised and updated to maintain and raise the standards by which the Borough measures its effectiveness.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Borough of North Caldwell.

Table 16-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 34 Construction Codes, Uniform; Chapter 44 Fire Prevention	Building Department
Impact on Risk Reduction: Chapter 33 established in the Borough of North Caldwell a State Uniform Construction Code enforcing agency to be known as the "North Caldwell Uniform Construction Code Agency," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. Chapter 44 establishes the local enforcement of the Uniform Fire Safety Act. The fire zones established are designated on such properties as are necessary to ensure fire equipment and other emergency vehicles unobstructed means of approach, operation, and departure in the event of fire or other emergency.			
Zoning or Land Use Regulations	Yes	Chapter 107 Zoning and Land Use	Planning Board
Impact on Risk Reduction: This chapter is adopted pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. and the amendments thereof and supplements thereto in order to: • Guide the appropriate use or development of all lands in a manner which will promote the public health, safety, morals and general welfare. • Secure safety from fire, flood, panic and other natural and man-made disasters. • Provide adequate light, air and open space. • Ensure that the development of this municipality does not conflict with the development and general welfare of neighboring municipalities, the county and state as a whole. • Promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment. • Encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
• Provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens. • Encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight. • Promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.			
Subdivision Regulations	Yes	Chapter 107 Zoning and Land Use, Article IV Environmental Design and Site Plan Review and Subdivision Review	Planning Board
Impact on Risk Reduction: Subdivision review is required whenever an owner of land in the Borough of North Caldwell desires to create a subdivision			
Site Plan Regulations	Yes	Chapter 107 Zoning and Land Use, Article IV Environmental Design and Site Plan Review and Subdivision Review	Planning Board
Impact on Risk Reduction: In order to assure the harmonious development of all areas of the Borough of North Caldwell in accordance with the intended appearance of the Borough, as established by the Master Plan, to assure that maximum care is exercised to preserve and enhance existing natural features and environmental conditions, to preclude the creation of traffic flow or traffic safety problems and to maximize efforts to assure each property owner the right to safe and comfortable enjoyment of his property, an environmental design and site plan for new construction, not to include internal remodeling and/or internal alterations or renovations, shall be reviewed and approved by the North Caldwell.			
Stormwater Regulations	Yes	Chapter 53 On-Site Stormwater Detention, Stormwater Controls	
Impact on Risk Reduction: The purpose of Article I is to regulate and minimize the runoff of stormwater from properties within the Borough of North Caldwell onto adjoining properties so as to assure and safeguard the health, safety, property values and general welfare of the citizens of the Borough of North Caldwell. Article II aims to prevent stormwater pollution and illicit connections to municipal storm sewers. The purpose of Article III is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for green infrastructure, water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 107 Zoning and Land Use, 107-30.1 Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: (1) Protect human life and health.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
(2) Prevent unnecessary disruption of commerce, access, and public service during times of flooding. (3) Manage the alteration of natural floodplains, stream channels and shorelines; (4) Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. (5) Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. (6) Contribute to improved construction techniques in the floodplain. (7) Minimize damage to public and private facilities and utilities. (8) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. (9) Minimize the need for rescue and relief efforts associated with flooding. (10) Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. (11) Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. (12) Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 54 Grading, Drainage and Erosion Control; Chapter 86 Soil Removal and Importation; Chapter 96 Trees: Removal and Destruction; Chapter 104 Water	Administration
Impact on Risk Reduction: Chapter 54 regulates the modification of the natural terrain, the alteration of drainage and the maintenance of artificial structures and surfaces within the Borough of North Caldwell so as to assure and safeguard the health, safety, morals and general welfare of the citizens of the Borough of North Caldwell. This includes removal of trees. Chapter 86 sets soil removal and importation requirements. Chapter 96 controls soil erosion and sediment damages and related environmental damage by requiring adequate provisions for surface water retention and drainage and for the protection of exposed soil surfaces in order to promote the safety, public health, convenience and general welfare of the community. The standards and procedures established in this chapter are intended to regulate and require tree removal permits for removal of trees on improved lots as defined herein and are further intended to furnish guidelines for the use of Borough boards, committees and commissions in evaluating tree removal and planting plans prior to issuing approval for subdivision and other land development. Chapter 104 Water Article II Water Emergencies authorizes the ability to proclaim water emergencies and establish regulations for the conservation of water.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

16.3.2 Administrative and Technical Capabilities

The table below summarizes the Borough of North Caldwell's departments, boards, and committees that contribute to risk reduction.

Table 16-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The primary responsibilities of the Planning Board are to make, adopt and amend the Master Plan of the Borough of North Caldwell,

Department / Board / Committee	Description and Role in Risk Reduction
	administer subdivisions of land and site plan reviews, and provide input and recommendations to the Borough Council on land use ordinances. Zoning Board of Adjustment
Planning Department	The Zoning Officer is responsible for supervising all building activity and operations within the Borough for the purpose of insuring compliance with Chapter 107 "Zoning and Land Use" of the Code of the Borough of North Caldwell.
Public Works / Highway Department	The Department of Public Works is responsible for Borough matters relating to streets, water, sewers, parks, buildings and grounds and general maintenance.
Construction / Building / Code Enforcement Department	The Building Department has numerous functions including, but not limited to: 1. Issuing building permits for construction, demolition, remodeling of and repair of structures upon the approval of applications for same. 2. Issuing permits for signs, air-conditioning, oil burners and oil tanks. 3. Performing inspections for and issuing certificates of occupancy. 4. Investigating complaints of violations of Borough codes and ordinances dealing with building, zoning and property maintenance. The Building Department enforces the provisions of the Uniform Construction Code, the Borough Property Maintenance Code and such other codes as may be required to be enforced within the Borough. The present BOCA (Basic Building Code) was adopted by ordinance in 1977 along with a National Plumbing Code and the New Jersey Uniform Construction Code with ongoing updates approved on a regular basis by the State of New Jersey. Maintenance Code covers all buildings and property. Enforcement of these codes helps prevent the deterioration of buildings throughout and Borough. Proper occupancy standards of all buildings are maintained to preserve the residential atmosphere of the Borough and the general welfare of the citizens. All inspections required by the Uniform Construction Code and the enforcement of the code are accomplished by the following: 1. Construction Code Official/Zoning Officer 2. Fire Sub Code Official 3. Building Inspector 4. Building Sub Code Official 5. Plumbing Sub Code Official 6. Electrical Sub Code Official 7. Elevator Sub Code Official 8. Zoning Officer 9. Maintenance & Housing Inspector
Engineering Department	The Borough Engineer is responsible for all municipal engineering and design, the preparation of plans and specifications for projects

Department / Board / Committee	Description and Role in Risk Reduction
	authorized by the Mayor and Council and the preparation of preliminary designs and cost estimates for proposed improvements. The engineer prepares contracts, attends the opening of sealed bids, completes contracts with successful bidders, checks bonds and insurance policies, supervises construction progress and inspections, and certifies estimates for payment. The Borough Engineer is also the Director of Public Works. The Borough Engineer works with the Borough's licensed water and sewer operator to ensure all standards are met.
Parks and Recreation Department	Falls under DPW
Open Space Board / Committee	No
Environmental Board / Commission	No
Emergency Management / Public Safety Department	The Borough of North Caldwell Office of Emergency Management (OEM) coordinates the plans and operations of the various components of the Emergency Management System consisting of police and fire, emergency medical services, public works, volunteers, and other groups contributing to the management of emergencies. The Emergency Management Coordinators are the "point people" responsible for implementing the Emergency Management Plan and directing the emergency response. Where appropriate, the OEM has authority to recommend that a Borough State of Emergency be declared. This enables the Borough to obtain county, state, and/or federal resources to aid the people of North Caldwell, in the event of a disaster. Once the crisis has ended, the emergency team will continue to work together, reassess the initial response and thereby ensure the Borough is even better prepared for any future emergency.
Fire Department	North Caldwell Volunteer Fire Department
Additional departments, boards, and committees	The mission of the North Caldwell Health Department is to improve the health and quality of life of the citizens of West Caldwell, and Fairfield through the use of health promotion strategies, health protection strategies, preventive services and community health surveillance.

The table below summarizes the Borough of North Caldwell's staff with skills and expertise that contribute to risk reduction.

Table 16-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	No
Engineer	Borough Engineer
Stormwater Officer	Engineering Department heads. Out sourced
Resilience / Sustainability Officer	No
Grant Writer	Engineering Department heads. Out sourced
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	OEM

Staff	Description and Role in Risk Reduction
Staff that provide support to socially vulnerable populations	A list of special needs residents, i.e. wheelchair bound, oxygen use, is on file at the police communications desk.
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Borough of North Caldwell.

Table 16-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Planning board
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain, Wetlands.
How does your jurisdiction inventory land available for new development?	No
What percentage of your jurisdiction is available for new development?	Very minimal

16.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Borough of North Caldwell.

Table 16-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	The Borough generally does not meet grant requirements.
Capital improvements funding	Yes	Through Finance Department
Open space acquisition programs	No	-
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Water and sewer
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Through mayor and council.
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	No	-

16.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Borough of North Caldwell.

Table 16-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	Nixle Alerts
Public Information Officer	Deputy Borough Administrator
Website	Stormwater management, winter safety, fire prevention, emergency preparedness, and emergency kit information are available on the municipal website (https://www.northcaldwell.org/).
Social media	Facebook & Instagram
Public safety campaigns	No
Newsletters	Quarterly Borough Newsletter
Hazard education programs for schools	On the Borough website
Outreach to socially vulnerable populations	No
Other outreach capabilities	No

16.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Borough of North Caldwell.

Table 16-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Follow NFIP requirements.
What local department is responsible for floodplain management?	All new construction goes through an Engineering review for floodplains.
Are any staff certified floodplain managers (CFMs)?	Engineering Department
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Borough Engineering heads. Contracted Out.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
How many properties have been mitigated (elevation or acquisition)?	NA
Summarize the jurisdiction's Substantial Damage determination procedures.	The Borough follows NFIP requirements.
Summarize the jurisdiction's Substantial Improvement procedures.	The Borough follows NFIP requirements.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

16.3.6 Community Classifications

Table 16-14 summarizes the Borough of North Caldwell's participation in community classification programs.

Table 16-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	No	-
Other Programs	No	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

16.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Borough of North Caldwell has in place and will use to prepare for changes in risk due to climate change.

Table 16-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Heavy rainfall events, contributing to increased flooding frequency.
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Hazard Mitigation Plan
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	No
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Not underway
How does the jurisdiction educate the public on potential climate change impacts?	Not underway

16.3.8 Capability Assessment Summary

The Borough of North Caldwell's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Borough of North Caldwell determined the following hazard capability effectiveness ratings.

Table 16-16. Borough of North Caldwell Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

16.3.9 Opportunities to Improve Capabilities and Integration

- The Borough lacks a Substantial Damage Response Plan.
- The Borough will be required to develop a Watershed Improvement Plan by December 2027.
- There are coverage gaps in the telecommunication systems that impact emergency response in the Borough.

16.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Borough of North Caldwell were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Borough's reduction of risk through current capabilities.

The Borough of North Caldwell reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Borough discussed the following local factors that led to modifying the hazard rankings:

- The Borough agreed with the calculated hazard rankings.

The Borough of North Caldwell agreed upon the following hazard rankings.

Table 16-17. Borough of North Caldwell Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

16.5 Jurisdictional Mitigation Strategy

16.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 16-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-North Caldwell-001	**Mitigate the Green Brook Erosion:** The Borough will work to meet with Fairfield, Essex County, and the Green Brook Country Club (and any other identified stakeholders) to develop a reasonable solution and cost-sharing agreement for the streambed and bank stabilization of the Green Brook. The most feasible project will be used for grant applications to agencies such as FEMA and NJOEM.	Essex County, North Caldwell Administration, Fairfield Administration and Green Brook Country Club	In Progress. The Country Club officially closed on October 31st, 2024.	Yes	Awaiting the design plans from Woodmont Properties (formerly GreenBrook Country Club) for the new residential development going before the Planning Board.
2020-North Caldwell-002	**Harden Water Tower infrastructure by mitigating power loss and communication issues:** North Caldwell will pursue additional funding for a diesel generator to power the water tank site (including public safety communications, pumps, and water tank controls). The Borough will also pursue additional funding for upgrades to a SCADA alarm system for remote monitoring and control.	Borough Administration, DPW and OEM	In Progress. Petry Engineering has designed contract drawings for the installation of a generator along with other improvements at the Skyline Drive Water Tank. Application for Soil Erosion and Sediment Control Plan Certification was signed in November 2024.	Yes	-

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-North Caldwell-003	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to three flood-prone property owners, including RL/SRL property owners, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition, purchase, moving, or elevating residential homes on Amelia Street, Mountain Avenue, and Robin Hill Road that experience frequent flooding (high-risk areas).	NFIP Floodplain Administrator, supported by homeowners	In Progress. NJOEM has contacted each repetitive loss property owner in the state.	Yes	-
2020-North Caldwell-004	**Drainage Study:** The Borough has authorized an initial drainage study to be completed within the next few months. The results of the study will be used to determine the best feasible solution and will be implemented.	Borough Administration, Essex County	Complete. SCS is consultant responsible for stormwater activities in town. Mapping of all stormwater components is in progress. A list of catch basins that require rebuilding/retrofitting has been developed. Maintenance procedures are in place for stormwater system.	No, complete.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-North Caldwell-005	**Enhance Stormwater Maintenance Plan:** Create and implement an enhanced ongoing stormwater maintenance plan to ensure drainage infrastructure and catch basins are in top condition.	North Caldwell DPW	Ongoing Capability	No, ongoing capability.	-
2020-North Caldwell-006	**Walker's Pond Maintenance and Inspection:** North Caldwell has applied for NJDEP Permits. Upon completion of dredging of Walker's Pond, further evaluation and inspection of the dam will occur to determine future maintenance activities.	Borough Administration	Complete. The pond was recently dredged.	No, complete.	-
2020-North Caldwell-007	**Walker's Pond Dredging and Maintenance:** North Caldwell has hired a consultant to submit permit applications, and a separate consultant for construction plans. North Caldwell is pursuing HDSRF Funding through NJDEP.	Borough Administration	In progress. Looking into hydroraking, but elected to use low cost raking options for maintenance.	Yes	Maintain current program and monitor situation to determine if it will be successful long-term.
2020-North Caldwell-008	**Flooding Outreach, Study, and Mitigation:** North Caldwell will reach out to residents of the Borough and seek input for areas with recurring flooding	Borough Administration	In Progress- work with consultant SCS on guidance to proceed.	Yes	Include as part of a watershed improvement plan initiative.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	within the next 6-12 months. This feedback will be used to drive future applications for drainage studies and the implementation of the best identified alternative to reduce flood risk. (12-24 months from outreach to grant application).				
2020-North Caldwell-009	**Telecommunications Improvements:** Work with Essex County Sherriff's Office and other Public Service entities to work to remedy coverage gaps in telecommunication systems.	Borough Administration, Borough IT, Essex County Sherriff's Office	In Progress. Looking at 2 sites. One cell tower, one radio system expansion.	Yes	-
2020-North Caldwell-010	**Severe Winter Storm Outreach:** The Borough of North Caldwell will develop a severe winter weather education and outreach program to increase preparedness.	Borough Administration	Ongoing Capability. Civic Alert System	No, ongoing capability.	-
2020-North Caldwell-011	**Conduct Infrastructure Risk Assessment:** The Borough will conduct internal risk assessments to determine potential terrorist targets and take appropriate actions to work with necessary	Borough OEM, Borough Administration	Ongoing Capability. Risk assessments are conducted as needed	No. Terrorism is no longer a hazard of concern in this HMP update.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	stakeholders to enhance preparedness.				

16.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Borough of North Caldwell identified the following mitigation efforts completed since the last HMP:

- None identified

16.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Borough of North Caldwell identified the following issues that require mitigation.

- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- Walker's Pond, a recently acquired municipal property located at 400 Mountain Avenue, is overgrown and requires dredging and ongoing maintenance to ensure proper flow of stormwater infrastructure.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 5 repetitive loss properties, but other properties may be impacted by flooding as well.
- The Borough's water tank on Skyline Drive is in a remote location and lacks backup power in the event of utility interruption.
- There has been significant streambed and streambank erosion occurring along Green. Brook in North Caldwell which has impacts on the County's road and utility infrastructure. The affected road leads to the West Essex Regional Middle School and High School and could affect traffic to the schools. Riprap was installed but it eventually failed. A more substantial approach needs to be developed and installed. Green Brook Country Club borders the stream and was just sold to a new company likely to install town houses on the property.
- There are coverage gaps in the telecommunication systems that impact emergency response in the Borough.

16.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Borough of North Caldwell's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume 1, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 16-19. Borough of North Caldwell 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-North Caldwell-01	Substantial Damage Management Plan			X	X	X	X	X	X	X
2025-North Caldwell-02	Watershed Improvement Plan	X	X		X	X				
2025-North Caldwell-03	Walker's Pond					X				
2025-North Caldwell-04	Repetitive Loss Mitigation					X		X		
2025-North Caldwell-05	Backup Power for Water Tank Site		X	X	X	X	X	X	X	X
2025-North Caldwell-06	Mitigate the Green Brook Erosion					X	X			
2025-North Caldwell-07	Telecommunications Improvements	X		X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 16-20. Borough of North Caldwell 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-North Caldwell-01	Substantial Damage Management Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-North Caldwell-02	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-North Caldwell-03	Walker's Pond	0	1	1	1	1	1	1	0	1	0	1	1	1	1	11	High
2025-North Caldwell-04	Repetitive Loss Mitigation	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-North Caldwell-05	Backup Power for Water Tank Site	1	0	1	1	1	0	1	1	1	1	1	0	1	1	11	High
2025-North Caldwell-06	Mitigate the Green Brook Erosion	1	1	1	1	0	0	1	0	1	1	1	1	1	1	11	High
2025-North Caldwell-07	Telecommunications Improvements	1	1	0	1	0	0	1	1	1	1	1	0	1	1	10	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-North Caldwell-01: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	OEM, Building Department, Public Works, Administration
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-North Caldwell-02: Watershed Improvement Plan

Lead Agency:	Engineer	
Supporting Agencies:	NJ DEP	
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak	
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.	
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. This phase is currently underway. North Caldwell will reach out to residents of the Borough and seek input for areas with recurring flooding. This feedback will be used in Phase 2 and will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented. Permeable pavement at Walkers Park has already been identified as a project for implementation.	
Estimated Cost:	Medium for planning, High for implementation of identified projects	
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Completion required by December 2027	
Goals Met:	1, 2, 5	
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.	
Impact on Socially Vulnerable Populations:	TBD by identified projects	
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.	
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.	
Impact on Capabilities:	This action will improve stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.	
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**

	No Action	-
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-North Caldwell-03: Walker's Pond

Lead Agency:	DPW	
Supporting Agencies:	Administration	
Hazard(s) of Concern:	Flood	
Description of the Problem:	Walker's Pond, a recently acquired municipal property located at 400 Mountain Avenue, is overgrown and requires dredging and ongoing maintenance to ensure proper flow of stormwater infrastructure.	
Description of the Solution:	The Borough is conducting raking of the pond to remove overgrown vegetation. The Borough will continue raking, with monitoring of the success of this effort to determine it is effective over the course of 3 years.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	3 years	
Goals Met:	5	
Benefits:	Increased volumetric capacity for stormwater capacity	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will evaluate the establishment of raking Walker's Pond as	
Climate Change Considerations:	Climate change is likely to increase the frequency and intensity of heavy rainfall events, increasing runoff and the volume of water that needs to flow through Walker's Pond.	
Mitigation Category:	Natural Resource Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Hydroraking	Too costly at this time
	Chemical treatment	Not permitted

2025-North Caldwell-04: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 5 repetitive loss properties, but other properties may be impacted by flooding as well.	
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Borough will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners	
Implementation Timeline:	3 years	
Goals Met:	1, 2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.	
Mitigation Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-North Caldwell-05: Backup Power for Water Tank Site

Lead Agency:	DPW
Supporting Agencies:	Engineer, OEM, Administration
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	The Borough's water tank on Skyline Drive is in a remote location and lacks backup power in the event of utility interruption.
Description of the Solution:	The Engineer will determine the appropriate sized generator needed to power the water tank site (including public safety communications, pumps and water tank controls). Public Works will oversee installation of a fixed mounted diesel powered generator and necessary electrical components to supply backup power to the water tank site. Public Works will be responsible for maintenance and testing of the generator following installation.
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget
Implementation Timeline:	1 year
Goals Met:	6
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Microgrid / Costly and difficult to implement. Solar panels and battery backup / Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-North Caldwell-06: Mitigate the Green Brook Erosion

Lead Agency:	Engineer	
Supporting Agencies:	Fairfield Administration, Essex County, Green Brook Country Club future owners	
Hazard(s) of Concern:	Flood, Geological Hazards	
Description of the Problem:	There has been significant streambed and streambank erosion occurring along Green Brook in North Caldwell which has impacts on the County's road and utility infrastructure. The affected road leads to the West Essex Regional Middle School and High School and could affect traffic to the schools. Riprap was installed but it eventually failed. A more substantial approach needs to be developed and installed. Green Brook Country Club borders the stream and was just sold to a new company likely to install town houses on the property.	
Description of the Solution:	The Borough will work to meet with Fairfield, Essex County and the new owners of the Green Brook Country Club (and any other stakeholders as identified) to develop a reasonable solution and cost sharing agreement for the streambed and bank stabilization of the Green Brook. Identified cost-effective solutions will be implemented.	
Estimated Cost:	High	
Potential Funding Sources:	FMA (for activities benefiting NFIP-insured structures), HMGP, municipal	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2	
Benefits:	Erosion mitigated and infrastructure protected	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	Green Brook Country Club is likely to undergo development.	
Impact on Critical Facilities/Lifelines:	The County road and sewer line under the road are at risk. The affected road leads to the West Essex Regional Middle School and High School and could affect traffic to the schools.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to increase the frequency and intensity of heavy rainfall events, increasing runoff and the volume of water that flows downstream.	
Mitigation Category:	Natural Resource Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Acquire properties along streambank and relocate infrastructure	Costly
	Bulkhead the streambank	Costly, environmental degradation

2025-North Caldwell-07: Telecommunications Improvements

Lead Agency:	Borough Administration	
Supporting Agencies:	Borough IT, Essex County Sherriff's Offices	
Hazard(s) of Concern:	Disease Outbreak, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	There are coverage gaps in the telecommunication systems that impact emergency response in the Borough.	
Description of the Solution:	The Borough will work with the Essex County Sherriff's Office and other Public Service entities to work to remedy coverage gaps in telecommunication systems.	
Estimated Cost:	High	
Potential Funding Sources:	County budget, Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 5, 6, 7	
Benefits:	This action will result in improved emergency management coordination and shorter response times.	
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often more reliant on emergency response.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action may result in the establishment of new communications lifelines.	
Impact on Capabilities:	This action improves emergency response capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional capabilities for disaster recovery.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Mobile units	Not functional until set up
	Satellite phones	Costly and not a reliable network set up

16.6 Jurisdictional Hazard Mitigation Team

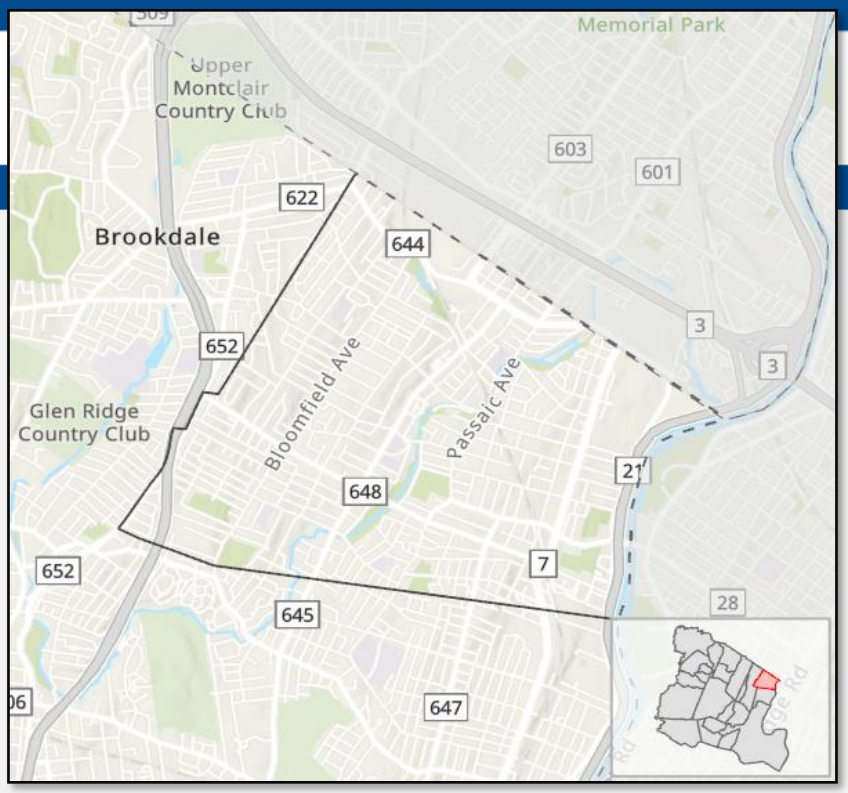
Table 16-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Glenn Domenick, Administrator	Name and Title:	Tim Peterson, Emergency Management Coordinator
Address:	141 Gould Avenue North Caldwell, NJ 07006	Address:	141 Gould Avenue North Caldwell, NJ 07006
Phone Number:	973-228-6410 x101	Phone Number:	973-226-0800
Email:	gdomenick@northcaldwell.org	Email:	oem@northcaldwell.org
NFIP Floodplain Administrator			
Name and Title:	John Bironti, Borough Engineer/DPW Director		
Address:	141 Gould Avenue North Caldwell, NJ 07006		
Phone Number:	973-226-6410 x132		
Email:	jbironti@northcaldwell.org		

Table 16-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
John Bironti, DPW Director	Attended annex support meeting, contributed to mitigation strategy
Chief Karl Strodthoff, Police Chief	Attended annex support meeting, contributed to mitigation strategy

Township of Nutley



POPULATION STATISTICS

29,767
TOTAL POPULATION (2023 ACS)

0.05%
Change in population since 2010 Census

11,558
TOTAL HOUSEHOLDS

AT RISK POPULATION

4,949
Population Over 65

1,727
Population Under 5

2,142
Living With Disability

306
Households Without Vehicle

3,750
People Renting Homes

POVERTY AND LANGUAGE

1,270
Households Below Poverty Level

2,384
Population With English as 2nd Language

POPULATION AND BUSINESSES

21,899
Daytime Population

926
Total Businesses

15,961
Total Employees

FLOOD VULNERABILITY

692
Number of People in 1% SFHA

230
Number of Buildings in 1% SFHA

2
Community Lifelines in 1% SFHA

17 TOWNSHIP OF NUTLEY

17.1 JURISDICTIONAL PROFILE

The Township of Nutley is located in northern Essex County, along the Passaic River. It is bordered to the north by Passaic County, to the east by Bergen County, to the south by Belleville Township, and to the west by Bloomfield Township.

Nutley derived its name from the large estate of the Satterthwaite family, established in 1844, which stretched along the banks of the Passaic River. In 1902, Franklin, New Jersey, once the northeast corner of Newark, changed its name to Nutley when a growth in population prompted a change in the form of government from Township to Mayor/Council. Today, the Township is governed by a mayor and 4-member commission.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

17.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Township of Nutley's risk to the hazards of concern identified for the 2025 HMP update.

17.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Nutley's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 17-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The Township was subject to closures and masking/social distancing requirements.
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Although the County was impacted, the Township did not report significant damages.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
July 17, 2021	Short-Duration High-Intensity Storm	A short-duration, high-intensity storm brought extremely heavy rainfall to northeast New Jersey, with 2–3 inches of rain falling in less than 1–2 hours.	The rapid accumulation led to widespread flash flooding and extensive river flooding across the region.
August 21 and 22, 2021	Short-Duration High-Intensity Storm	A short-duration, high-intensity storm brought extremely heavy rainfall to northeast New Jersey, with 2–3 inches of rain falling in less than 1–2 hours.	The rapid accumulation led to widespread flash flooding and extensive river flooding across the region.
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours.	This resulted in widespread flash flooding and extensive river flooding.
August 19, 2024	Short-Duration High-Intensity Storm	A short-duration, high-intensity storm brought extremely heavy rainfall to northeast New Jersey, with 2.25 inches of rain falling in less than 1 hour.	The rapid accumulation led to widespread flash flooding and extensive river flooding across the region.

17.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

FEMA flood maps adequately address flood risk in the jurisdiction. However, flooding does take place outside the mapped floodplain. The areas outside of the mapped floodplain that experience water accumulation during high-intensity or short-duration storms due to inadequate stormwater infrastructure or natural terrain depressions include:

- Hope Street, Milton Avenue, and Bloomfield Avenue
- Rhoda Ave (At the point of stormwater basins)
- Mapes Ave (At the point of stormwater basins)
- Stanley Ave (At the point of stormwater basins)
- Intersection of Bloomfield Ave & Raymond Ave
- Intersection of Hancox Ave & Nicola Place
- Intersection of Cross St. & Evergreen Ave
- Hancox Avenue near Passaic Avenue
- Centre Street (east of) Bloomfield Avenue

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Township of Nutley.

Table 17-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
230	$413,798	$49,077,000	338	$6,890,896	26	8

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

No structures have been declared substantially damaged in the Township.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 17-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Nutley Twsp Garage	Government	X
Hackensack Meridian School of Medicine at Seton Hall University	School	X

Source: Essex 2025; FEMA 2020

17.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of Nutley, including major residential/commercial/industrial development and major infrastructure development.

Table 17-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Diamond Spring Pool Club - 35 Evergreen Ave	Residential	85	Block 7400 Lot 1 and Lot 13	Flood Zone A	Project currently under construction
Hillside Avenue	Unknown	Unknown	Block 2000 Lot 27	None	Project not yet determined
Township of Nutley	Mix-Use	Unknown	Block 3100 Lot 37, 28, 29 and 30	None	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 102 Lot: 2	1% Flood: A Zone	Project not yet determined

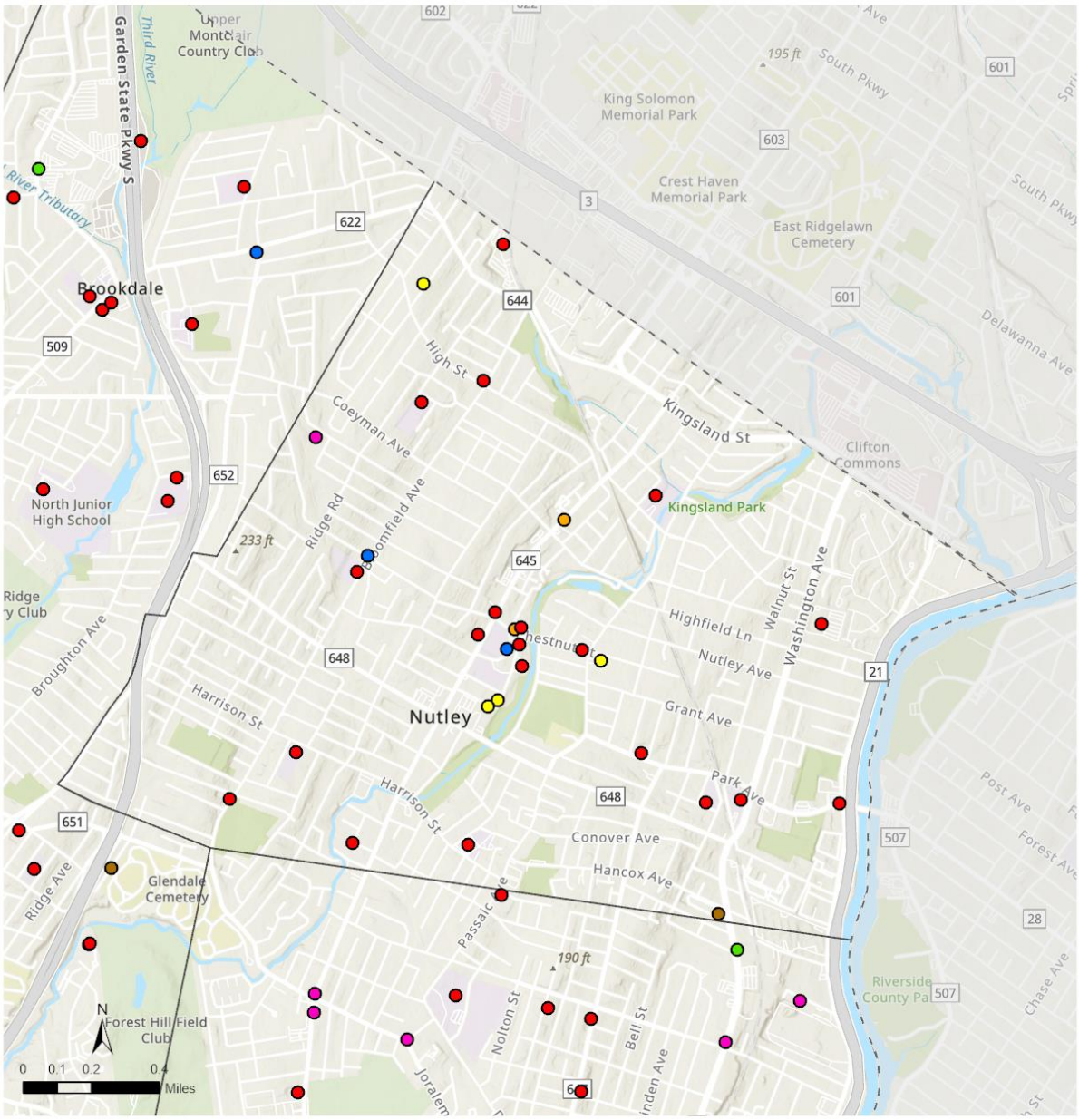
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 2101 Lot: 1	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 2000 Lot: 1	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 2000 Lot: 4	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 2000 Lot: 5	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 2	None	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 24	None	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 102 Lot: 9	None	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 201 Lot: 1	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 3	None	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 300 Lot: 1	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 6	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 5	1% Flood: A Zone	Project not yet determined
On3-Prism (formerly known as Roche)	Unknown	Unknown	Block: 200 Lot: 4	Flood	Project not yet determined
Carol & Roddy Munyon Irrevocable Trust	Unknown	Unknown	Block 6603 Lot 7 and 8	None	Project not yet determined
551 Centre Street	Mix-Use	23 Units/1 structure	Block 7800	Flood Zone A	Project Completed
10 Kingsland Street	Commercial	1 structure	Lot 1.01	Flood Zone X	Project Completed
100 Centre Street	Commercial	1 structure	Block 602	None	Project Completed
124 Washington Ave	Commercial	1 structure	Lot 5	None	Project Completed
113 East Centre Street, Building 3	Mix-Use	25 Units/1 structure	Block 7001	None	Project Completed

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
113 East Centre Street, Building 4	Mix-Use	25 Units/1 structure	Lot 33	None	Project Completed
134 Franklin Avenue	Mix-Use	14 Units/1 structure	Block 6902	Flood Zone AE	Project Completed
599 Franklin Avenue	Mix-Use	7 Units/1 structure	Lot 7	None	Project Completed
100 Kingsland Street	Mix-Use	27 Units/1 structure	Block 6904	None	Project Completed
184 Franklin Avenue	Mix-Use	23 Units/1 structure	Lot 13	Flood Zone AE	Project Completed
4 Franklin Avenue	Mix-Use	2 Units/1 structure	Block 6904	Flood Zone AE	Project Completed
345 Centre Street	Mix-Use	11 Units/1 structure	Lot 13	None	Project Completed
74 East Passaic Ave	Mix-Use	4 Units/1 structure	Block 7500	None	Project Completed
434-438 Centre Street	Mix-Use	23 Units/1 structure	Lot 5	None	Project under construction

17.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Nutley that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 17-1. Township of Nutley Community Lifelines

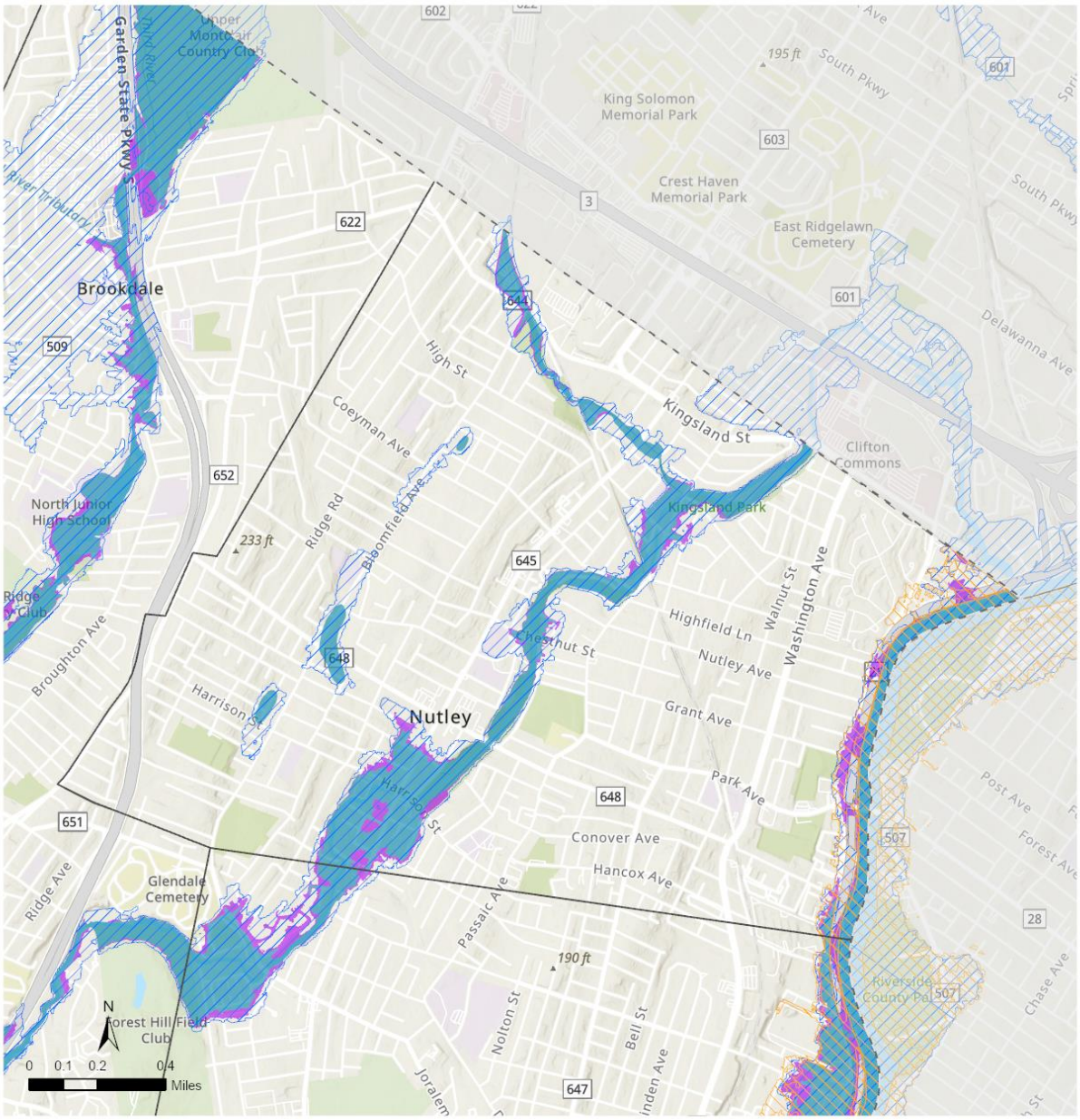


Nutley Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 17-2. Township of Nutley Flood-Related Hazards

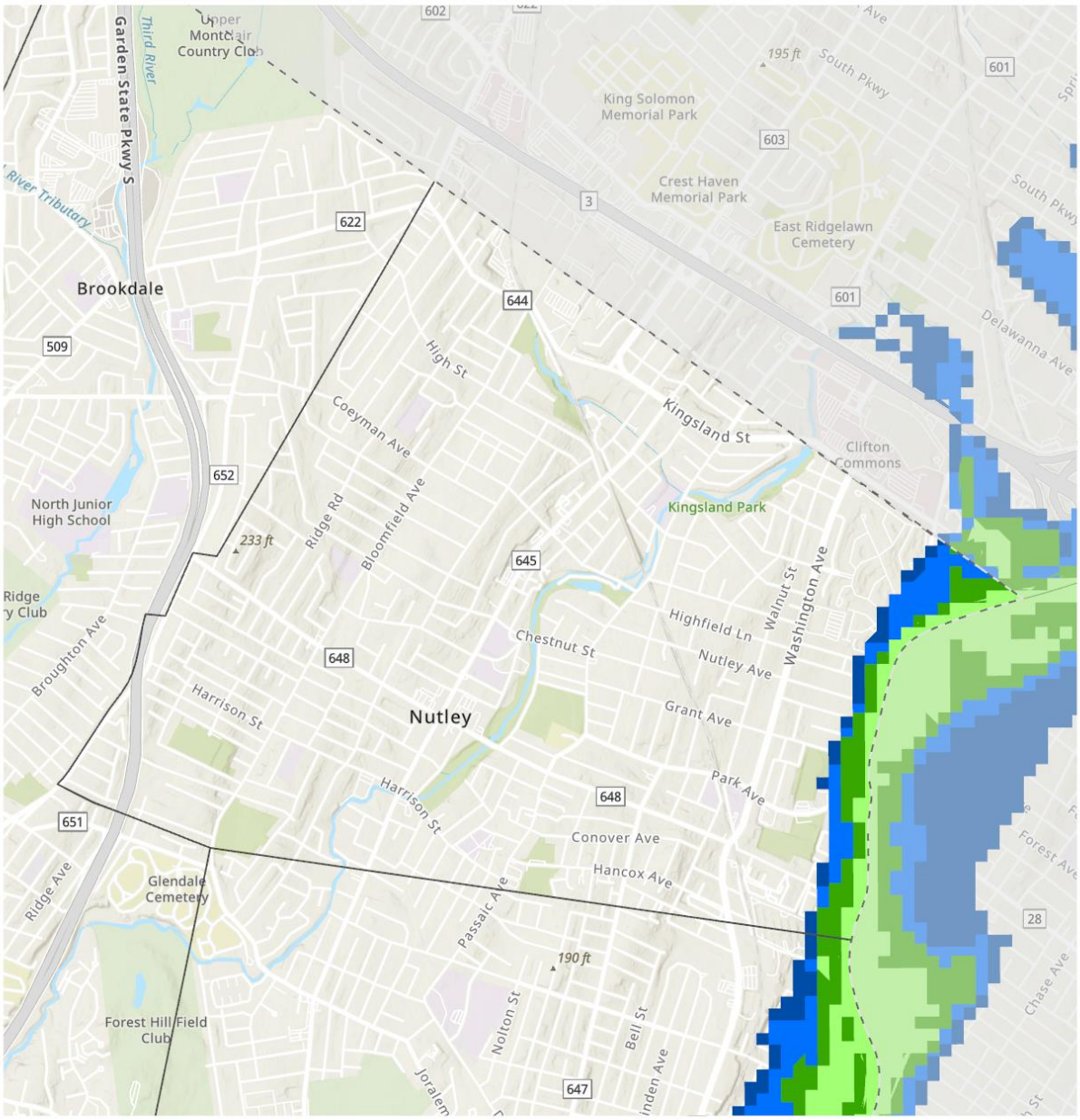


Nutley Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

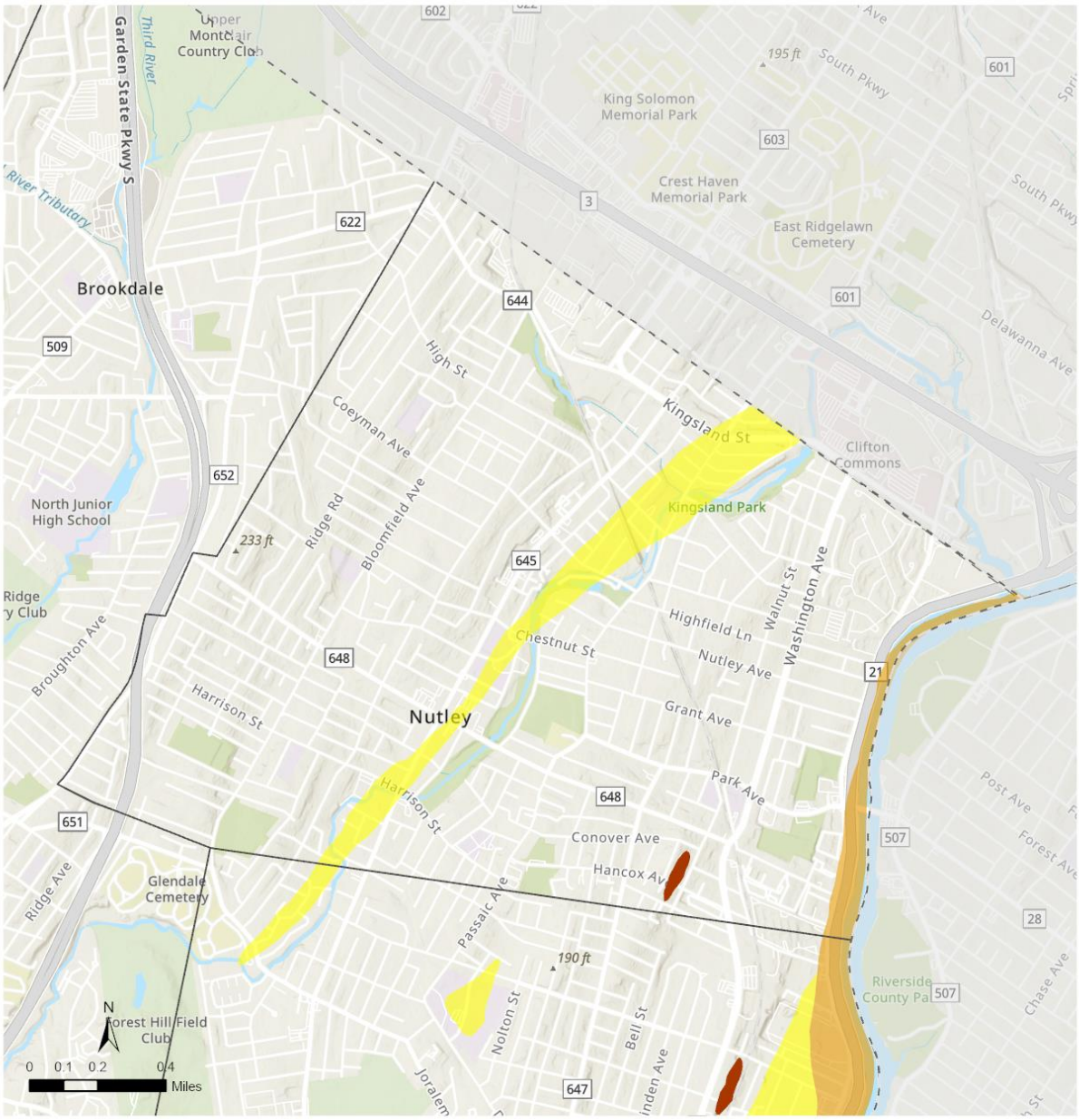
Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 17-3. Township of Nutley Storm Surge Hazard



Sources: NJ Office of GIS, Rutgers University/NOAA
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 17-4. Township of Nutley Geological Hazards



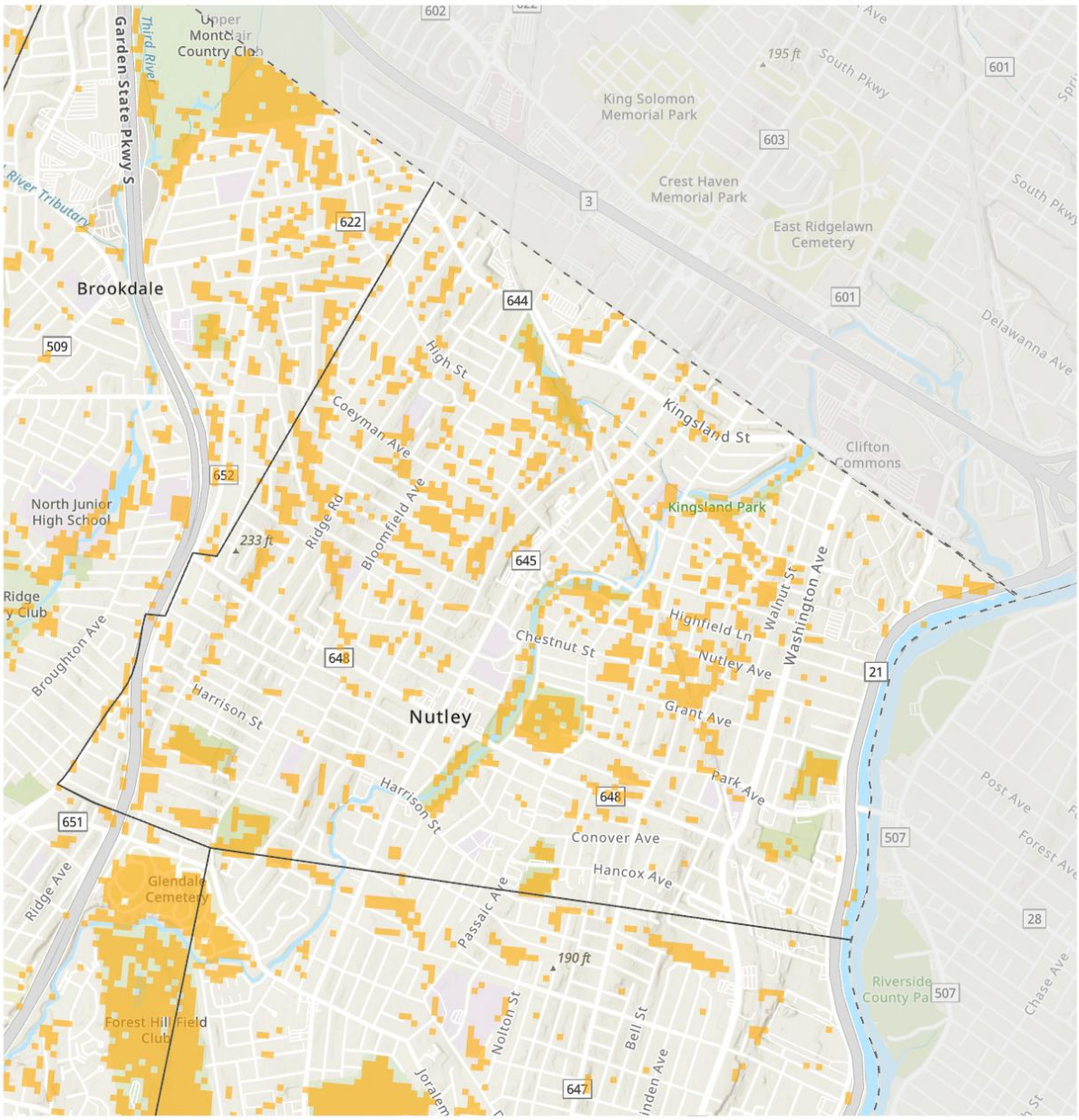
Nutley Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 17-5. Township of Nutley Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

17.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of Nutley, climate change is likely to have the following impacts:

- Heavy rainfall, contributing to increased flood risk.

17.2.5 Risk Assessment Summary

- There are several areas within the Township that experience flooding during heavy rain events (4"+ inches in short amount of time). The existing stormwater system is older. These areas include:
    - Hope Street and Bloomfield Avenue
    - Rhoda Ave (At the point of stormwater basins)
    - Mapes Ave (At the point of stormwater basins)
    - Stanley Ave (At the point of stormwater basins)
    - Intersection of Bloomfield Ave & Raymond Ave
    - Intersection of Hancox Ave & Nicola Place
    - Intersection of Cross St. & Evergreen Ave
    - Hancox Avenue near Passaic Avenue
- During high tide, the Passaic River surcharges the local storm collection system causing local flooding conditions.
- Third River flows through the park system in center of Township. Existing hard infrastructure and natural shorelines need to be examined to determine the effectiveness of gabion walls. There have been previous events where there have been failure of the structural streambank and erosion of the natural streambank. For example, the Third River meets with St. Pauls Brook and then flows under the Passaic Avenue Bridge. The flow hits a wall which results in slow flow and causes backup. Realignment of the flow using gabion walls may address this issue. A section of gabion walls has been installed on Passaic Avenue near Satterwaitte Avenue but additional assessment and improvements are needed.
- The Third River flows through the Township. During periods of heavy rain, the river overflows its banks, leading to flooding of surrounding properties. Much of this flooding is caused by fallen trees, debris, and sediment.
- The Township has various critical facilities that lack backup power including:
    - Parks Annex
    - Parks and Recreation Building
    - Town Hall
    - Rescue Squad Building (has a generator but it needs to be replaced)
    - Fire Headquarters
    - Fresh Water pump
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 26 repetitive loss properties and 8 severe repetitive loss properties, but other properties may be impacted by flooding as well.

17.3 Jurisdictional Capability Assessment

The Township of Nutley performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

17.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of Nutley.

Table 17-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	2022 Master Plan Reexamination Report	Planning Board, Board of Commissioners
Impact on Risk Reduction: The 2022 Master Plan Reexamination Report includes stormwater related actions, sustainability practices, energy conservation, climate change concerns, and environmental preservation.			
Capital Improvement Plan	No	-	-
Impact on Risk Reduction:			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan, 2024	Public Works
Impact on Risk Reduction: This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Township of Nutley to address stormwater-related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C 7:8 Stormwater Management Rules. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as An individual "development," as well as multiple developments that individually or collectively result in:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
A. The disturbance of one or more acres of land since February 2, 2004; B. The creation of one-quarter acre or more of "regulated impervious surface" since February 2, 2004; C. The creation of one-quarter acre or more of "regulated motor vehicle surface" since March 2, 2021; D. A combination of 2 and 3 above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities. The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan, 2023	Public Works
Impact on Risk Reduction: The Plan includes stormwater related actions for public education, street sweeping, inspections of stormwater components, and total maximum daily load information.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	N/A	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Nutley to prepare for, respond to, and recover from hazard events.

Table 17-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan, 2025	OEM
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to hazard events.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Emergency Operations Plan, 2025	Board of Commissioners
Impact on Risk Reduction: Included in Emergency Operations Plan.			
Evacuation Plan	Yes	Emergency Operations Plan, 2025	OEM
Impact on Risk Reduction: Included in Emergency Operations Plan. Guides the orderly evacuation of residents in the event of a disaster event.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Emergency Operations Plan, 2025	Public Affairs Department/Health Department
Impact on Risk Reduction: Included in the Emergency Operations Plan. Guides response to disease outbreak events.			
Disaster Debris Management Plan	Yes	Emergency Operations Plan, 2025	Parks& Property/DPW
Impact on Risk Reduction: Included in the Emergency Operations Plan. Guides post disaster debris pick up.			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	Yes	Emergency Operations Plan, 2025	OEM
Impact on Risk Reduction: Included in the Emergency Operations Plan. Guides post-disaster recovery.			
Post-Disaster Recovery Plan	Yes	Emergency Operations Plan, 2025	OEM
Impact on Risk Reduction: Included in the Emergency Operations Plan. Guides post-disaster recovery.			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of Nutley.

Table 17-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 272 Construction Codes, Uniform; Chapter 344 Fire Prevention	Code Enforcement Department
Impact on Risk Reduction: Chapter 272 established in the Township of Nutley a State Uniform Construction Code enforcing agency to be known as the Nutley Code Enforcement Department," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the Code Enforcement Department. All subcode officials, their assistant and staff for the purposes of the regulations and its enforcement are subject to the procedures and policies of the enforcing agency and are primarily responsible to the Construction Official. Chapter 344 establishes the Bureau of Fire Prevention as the local enforcement agency shall of the Uniform Fire Safety Act.			
Zoning or Land Use Regulations	Yes	Chapter 700 Zoning	Planning Board/Board of Adjustments/Code Enforcement Department
Impact on Risk Reduction: This chapter is adopted to accomplish the following purposes: To limit and restrict to specified districts and to regulate therein buildings and structures according to the nature and extent of their use and the nature and extent of the uses of land. To regulate and restrict the height, number of stories and sizes of buildings and other structures, the percentage of lot that may be occupied, the sizes of yards, courts and other open spaces, the density of population and the location and use and extent of use of buildings and structures and land for trade, industry, residence or other purposes. To regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings or other structures and the nature and extent of the uses of land within such districts. To regulate and restrict buildings and structures according to the construction and the nature and extent of their use and the nature and extent of the uses of land by the adoption of a Comprehensive Plan designed for one or more of the following purposes: (1) To lessen congestion in the streets. (2) To secure safety from fire, panic and other dangers. (3) To promote health, morals and the general welfare. (4) To provide adequate light and air. (5) To prevent overcrowding of lands and buildings. (6) To avoid undue concentration of population. (7) To conserve the value of property and encourage the most appropriate use of land throughout the municipality.			
Subdivision Regulations	Yes	Chapter 630 Subdivision of Land	Planning Board/Board of Adjustments/Code Enforcement Department
Impact on Risk Reduction: The purpose of this chapter shall be to provide rules, regulations, and standards to guide land subdivision in the Township of Nutley, New Jersey, in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.			
Site Plan Regulations	Yes	Chapter 600 Site Plan Review	Planning Board/Board of Adjustments/Code Enforcement Department

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Impact on Risk Reduction: No construction permit or certificate of occupancy shall be issued for any use except one- and two-family detached dwellings and permitted accessory use thereto unless a site plan shall have first been approved by the Board in accordance with the terms of this chapter.			
Stormwater Regulations	Yes	Chapter 622 Stormwater Control	Public Works/Engineering
Impact on Risk Reduction: The purpose of this chapter is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 349 Floodplain Management Regulations	Floodplain Administrator/DPW/Engineering
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines. D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood-control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in 44 CFR 59.22.			
Environmental Protection Regulations	Yes	Chapter 665 Trees; Chapter 685 Water	Parks & Public Property DPW
Impact on Risk Reduction: Chapter 665 provides for the protection, preservation, and replacement of trees and removal of dangerous trees. The preservation, protection and planting of trees aids in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in the removal of pollutants from the air and assists in the generation of oxygen; provides a buffer and screen against noise and pollution; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil subsequent to construction or grading; provides a haven for birds and other wildlife and otherwise enhances the environment; protects and increases property values; conserves and enhances the Township's physical and aesthetic appearance; and generally protects the public health and safety, as well as the general welfare.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Chapter 685 establishes water conservation guidelines and the prohibition of certain uses of water during emergency conditions.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Chapter 610 Snow and Ice Removal: The owner or tenant of any lands abutting upon the public highways of the Township of Nutley shall remove all snow and ice from the abutting sidewalks of such highways within 36 hours after the same shall fall or be formed thereon.			

17.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Nutley's departments, boards, and committees that contribute to risk reduction.

Table 17-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board has the power to grant subdivisions, to approve conditional use applications, to grant variances from lot area, setback and yard requirements related thereto, and to grant site plan approvals. There is no professional staff with the exception of an attorney; however, the Board retains a planning professional on a consulting capacity to carry out local studies requested by the Board. All meetings of the Planning Board are subject to the provisions of the Open Public Meetings Act ("Sunshine Law"). The Zoning Board of Adjustment is empowered by state law to hear and decide appeals where it is alleged by the appellant that there is an error in any order, requirement, decision or refusal made by an administrative officer based on or made in the enforcement of the local zoning ordinance. Also, the Board may hear and decide requests for interpretation of the zoning map or ordinance. The Board of Adjustment may grant a variance from the strict application of the zoning regulations of the Township of Nutley. No variance or other relief may be granted by the Board unless such variance or other relief can be granted without substantial detriment to the public good and will not substantially impair the intent and purpose of the zone plan and zoning ordinance of the Township of Nutley.
Planning Department	No
Public Works / Highway Department	The mission of the Township of Nutley Department of Public Works is to provide efficient operation of public works systems and programs such as water, sewers, streets and highways, engineering services, and recycling collection. Responsibilities and services provided include:

Department / Board / Committee	Description and Role in Risk Reduction
	• Maintaining township streets, sidewalks, curbs, parking lots, and street signs. • Maintaining street lighting throughout the township • Curb to curb snow plowing and ice removal • Fall leaf collection and Spring cleanup weeks • 24/7 water and sewer service • Professional Engineering services The Nutley Sewer Utility is a newly established entity that combines with the existing Nutley Water Utility to provide a fair and equitable mechanism for property owners to pay for the cost of wastewater treatment and the maintenance and improvement of Nutley's sewer infrastructure. This change took effect on July 1, 2024. The Nutley Water and Sewer Utility is a division within the Department of Public Works and operates solely on revenues received for the services rendered. This means tax dollars are not necessary for this utility to function under normal conditions. Nutley receives the majority of its potable water from the Passaic Valley Water Commission (PVWC). Its main facility is the Little Falls Water Treatment Plant in Totowa, NJ. Water is diverted from the Passaic and Pompton Rivers, is treated, filtered and disinfected at the plant. In drought conditions or other emergency, water from the Point View Reservoir in Wayne, NJ can be used to supplement river sources. Treated water is then mixed at PVWC's main pumping station with treated water from the North Jersey District Water Supply Commission's Wanaque Reservoir treatment plant. Water is then pumped into underground transmission lines running through Nutley.
Construction / Building / Code Enforcement Department	The Township of Nutley Code Enforcement Department is the Local Municipal Enforcing Agency which issues construction permits, conducts progress inspections and issues certificates of occupancy in accordance with the State of New Jersey Uniform Construction Code Act regulations. Land development and construction in Nutley are regulated by various state, county and local laws (codes), chief among these are the State of New Jersey Uniform Construction Code (UCC) and the Township of Nutley Code. Relative to land use and construction, the Township Code regulates zoning, property maintenance, tree removals, soil movement, storm water control and various aspects of construction operations, including noise, pollution and when work may be performed. Based on the intended use, the UCC regulates how structures must be constructed to insure the health, safety and welfare of the public. It provides the means for state-licensed code officials to review plans, issue permits and inspect construction to insure that minimum code standards are met and appropriate building materials are used, thereby reducing potential hazards due to unsafe construction.
Engineering Department	The Engineering Department provides technical, engineering and surveying services to the Department of Public Works and its divisions. This division prepares plans and specifications for a variety of public works and other improvement projects, including the Township's annual Road Resurfacing and Sidewalk Replacement programs, and supervises and inspects all work done. The Department also maintains and provides for public information maps, plans and specifications, surveys and other

Department / Board / Committee	Description and Role in Risk Reduction
	records as may be required on public property, public works and facilities owned or operated by the Township. The Engineering Department also manages, supervises, and inspects the construction of improvements within the Township and provides technical support to other Township Departments as needed in the form of survey, design, review and inspection of a variety of public works projects. These projects include the following: • Street Improvements • Storm Sewer Construction and Repair • Traffic Signal Construction and Improvements • Municipal Parking Lot Construction and Improvements • Provide Flood Zone Determinations and Certifications • Prepares Street Maps, Tax Maps, Election Maps, and Drug Free Zone Maps The Department is also responsible for regulating and inspecting activities occurring within the municipal public right-of-way, and issues road opening permits, sewer connection permits and water tapping permits. It also provides assistance to residents regarding the National Flood Insurance Program administered by FEMA. All structures located within the Federal Hazard Flood Area which have a mortgage on loan would be required to obtain flood insurance. Information concerning this program can be obtained at the Engineering Department offices.
Parks and Recreation Department	The Department of Parks and Public Property consist of Recreation, Buildings and Grounds, Park Maintenance, Shade Tree, Insurance and Information Technology Dept. The Township prides itself in maintaining a commendable level of conservation while safeguarding this pristine natural resource. The latest surveys list the Township as maintaining over 14,000 trees and over 110 acres of parkland. The Shade Tree Department maintains, replaces, prunes and plants trees on township property. This division is equipped with an experienced forester, who is available one day per week to do inspections and make recommendations.
Open Space Board / Committee	No
Environmental Board / Commission	No
Emergency Management / Public Safety Department	Department of Public Safety
Fire Department	The Nutley Fire Department is a combination department comprised of both full-time and volunteer firefighters. The fire department has members stationed at headquarters 24 hours a day, 7 days a week, and 365 days of the year. Every emergency response the on duty firefighters respond to, the volunteer component of the department is notified to respond to their firehouses to assist the on duty staff. The department currently has 2 Engine companies and 1 Ladder company at Fire Headquarters as well as 1 Engine company located on each side of the Township. The Department has a reserve engine that is kept at the Township DPW garages. The Fire Department not only responds on all fire related incidents, they are called to respond to medical incidents as well as motor vehicle crashes involving entrapment, natural gas incidents, and Carbon Monoxide incidents. The Fire Prevention Bureau is responsible for all Life Hazard and non-Life Hazard fire inspections within the Township.

Department / Board / Committee	Description and Role in Risk Reduction
	The Signal Bureau of the fire department is responsible for the maintenance and repair of all township owned signals including traffic lights, school safety lights and banners. The Nutley Fire Department is contracted by the County of Essex to provide Hazardous Materials Emergency Response to all municipalities in the county with the exception of Newark. Hazmat is funded by the County and will invoice responsible parties for Hazmat Response. This unit works closely with the County Health Department and NJ Department of Environmental Protection. The HazMat unit is not funded from municipal taxes. The unit is comprised of 2 rapid response vehicles, 1 Command Center and 1 Mass Decontamination Unit. The Office of Emergency Management is operated under the Nutley Fire Department and consists of representatives of every branch of Nutley Government. During any severe storm or large scale emergency OEM is opened and staffed by all necessary staff so that all departments can work together in a team effort to provide services to the citizens of Nutley.
Additional departments, boards, and committees	The Shade Tree Advisory Committee shall advise and make recommendations to the Director of Parks and Public Property concerning: • Planting maintenance and care of all shade and ornamental trees and shrubbery now located or which may be hereafter planted in any public highway, park or parkway or area between sidewalks and curbs of all public streets within the Township, except those located on county or state highways, parks or parkways. • Proper maintenance of the ground surrounding shade and ornamental trees and shrubbery in order to encourage their proper growth, care and protection. • The removal of any tree or part thereof which is dangerous to public safety. • The care for and control of parks and parkways within the Township and the encouragement of arboriculture within the Township. • The administration of treatment to or the removal of any tree situate upon private property which is believed to harbor a disease or insect readily communicable to neighboring healthy trees which may be in the care of the Township. The Historic Preservation Committee shall have the responsibility to: • Prepare and/or maintain a survey of proposed historic landmarks of the Township so as to identify historic landmarks that are worthy of protection and preservation. • Make recommendations to the Planning Board on the historic preservation plan element of the Master Plan and on the impact for preservation of historic landmarks of any other Master Plan elements; • Advise the Planning Board and the Board of Adjustment on applications for development, when requested; • Carry out such other advisory, educational and informational functions as will promote historic preservation in the Township

The table below summarizes the Township of Nutley's staff with skills and expertise that contribute to risk reduction.

Table 17-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	No
Engineer	Engineering
Stormwater Officer	Engineering
Resilience / Sustainability Officer	No
Grant Writer	Revenue and Finance, outside consultants
Staff with benefit / cost analysis expertise	DPW and Engineering
Staff trained in conducting substantial damage determinations	DPW and Engineering
Staff trained in GIS	IT department with DPW, Engineering (outside consultants)
Staff that provide support to socially vulnerable populations	The Nutley Cultural Inclusion and Diversity Council (NCIDC) was created to empower and enrich the community by celebrating diversity, sharing unique perspectives, and being more inclusive and respectful of all citizens.
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of Nutley.

Table 17-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Code Enforcement and Public Works (Flood Development Permit)
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	Vacant property throughout the Township is inventoried through the Tax Assessors office.
What percentage of your jurisdiction is available for new development?	1.6%

17.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Nutley.

Table 17-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	Eligible
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible
Capital improvements funding	Yes	Available
Open space acquisition programs	No	-
Impact fees for developers of new homes	Yes	Through ordinance

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
User fees for water, sewer, gas, or electric	Yes	Residents pay for water-to-water company; as of July 1, 2024 sewer is paid through sewer utility; Upgrades to the Township sewer system lines will be funded through sewer utility improvement fee and capital, but if someone wants to re-do their sewer lateral line, they need the proper permits to do so; gas and electric is through PSE&G.
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Available
Ability to incur debt through bonds	Yes	Through general obligation bonds, special tax bonds, private activity bonds.
Other financial resources available for hazard mitigation	No	-

17.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Nutley.

Table 17-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Swift911
Public Information Officer	No
Website	The website includes information on stormwater management.
Social media	Facebook, X (formerly Twitter), Instagram, YouTube
Public safety campaigns	No
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	Parks and Recreation has senior citizen programming.
Other outreach capabilities	No

17.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Nutley.

Table 17-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The Township of Nutley administers its National Flood Insurance Program (NFIP) services through the Township of Nutley Department of Public Works/Engineering department in consultation with Code Enforcement Department, ensuring compliance with FEMA regulations and local floodplain management standards.
What local department is responsible for floodplain management?	Department of Public Works, Engineering, Municipal Engineering firm
Are any staff certified floodplain managers (CFMs)?	Yes
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No

Floodplain Administration	Comments
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	Yes
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	2
How many properties have been mitigated (elevation or acquisition)?	3 acquisitions
Summarize the jurisdiction's Substantial Damage determination procedures.	Follow NFIP requirements
Summarize the jurisdiction's Substantial Improvement procedures.	Follow NFIP requirements
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Yes

17.3.6 Community Classifications

Table 17-14 summarizes the Township of Nutley's participation in community classification programs.

Table 17-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Participating but not certified	N/A
Other Programs	Fire ISO Protection Class 4	
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

17.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Nutley has in place and will use to prepare for changes in risk due to climate change.

Table 17-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	The Township of Nutley has identified climate change-associated risks primarily related to changes in rainfall patterns, which lead to flooding and stormwater management challenges, as well as prolonged periods of extreme weather conditions, including drought and heatwaves.
What information does the jurisdiction use to understand potential climate change impacts?	The Township utilizes FEMA Flood Hazard Maps, State GIS, NJDEP Maps, Historical Flood Data, USDA NRCS Web Soil Survey data
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Flood Ordinance Chapter 349, Stormwater Ordinance Chapter 622, Chapter 685 Water Chapter 200 Air Pollution Chapter 665 - Trees
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	The Township of Nutley employs the services of an Engineering Consultant with expertise across multiple engineering disciplines, as well as Department of Public Works/Engineering and Office of Emergency Management to address and adapt to future climate risks.
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	The Township is seeking funding programs through FEMA and NJDEP
How does the jurisdiction educate the public on potential climate change impacts?	The Township provides notices and public awareness through multiple platforms, including website updates, town-wide alert notifications, social media, and collaboration with school and community groups.

17.3.8 Capability Assessment Summary

The Township of Nutley's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Nutley determined the following hazard capability effectiveness ratings.

Table 17-16. Township of Nutley Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geological Hazards	Moderate
Severe Weather	Moderate

Hazard	Capability Effectiveness Rating
Severe Winter Weather	Strong
Wildfire	Moderate

17.3.9 Opportunities to Improve Capabilities and Integration

- Although the Township has flood exposure and roughly 230 NFIP policies, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.
- Flood permits in New Jersey can be confusing for property owners. This confusion can lead to incorrect applications and slow down the permitting process.
- The Township lacks a Substantial Damage Response Plan.
- The Township will be required to develop a Watershed Improvement Plan by December 2027.

17.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Nutley were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Nutley reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the calculated hazard rankings.

The Township of Nutley agreed upon the following hazard rankings.

Table 17-17. Township of Nutley Hazard Rankings

Hazard	Hazard Ranking
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

17.5 Jurisdictional Mitigation Strategy

17.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 17-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-NUTLEY-001	**Generator at the Parks Annex:** Purchase and install a diesel generator at the Parks Annex. This will allow the building to function during power outages and provide essential services to the community.	DPW, Township Board	In Progress, A contract has been awarded, the project is currently being implemented with expected completion in 2025.	Yes	Action is in progress.
2020-NUTLEY-002	**Nutley minor flood control project:** Install gabion walls along Third River near Passaic Avenue bridge with Rutgers Place.	DPW, Engineer, Township Board	No Progress. No work has begun on this action due to funding.	Yes	This action continues to be a priority for Township. The Third River converges with St. Pauls Brook and then flows under the Passaic Avenue Bridge where the flow is impeded by a wall resulting in slow water movement and causes backup. Realigning the flow with the use of gabion walls could help resolve this problem. FEMA funding has been utilized for similar projects in the past.
2020-NUTLEY-003	**Infiltration and inflow study and reduction plan in floodplain areas:** Conduct an I&I study and reduction plan for sections throughout the Township. The study will identify the	DPW	Ongoing Capability. Township is in the process of performing a CCTV inspection and cleaning of its sanitary sewer trunk line	No, ongoing capability	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	amount of infiltration and inflow that enters the system. The study will also determine available solutions. The Township will identify the best solutions, seek funding for solutions, and implement projects.		from Belleville border to Booth Park. Following the CCTV and cleaning of sewer trunk line, Township will perform relining of sections that have I&I.		
2020-NUTLEY-004	**Install gabion walls at specific flood-prone locations through the Township:** Conduct a survey of the existing gabion walls in the Township to determine which ones need to be replaced. Also identify locations where walls need to be installed. Once the survey is complete, walls will be installed or replaced where necessary.	DPW, Engineer, Township Board	In Progress. A section of gabion walls has been installed on Passaic Avenue near Satterwaitte Ave. Additional gabion walls are needed.	Yes	This action continues to be a priority for Township. Implementation requires funding. Third River flows through the park system in center of Township. Existing hard infrastructure and natural shorelines need to be examined to determine the effectiveness of gabion walls. There have been previous events where there have been failure of the structural streambank and erosion of the natural streambank.
2020-NUTLEY-005	**Bloomfield Avenue pump station:** Purchase a trailer-mounted portable pump to be used to bypass the stationary pumps in the event the pumps cannot operate properly. This will provide continuity of operations and allow the Township's sewer	DPW	Complete. Action completed with purchase of trailer mounted portable pump	No, complete.	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	 If yes, provide an update on the problem and solution.
	system to operate during a power outage or flood event.				
2020-NUTLEY-006	**Third River Maintenance Plan:** Develop a maintenance program to reduce the buildup of debris and sediment to increase flow and reduce flooding.	DPW, Engineer	No Progress. No work has begun on this action due to funding.	Yes	This action continues to be a priority for Township.
2020-NUTLEY-007	**Perform study of Passaic River flooding onto River Road in Nutley Township:** Study the enhanced hydraulic characteristics of outflow pipes for feasibility of installing back flow/tide gates at outfall points to the Passaic River.	DPW	No Progress. No work has begun on this action due to funding.	Yes	This action continues to be a priority for Township.
2020-NUTLEY-008	**Study of urban flooding along Bloomfield Avenue and project implementation:** Conduct study to identify the cause of the urban flooding. Once study is complete, the Township will evaluate the recommendations from the study and implement projects that will benefit the Township. Additionally, the Township will update the stormwater ordinances to require on-site retention basins.	DPW, Township Board	In Progress. Township has employed engineering consultant to perform H&H – Drainage Study of all flood prone areas within the Township. Study is currently in progress.	Yes	Action is in progress
2020-NUTLEY-009	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to 192 flood-prone property	Floodplain Administrator	In Progress. NJOEM completed mailing to all repetitive loss property	Yes	NJOEM will work with the Township and property

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? If yes, provide an update on the problem and solution.
	owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the identified areas that experience frequent flooding (high risk areas).		owners in the State of New Jersey in summer 2024.		owners to develop grant applications as necessary.
2020-NUTLEY-010	**Community Rating System (CRS) Consideration:** The Township will determine whether or not they have the means to join CRS. If they do, they will prepare the appropriate documentation to join. If they become a CRS, the residents with flood insurance might receive a discount based on the CRS classification of the Township.	Floodplain Administrator	No Progress. No work has begun on this action due to staffing and manpower	Yes	This action continues to be a priority for Township.
2020-NUTLEY-011	**Generator at Parks and Recreation Building (Recreation Center):** Purchase and install a diesel generator at the Parks and Recreation Building. This will allow the building to function during power outages and provide essential services to the community.	DPW, Township Board	In Progress. A contract has been awarded, the project is currently being implemented with expected completion in 2025.	Yes	Action is in progress.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-NUTLEY-012	**Generator at Town Hall:** Purchase and install a diesel generator at the Town Hall. This will allow the building to function during power outages and provide essential services to the community.	DPW, Township Board	In Progress. A contract has been awarded, the project is currently being implemented with expected completion in 2025.	Yes	Action is in progress.
2020-NUTLEY-013	**Upgrade existing generator at the rescue squad building:** Purchase and install a diesel generator at the rescue squad building. This will allow the building to function during power outages and provide essential services to the community.	DPW, Township Board	In Progress. A contract has been awarded, the project is currently being implemented with expected completion in 2025.	Yes	Action is in progress.
2020-NUTLEY-014	**Purchase portable generator to use to run the fresh water well pump during power outages:** Purchase a portable generator to use during power outages to allow the fresh water well pump to operate and provide clean drinking water to residents.	DPW	No Progress. No work has begun on this action due to funding.	Yes	Change to permanent generator
2020-NUTLEY-015	**Stormwater Discharge Points Study:** Conduct a study to look at all the stormwater discharge points (Bloomfield and Kingsland; Franklin Avenue; Hillside Avenue; and Elm Street) to see how the Township can redesign to create a positive discharge using natural conveyance of an existing waterway in the Township.	DPW, Township Board	No Progress. No work has begun on this action due to funding.	Yes	This action continues to be a priority for Township.

17.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Nutley identified the following mitigation efforts completed since the last HMP:

- A drainage plan has been updated for the Township, including the mapping of stormwater components.
- The Township has taken part in the formation of a regional stormwater/flood committee for Essex County through the local State Assembly offices.

17.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Nutley identified the following issues that require mitigation.

- Although the Township has flood exposure and roughly 230 NFIP policies, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.
- There are several areas within the Township that experience flooding during heavy rain events (4"+ inches in short amount of time). The existing stormwater system is older. These areas include:
    - Existing mapped flood zones
    - Hope Street, Milton Avenue, and Bloomfield Avenue
    - Rhoda Ave (At the point of stormwater basins)
    - Mapes Ave (At the point of stormwater basins)
    - Stanley Ave (At the point of stormwater basins)
    - Intersection of Bloomfield Ave & Raymond Ave
    - Intersection of Hancox Ave & Nicola Place
    - Intersection of Cross St. & Evergreen Ave
    - Hancox Avenue near Passaic Avenue
    - Centre Street (east of) Bloomfield Avenue
- During high tide, the Passaic River surcharges the local storm collection system causing local flooding conditions.
- Flood permits in New Jersey can be confusing for property owners. This confusion can lead to incorrect applications and slow down the permitting process.
- Third River flows through the park system in center of Township. Existing hard infrastructure and natural shorelines need to be examined to determine the effectiveness of gabion walls. There have been previous events where there have been failure of the structural streambank and erosion of the natural streambank. For example, the Third River meets with St. Pauls Brook and then flows under the Passaic Avenue Bridge. The flow hits a wall which results in slow flow and causes backup. Realignment of the flow using gabion walls may address this issue. A section of gabion walls has been installed on Passaic Avenue near Satterwaitte Avenue but additional assessment and improvements are needed.

- The Third River flows through the Township. During periods of heavy rain, the river overflows its banks, leading to flooding of surrounding properties. Much of this flooding is caused by fallen trees, debris, and sediment.
- The Township has various critical facilities that lack backup power including:
    - Parks Annex
    - Parks and Recreation Building
    - Town Hall
    - Rescue Squad Building (has a generator but it needs to be replaced)
    - Fire Headquarters
    - Fresh Water pump
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 26 repetitive loss properties and 8 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their sub-watersheds and determine what improvements can be made to reduce their contribution.

17.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Nutley's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 17-19. Township of Nutley 2025 Mitigation Actions by Hazard Addressed

Project Number	*Project Name*	*Disease Outbreak*	*Drought*	*Earthquake*	*Extreme Temperature*	*Flood*	*Geological Hazards*	*Severe Weather*	*Severe Winter Weather*	*Wildfire*
2025-Township of Nutley-01	Join the Community Rating System Program					X				

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of Nutley-02	Urban Flooding and Stormwater Conveyance Studies					X		X	X	
2025-Township of Nutley-03	Passaic River Flood Study					X		X	X	
2025-Township of Nutley-04	Flood Permitting Education					X				
2025-Township of Nutley-05	Third River Gabion Walls Assessment					X		X	X	
2025-Township of Nutley-06	Third River Maintenance Plan					X	X	X	X	
2025-Township of Nutley-07	Backup Power for Critical Facilities			X	X	X	X	X	X	X
2025-Township of Nutley-08	Repetitive Loss Mitigation					X		X		
2025-Township of Nutley-09	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-Township of Nutley-10	Watershed Improvement Plan	X	X		X	X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 17-20. Township of Nutley 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of Nutley-01	Join the Community Rating System Program	1	1	1	1	1	1	1	0	1	0	1	1	0	1	11	High
2025-Township of Nutley-02	Urban Flooding and Stormwater Conveyance Studies	1	1	1	1	1	0	1	1	1	1	1	0	1	1	12	High
2025-Township of Nutley-03	Passaic River Flood Study	1	1	1	1	1	0	1	1	1	1	1	0	1	1	12	High
2025-Township of Nutley-04	Flood Permitting Education	0	1	1	1	1	1	1	0	1	1	1	1	0	1	11	High
2025-Township of Nutley-05	Third River Gabion Walls Assessment	1	1	1	1	1	0	1	1	1	1	1	0	0	1	11	High
2025-Township of Nutley-06	Third River Maintenance Plan	1	1	1	1	1	1	1	1	1	1	1	1	0	1	13	High
2025-Township of Nutley-07	Backup Power for Critical Facilities	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2025-Township of Nutley-08	Repetitive Loss Mitigation	1	1	1	1	0	1	1	0	1	1	1	1	0	1	10	Medium
2025-Township of Nutley-09	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-Township of Nutley-10	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Township of Nutley-01: Join the Community Rating System Program

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	Planning, OEM, Code Enforcement, DPW, Nutley Board of Commissioners	
Hazard(s) of Concern:	Flood	
Description of the Problem:	Although the Township has flood exposure and roughly 230 NFIP policies, the Township does not participate in the Community Rating System (CRS) program. Flood insurance premiums continue to rise.	
Description of the Solution:	The Township will evaluate the benefits and costs of participating in CRS program. If feasible, the Township will join the program and begin implementing standards that exceed NFIP requirements.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal Budget	
Implementation Timeline:	2 years	
Goals Met:	1, 2, 3, 5	
Benefits:	Participation in the CRS benefits communities by offering discounted rates for flood insurance premiums, which addresses the three goals of the program: reduce and avoid flood damage to insurable property, strengthen and support the insurance aspects of the National Flood Insurance Program, and foster comprehensive floodplain management.	
Impact on Socially Vulnerable Populations:	The participation in the Community Rating System (CRS) benefits communities by offering discounted rates for flood insurance premiums, which may be more affordable for some socially vulnerable populations.	
Impact on Future Development:	Future development would need to adhere to any increased standards established as part of joining the CRS program such as increased freeboard and elevation certificate requirements.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action would enhance the Township's floodplain management capabilities.	
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.	
Mitigation Category:	Education and Awareness Programs	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Adopt aspects of the CRS program into the floodplain management program	Increased floodplain management capabilities but no reduction in flood insurance premiums.
	Abandon any floodplain management practices not required by NFIP	Reduction in floodplain management capabilities and increase in risk.

2025-Township of Nutley-02: Urban Flooding and Stormwater Conveyance Studies

Lead Agency:	DPW
Supporting Agencies:	Engineering
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	There are several areas within the Township that experience flooding during heavy rain events (4"+ inches in short amount of time). The areas include: • Existing mapped flood zones • Hope Street, Milton Avenue, and Bloomfield Avenue • Rhoda Ave (At the point of stormwater basins) • Mapes Ave (At the point of stormwater basins) • Stanley Ave (At the point of stormwater basins) • Intersection of Bloomfield Ave & Raymond Ave • Intersection of Hancox Ave & Nicola Place • Intersection of Cross St. & Evergreen Ave • Hancox Avenue near Passaic Avenue • Centre Street (east of) Bloomfield Avenue
Description of the Solution:	The Township has employed an engineering consultant to perform an H&H – Drainage Study of all flood prone areas within the Township. A study will also be conducted focused on the stormwater discharge points (Bloomfield and Kingsland; Franklin Avenue; Hillside Avenue; and Elm Street) to see how the Township can redesign to create a positive discharge using natural conveyance of an existing waterway in the Township. Once these studies are complete, the Township will evaluate the recommendations from the studies and implement cost-effective projects that will benefit the Township.
Estimated Cost:	High
Potential Funding Sources:	HMGP, FMA (for activities benefiting NFIP-insured structures), BRIC, Township funding
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4
Benefits:	Flood risk will be reduced in hazard prone areas. Vulnerable communities will be identified ahead of a flood event, which will allow first responders to plan and stage resources in those areas. Future mitigation projects may be identified that will further increase overall community resiliency to flooding and other hazard events.
Impact on Socially Vulnerable Populations:	Areas vulnerable to flooding will be made aware to Township leadership and first responders which can place an emphasis on controlled future development. If cost-effective mitigation actions are identified, they may be implemented in flood prone areas that could reduce their overall risk to loss of life and property.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	Transportation routes will be more likely to remain open if flooding is mitigated along them. Hydration systems may remain potable for community usage if projects are identified to protect the existing infrastructure from flooding.
Impact on Capabilities:	This study will identify opportunities for mitigation funding to be spent in the areas in which it is most needed to increase resiliency and decrease damage from flood events.
Climate Change Considerations:	This action will address increasing stormwater needs due to climate change
Mitigation Category:	Structural Projects, Climate Resiliency

Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Buyout properties near flood prone areas	Costly, negative community impact
	Establish flood gates that shut down roadways when rainfall is forecast	Shuts off access to residences and businesses

2025-Township of Nutley-03: Passaic River Flood Study

Lead Agency:	DPW
Supporting Agencies:	Engineering
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	During high tide, the Passaic River surcharges the local storm collection system causing local flooding conditions.
Description of the Solution:	The Township will conduct a flood study of the hydraulic characteristics of outflow pipes into the Passaic River to determine the feasibility of installing back flow/tide gates at outfall points to the Passaic River. The Township will pursue cost-effective solutions identified by the flood study.
Estimated Cost:	High
Potential Funding Sources:	HMGP, FMA (for activities benefiting NFIP-insured structures), BRIC, Township funding
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 4
Benefits:	Flood risk will be reduced in hazard prone areas. Vulnerable communities will be identified ahead of a flood event, which will allow first responders to plan and stage resources in those areas. Future mitigation projects may be identified that will further increase overall community resiliency to flooding and other hazard events.
Impact on Socially Vulnerable Populations:	Areas vulnerable to flooding will be made aware to Township leadership and first responders which can place an emphasis on controlled future development.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	Transportation routes will be more likely to remain open if flooding is mitigated along them.
Impact on Capabilities:	This study will identify opportunities for mitigation funding to be spent in the areas in which it is most needed to increase resiliency and decrease damage from flood events.
Climate Change Considerations:	Climate change is likely to increase flooding of the Passaic River through sea level rise, storm surge events, and heavier rainfall events.
Mitigation Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Buyout properties near flood prone areas / Costly, negative community impact Establish flood gates that shut down roadways when rainfall is forecast / Shuts off access to residences and businesses

2025-Township of Nutley-04: Flood Permitting Education

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	DPW/Engineering, Building Department	
Hazard(s) of Concern:	Flood	
Description of the Problem:	Flood permits in New Jersey can be confusing for property owners. This confusion can lead to incorrect applications and slow down the permitting process.	
Description of the Solution:	The Township will develop educational materials that will attempt to better explain the permitting process, requirements of the NFIP, and requirements of the State of New Jersey.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	1 year	
Goals Met:	3	
Benefits:	Increased efficiency of flood permitting process.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	This action will help make the permitting process for future development more efficient.	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will strengthen the Township's floodplain management capabilities.	
Climate Change Considerations:	Climate change influenced floodplain requirements are being rolled out in New Jersey (inland flood rule). This action helps educate the public about these requirements and the reasoning behind them	
Mitigation Category:	Public Education and Awareness	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Hire outside group to conduct flood education	Costly and adds an additional step in educational process
	Encourage NJDEP to conduct outreach	Unlikely for state agency to provide necessary local support

2025-Township of Nutley-05: Third River Gabion Walls Assessment

Lead Agency:	Nutley Parks & Public Property
Supporting Agencies:	DPW, Engineering, Township Board of Commissioners
Hazard(s) of Concern:	Flood, Geological Hazards, Severe Weather, Severe Winter Weather
Description of the Problem:	Third River flows through the park system in center of Township. Existing hard infrastructure and natural shorelines need to be examined to determine the effectiveness of gabion walls. There have been previous events where there have been failure of the structural streambank and erosion of the natural streambank. For example, the Third River meets with St. Pauls Brook and then flows under the Passaic Avenue Bridge. The flow hits a wall which results in slow flow and causes backup. Realignment of the flow using gabion walls may address this issue. A section of gabion walls has been installed on Passaic Avenue near Satterwaitte Avenue but additional assessment and improvements are needed.
Description of the Solution:	The Township will conduct a survey of the existing gabion walls in the Township to determine which ones need to be replaced and improved for greater level of protection, locations where walls need to be installed, and locations where walls need to be redesigned to increase protection. Once the survey is complete, walls will be installed or replaced where necessary.
Estimated Cost:	High
Potential Funding Sources:	Municipal budget, HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures)
Implementation Timeline:	Within 5 years
Goals Met:	2
Benefits:	Increased flood protection from flood events. Reduction in damage to roads and infrastructure. Reduction in erosion.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is likely to increase the number of flooding events along the Third River. This action addresses the impacts that may occur as a result of the increase in flooding in the Third River
Mitigation Category:	Structural Projects
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action Buyout properties along Third River – Costly Widen the Third River to allow for natural erosion and deposition processes to occur – Not enough room, not permitted

2025-Township of Nutley-06: Third River Maintenance Plan

Lead Agency:	Parks & Public Property	
Supporting Agencies:	DPW, Engineering Consultants	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Third River flows through the Township. During periods of heavy rain, the river overflows its banks, leading to flooding of surrounding properties. Much of this flooding is caused by fallen trees, debris, and sediment.	
Description of the Solution:	The Township will develop a maintenance program to reduce the buildup of debris and sediment to increase flow and reduce flooding.	
Estimated Cost:	Low for plan	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	2 years	
Goals Met:	1, 2, 5	
Benefits:	Increased effectiveness of maintenance of Third River, resulting in decrease in flooding.	
Impact on Socially Vulnerable Populations:	Benefits will serve all properties that border the Third River.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the Township's floodplain management capabilities.	
Climate Change Considerations:	Climate change is likely to increase the number of flooding events along the Third River. Increases in severe weather are likely to result in an increase in downed trees and other debris in the river. This action addresses the increase in debris and flooding in the Third River	
Mitigation Category:	Prevention, Nature Resource Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Buyout properties along Third River	Costly
	Widen the Third River to prevent debris snags	Not enough room, not permitted

2025-Township of Nutley-07: Backup Power for Critical Facilities

Lead Agency:	Parks & Public Property
Supporting Agencies:	Nutley Board of Commissioners, Building Department, DPW, Engineering, OEM
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	The Township has various critical facilities that lack backup power including: • Parks Annex • Parks and Recreation Building • Town Hall • Rescue Squad Building (has a generator but it needs to be replaced) • Fire Headquarters • Fresh Water pump
Description of the Solution:	Funding has been allocated and generators have been purchased. Installation at each facility is scheduled for 2025. Parks & Public Property will be responsible for maintenance and testing of the generators following installation. Funding is still needed for the fresh water pump backup generator
Estimated Cost:	High
Potential Funding Sources:	Municipal Budget, HMGP
Implementation Timeline:	1 year
Goals Met:	6
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Microgrid / Costly and difficult to implement. Solar panels and battery backup / Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Township of Nutley-08: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM, DPW/Engineering
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 26 repetitive loss properties and 8 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. The Township will also conduct outreach to homeowners that may be interested in acquisition, specifically in areas where the existing building stock makes elevation very difficult due to age and construction techniques. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners, NJ DEP Blue Acres
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / - Levee around floodplain / Costly, not enough room Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of Nutley-09: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action**: No Action **Evaluation**: -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Township of Nutley-10: Watershed Improvement Plan

Lead Agency:	DPW/Engineering/Floodplain Administrator	
Supporting Agencies:	NJ DEP	
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak	
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their sub-watersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.	
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features using the Township's updated Drainage Plan. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.	
Estimated Cost:	Medium for planning, High for implementation of identified projects	
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Completion required by December 2027	
Goals Met:	1, 2, 5	
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.	
Impact on Socially Vulnerable Populations:	TBD by identified projects	
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.	
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.	
Impact on Capabilities:	This action will improve stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.	
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

17.6 Jurisdictional Hazard Mitigation Team

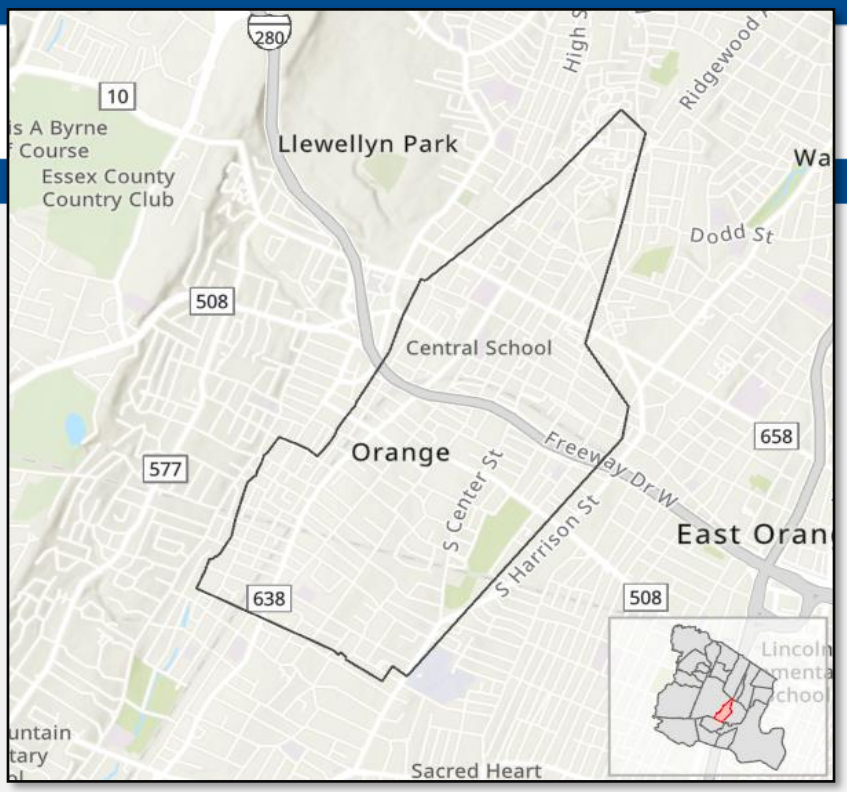
Table 17-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Don Santangelo, OEM Coordinator	Name and Title:	Salvatore Ferraro, Eng. Cord.
Address:	228 Chestnut Street, Nutley NJ 07110	Address:	1 Kennedy Drive, Nutley NJ 07110
Phone Number:	973-284-4936	Phone Number:	973-284-4958
Email:	dsantangelo@nutleynj.org	Email:	sferraro@nutleynj.org
NFIP Floodplain Administrator			
Name and Title:	Salvatore Ferraro, Eng. Cord.		
Address:	1 Kennedy Drive, Nutley NJ 07110		
Phone Number:	973-284-4958		
Email:	sferraro@nutleynj.org		

Table 17-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Don Santangelo, OEM Coordinator and Fire Captain	Provided information on capabilities, past events. Contributed to mitigation strategy.
Salvatore Ferraro, Eng. Cord.	Provided information on capabilities, past events. Contributed to mitigation strategy. Reviewed draft annex.

City of Orange Township



POPULATION STATISTICS

33,973
TOTAL POPULATION (2023 ACS)

0.11%
Change in population since 2010 Census

12,592
TOTAL HOUSEHOLDS

AT RISK POPULATION

4,615
Population Over 65

2,384
Population Under 5

4,436
Living With Disability

166
Households Without Vehicle

9,653
People Renting Homes

POVERTY AND LANGUAGE

3,735
Households Below Poverty Level

7,405
Population With English as 2nd Language

POPULATION AND BUSINESSES

26,576
Daytime Population

876
Total Businesses

14,414
Total Employees

FLOOD VULNERABILITY

2,724
Number of People in 1% SFHA

378
Number of Buildings in 1% SFHA

8
Community Lifelines in 1% SFHA

18 City of Orange Township

18.1 Jurisdictional Profile

Originally known as the "Newark Mountains", the City of Orange Township (the Township) officially renamed in 1780 and became incorporated in 1860. Orange was once known as the hat manufacturing capital of the world. The location attracts small to medium sized businesses who find it affordable to operate and easy access to desirable markets.

According to the U.S. Census Bureau, the Township has a total land area of 2.201 square miles, of which 2.199 square miles is land and 0.002 square miles is water. The Township is bordered to the west by West Orange, to the east by East Orange, and to the south by South Orange. The East Branch of the Rahway runs through Orange. For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

The City of Orange Township has implemented several mitigation efforts to reduce the impact of natural and man-made hazards. These include flood control projects, stormwater drainage improvements, and infrastructure reinforcements to protect critical facilities. The Township has enhanced emergency preparedness through public awareness campaigns, CERT training programs, and improved emergency response plans. Additionally, investments have been made in emergency communication systems, such as reverse 911 alerts, and securing grants for mitigation initiatives.

Moving forward, the Township's mitigation priorities include improving flood management, enhancing severe weather preparedness, and strengthening critical infrastructure resilience. Efforts will focus on upgrading emergency shelters, reinforcing public buildings, and enhancing emergency communication systems. Expanding community education, integrating real-time monitoring technology, and investing in sustainable infrastructure will also be key priorities to ensure long-term resilience.

18.2 Jurisdictional Risk Assessment

The following sections assess the City of Orange Township's risk to the hazards of concern identified for the 2025 HMP update.

18.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the City of Orange Township's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 18-1. Hazard Event History Since 2020

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
January 20, 2020 – May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	The coronavirus pandemic had a profound impact. This unprecedented health crisis strained local healthcare systems, disrupted daily life, and caused significant economic and social losses. The widespread nature of the outbreak led to emergency declarations, mobilization of public health resources, and community-level initiatives to mitigate the spread and support affected individuals and families.
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of ½ to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Tropical Storm Isaias impacted the Township with sustained wind speeds ranging from 35 to 50 mph and strong gusts, leading to downed trees, power outages, and property damage throughout the community. The storm caused localized flooding and disruptions to daily activities, prompting emergency response efforts to address debris removal, restore utilities, and ensure resident safety.
September 1 – 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	The remnants of Hurricane Ida brought extremely heavy rainfall to the Township between the evening of September 1 and the early morning hours of September 2, with totals ranging from 5 to 8+ inches. The rapid and intense rainfall caused widespread flash flooding, inundating streets, homes, and businesses. The Township's infrastructure was severely strained, with road closures, property damage, and disruptions to essential services. Recovery efforts focused on water removal, debris clearing, and assisting affected residents in the aftermath of this historic flooding event.

Source: FEMA 2024; NOAA NCEI 2025

18.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. The Township has recently experienced flooding along South Essex Street near Freeway Drive West and Reynolds Terrace. Homes along Seven Oaks Way have been frequently damaged.

As a result, the Township indicated that the FEMA flood maps do not adequately address flood risk within the community.

The Township has experienced property damage due to various natural hazards, including flooding, severe storms, and other weather-related events. Historically, properties located in flood-prone areas have sustained the most significant damage, particularly during major storms such as Hurricane Irene (2011), Superstorm Sandy (2012), and more recent heavy rain events.

Substantially damaged properties have primarily included residential homes, commercial buildings, and critical infrastructure that suffered severe structural damage, requiring extensive repairs or complete rebuilding. In response, the Township has worked on mitigation efforts such as improved stormwater management, infrastructure reinforcements, and participation in federal and state recovery programs to assist affected property owners. The Township continues to assess and address vulnerabilities to prevent future substantial damage through hazard mitigation planning, building code improvements, and proactive emergency management initiatives.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for the Township.

Table 18-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
238	$350,883	$60,367,000	227	$2,151,211	16	2

Source: FEMA 2025; FEMA 2024a; FEMA 2024b

Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 18-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Orange Bus Garage	Transportation	X
Fuelco Gas Station-Orange	Energy	X
Orange PSE&G Power Substations	Energy	X
ESCO Equipment Storage Facility	Safety and Security	X
ECSO Equipment Storage Facility	Safety and Security	X
Orange Water Pumping Station	Water Systems	X
Essex Campus Academy	Safety and Security	X
Madrasatu Bait	Safety and Security	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

18.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the City of Orange Township, including major residential/commercial/industrial development and major infrastructure development.

Table 18-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
PNC Bank	Commercial	Bank	23 Main Street	No	Completed 2021
Reock I	Residential	50	276 Reock St	No	Completed 2022
205 Mt. Vernon	Residential	19	205 Mt. Vernon St.	No	Completed 2022
Wawa	Commercial	Gas Station/ Convenience Store.	164 Main St.	No	Completed 2022
Essex & Crane by Vermela	Residential	209	377 Crane St.	No	Completed 2023
The Mural	Residential	103	606 Freeman St.	No	Completed 2024
Highland I	Residential	138	416 Highland Ave.	No	Completed 2024
PSE&G	Industrial	Substation	541 Forest St.	No	Under Construction
72 S. Essex Ave	Residential	91	72 S. Essex Ave	No	Under Construction
Dunkin	Commercial	Retail	529 Main St.	No	Under Construction
The Elks	Residential/Commercial	126 Units/ 1,300 Sf Retail	475 Main St.	No	Under Construction
33-51 Lincoln Ave.	Residential	201	33-51 Lincoln Ave.	No	Under Construction
448 Scotland Rd.	Residential	87	448 Scotland Rd.	No	Under Construction
Highland II	Residential	102	407 Highland Ave.	No	Under Construction
356 Washington St.	Residential	142	356 Washington St.	No	Approved by Planning Board
100 Main St.	Residential	307	100 Main Street.	No	Approved by Planning Board
68 Central Ave	Residential	82	68 Central Ave	No	Approved by Planning Board
48 South Day St.	Residential	122	48 South Day St.	No	Approved by Planning Board
490 Central Ave.	Residential	45	490 Central Ave	No	Approved by Planning Board
27 Bell St.	Residential	26	27 Bell St.	No	Approved by Planning Board
85 Main St.	Residential	51	85 Main St.	No	Approved by Planning Board

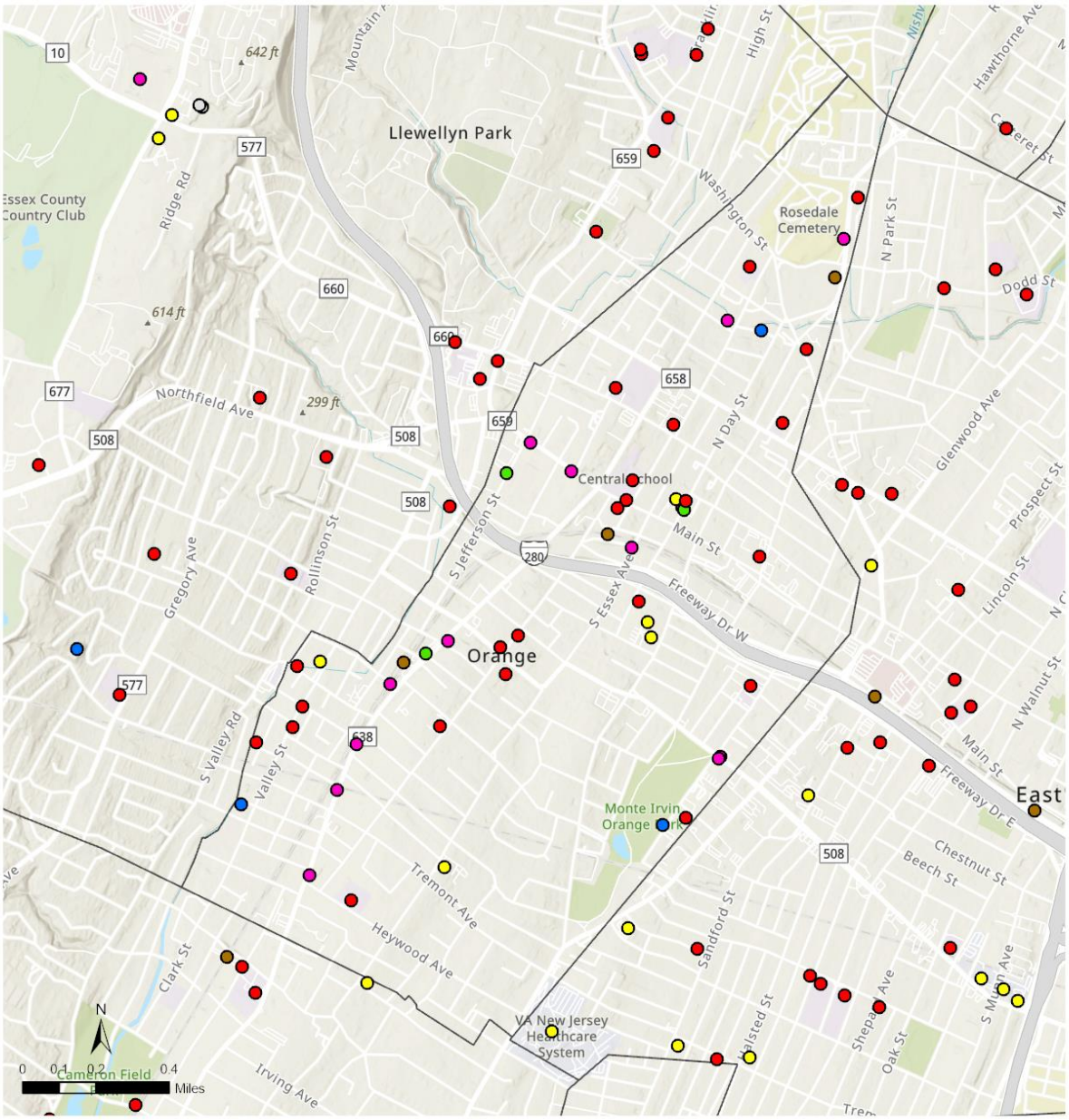
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
63 North Essex Ave.	Residential	15	63 North Essex Ave.	No	Approved by Planning Board.
53 North Essex Ave.	Residential	15	53 North Essex Ave.	No	Approved by Planning Board.
493 Central Ave.	Commercial	Gas Station/Convenience Store.	493 Central Ave.	No	Approved by Planning Board.
76 Cleveland St.	Residential	72	76 Cleveland Ave.	No	Approved by Planning Board
38-60 Berwyn St.	Residential	166	38-60 Berwyn St.	No	Approved by Planning Board.
564 Forest St.	Residential	31	564 Forest St.	FEMA flood map-Zone AO (Depth 2)	Approved by Planning Board
150 Taylor St.	Residential	4 Townhouses	150 Taylor St.	No	Approved by Planning Board.
151 Taylor St.	Residential	9	151 Taylor St.	No	Approved by Planning Board.
595 Lincoln Ave	Residential	70	595 Lincoln Ave.	No	Approved by Planning Board.
566-568 Morrow St.	Residential	202	566-568 Morrow St.	FEMA flood map-Zone AO (Depth 2)	Approved by Planning Board.
617 Scotland Rd.	Residential	78	617 Scotland Rd.	No	Approved by Planning Board.
523 Freeman St.	Residential	9	523 Freeman St.	No	Approved by Planning Board
220 Main St.	Residential/ Commercial	20 Units/ 3,290 Sf retail	220 Main St.	No	Approved by Planning Board
488 Linden Pl	Residential	6	488 Linden Pl	No	Approved by Planning Board
13-17 Main St.	Residential/ Commercial	6 Units/ 2,970.92 SF retail	13-17 Main St.	No	Approved by Planning Board
272 Central Ave	Residential/ Commercial	4 units/ 2,093 SF retail	272 Central Ave	No	Approved by Planning Board
512- 522 Scotland Rd.	Residential	30	512-522 Scotland Rd.	No	Approved by Planning Board
57-69 North Day St.	Residential	97	57-69 North Day St.	No	Approved by Planning Board
299 Reynolds Ter.	Residential	20	299 Reynolds Ter.	No	Approve by Planning Board

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
50 Main St.	Residential/ Commercial	457 Units/ 11,000 Sf. Retail	50 Main St.	No	Approved by Planning Board
205 South Essex Ave	Residential/ Commercial	1,005 Units/ 62,464 Sf Retail.	205 South Essex Ave.	No	Approved by Planning Board.

18.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the City of Orange Township that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 18-1. City of Orange Township Community Lifelines

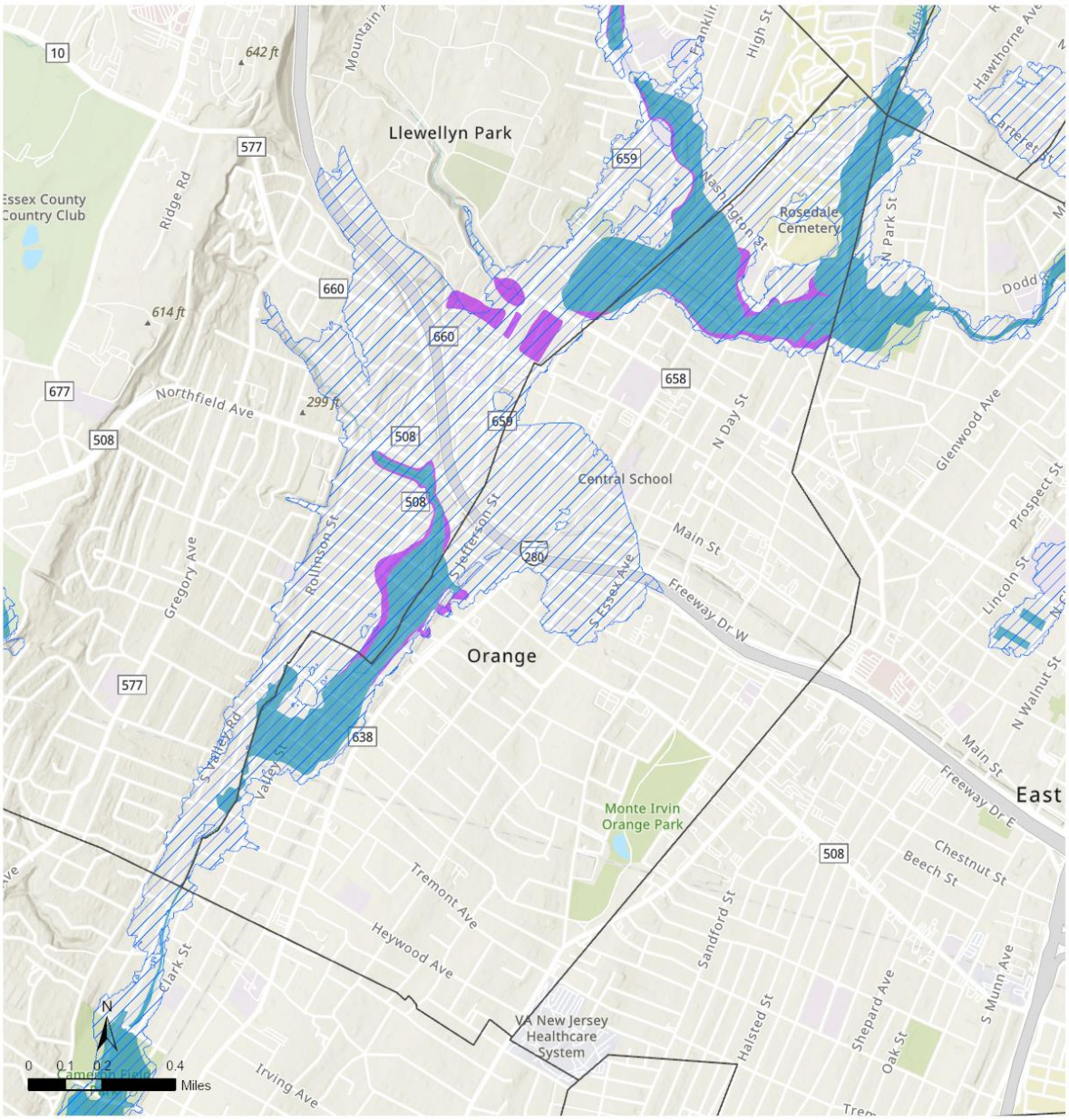


City of Orange Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 18-2. City of Orange Township Flood-Related Hazards

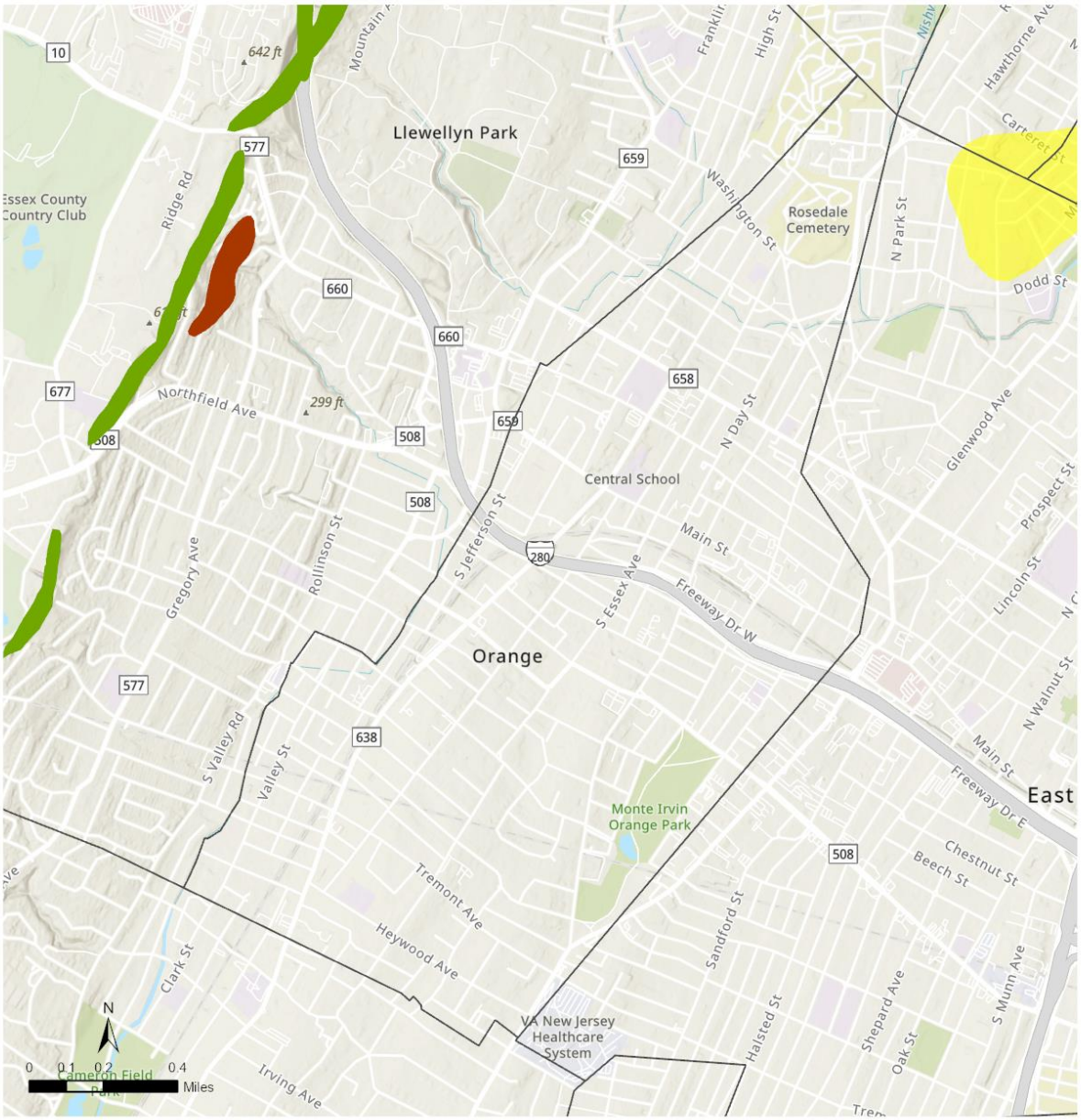


City of Orange Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 18-3. City of Orange Township Geological Hazards



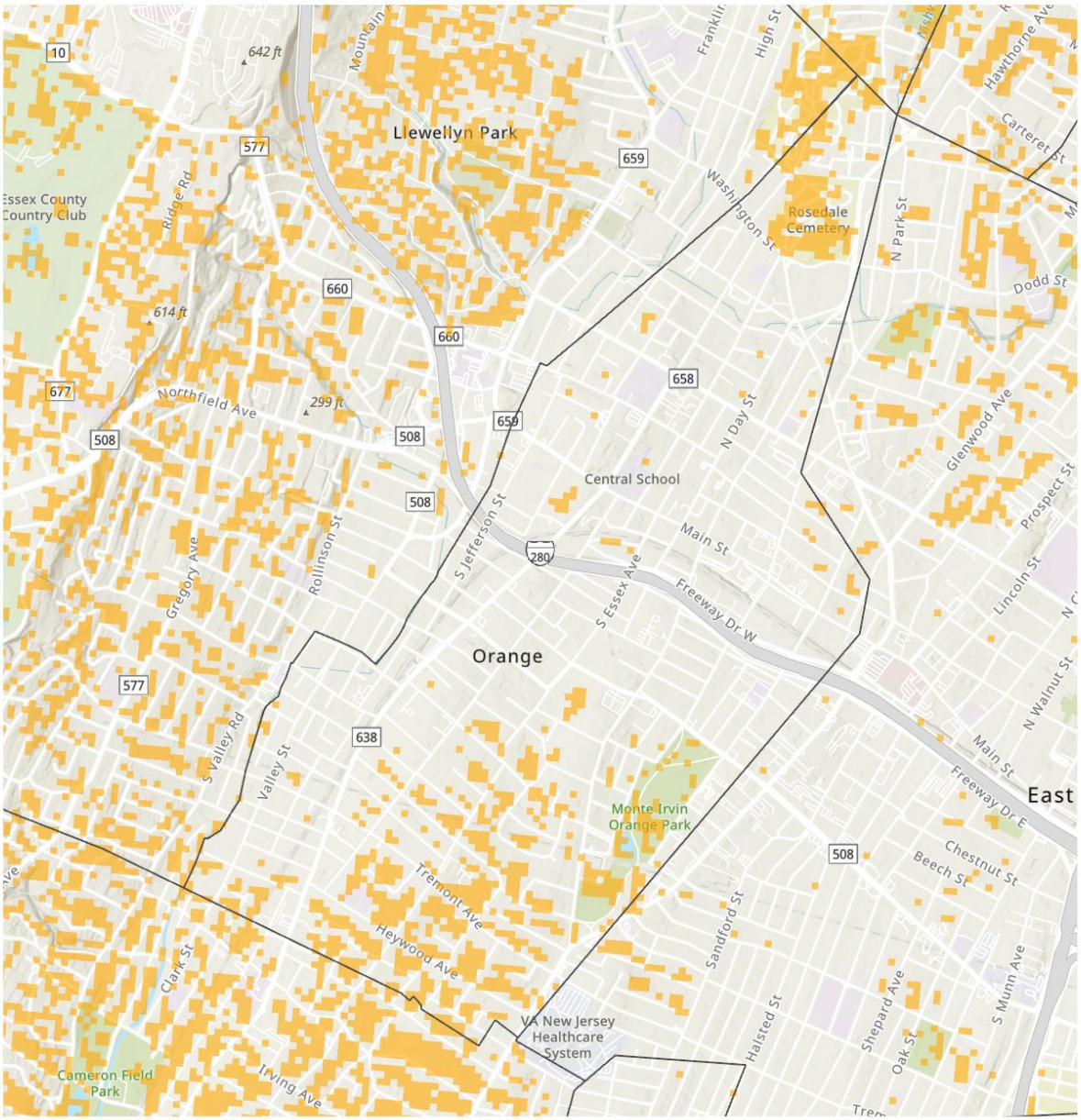
City of Orange Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 18-4. City of Orange Township Wildfire Hazard



City of Orange Township: Wildfire Hazard Potential

N

0 0.1 0.2 0.4 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

18.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. Climate change is one of the greatest threats to our future prosperity in the City of Orange Township and is likely to have the following impacts on the Township:

- Increased Flooding – More intense and frequent heavy rainfall events may overwhelm stormwater systems, leading to increased street and basement flooding, especially in flood-prone areas.
- More Severe Storms – Hurricanes, nor'easters, and other severe weather events may become more intense, causing stronger winds, greater precipitation, and extended power outages.
- Extreme Heat Events – Rising temperatures may result in longer and more frequent heatwaves, posing health risks to vulnerable populations, including the elderly and those with preexisting conditions.
- Infrastructure Strain – Increased temperatures and severe storms may accelerate wear and tear on roads, bridges, and public utilities, leading to higher maintenance costs and potential service disruptions.
- Public Health Risks – Rising temperatures and shifting weather patterns may contribute to increased air pollution, vector-borne diseases, and other health concerns.
- Economic & Community Impact – More frequent hazard events can lead to increased insurance costs, property damage, and economic strain on residents and businesses.

18.2.5 Risk Assessment Summary

- The Campbells Pond Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (10/21/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The City of Orange Township faces ongoing challenges in providing a long-term solution for heat emergencies and Code Blue events. Relying on temporary shelters through partnerships with churches, schools, and municipal facilities creates inconsistencies due to staffing constraints and budget limitations. Additionally, securing full commitment from private partners at a moment's notice remains difficult, impacting emergency response efficiency.
- The Township's Fire Station #2 is a community lifeline and critical asset to the community. It does not have a backup power source and cannot fully operate during power outages. Without the station being able to function, they cannot provide fire services to the community.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 16 repetitive loss

properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.

- The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by the City of Orange Township.

18.3 Jurisdictional Capability Assessment

The City of Orange Township performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

18.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the City of Orange Township.

Table 18-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	City of Orange Township, NJ Master Plan, 2018	Planning Board
Impact on Risk Reduction: The 2018 Master Plan includes seven Elements (land use, housing economic development, circulation, community facilities, sustainability, and historic preservation), all of which seek to harness the Township's growth and expansion over the next decade and ensure an enhanced quality of life for all residents. For each Element, a "strategic vision," which was developed in large part by residents and stakeholders in the community outreach phase of the Plan's development. A recommended path to achieving this vision is presented.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Capital Improvement Plan	Yes	Annual Budget	City Council
Impact on Risk Reduction: Included in the annual budget and provides allocations for capital improvement projects.			
Stormwater Management Plan	Yes	Chapter 210 Article V section 32 Stormwater control requirements of the municipal code, August 2024	Department of Public Works
Impact on Risk Reduction:			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan, August 2024	Department of Public Works
Impact on Risk Reduction:			
Floodplain Management Plan or Watershed Plan	Yes	Ordinance 34-2023 Chapter 95 Flood Hazard Map & Administration	Department of Public Works
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	• City of Orange Township, NJ Master Plan, Sustainability Element, 2018 • Community Energy Plan, April 2024	• Planning Board • City Council
Impact on Risk Reduction: This Element is intended to guide land use decisions and provide the basis for ordinances addressing such decisions from the perspective of environmental sustainability. The Community Energy Plan details the specific strategies that the City of Orange Township will pursue in the coming years to reduce greenhouse gas emissions from the local energy system. It establishes how the City of Orange Township			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
will promote the transition to sustainable energy over the next several years. Initiatives were selected based on demonstrated effectiveness, unique local opportunities, and co-benefits for the community as a whole, such as improved local air quality, energy savings for residents, and workforce development.			
Transportation Plan	Yes	City of Orange Township, NJ Master Plan, Circulation Element, 2018	Planning Board
Impact on Risk Reduction: The Circulation Element of the Master Plan provides guidance to the City of Orange Township regarding provisions for facilitating the movement of goods and people within and around the City of Orange Township.			
Economic Development Plan	Yes	Urban Enterprise Zone (UEZ) Program; City of Orange Township, NJ Master Plan, Sustainability Element, Economic Development Element, 2018	Administration
Impact on Risk Reduction: The Economic Development Element, prepared in accordance with the New Jersey Municipal Land Use Law provides an overview of the current economic conditions within the Township and areas of potential growth and expansion. Since its inception, the Orange UEZ has been an economic engine in attracting investment to the area including, but not limited to, large-scale residential redevelopment, new businesses, enhanced infrastructure improvements, streetscapes, public safety projects, and much more.			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the City of Orange Township to prepare for, respond to, and recover from hazard events.

Table 18-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	City of Orange Township Emergency Operations Plan	Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan (EOP) significantly reduces risk by: • Enhancing Preparedness – Identifies local hazards, strengthens response coordination, and ensures essential resources are ready. • Improving Emergency Response – Establishes clear roles for OEM, police, fire, EMS, and other agencies, reducing confusion and delays. • Protecting Residents – Provides public alerts, evacuation plans, and sheltering strategies, minimizing harm during disasters. • Strengthening Community Resilience – Engages local organizations and residents in preparedness efforts, improving overall safety and recovery. By implementing the EOP, Orange ensures a faster, more effective response to emergencies, reducing damage and saving lives.			
Continuity of Operations Plan /	No	-	-

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Continuity of Government Plan			
Impact on Risk Reduction:			
Evacuation Plan	Yes	City of Orange Township Emergency Operations Plan	Police, Fire, EMS and DPW
Impact on Risk Reduction: As outlined in our Emergency Operation Plan, the Evacuation Plan reduces risk by: • Ensuring Safe & Timely Evacuations – Defines clear routes, assembly points, and transportation plans for residents. • Minimizing Chaos & Confusion – Establishes roles for OEM, police, fire, and EMS to coordinate evacuations efficiently. • Protecting Vulnerable Populations – Identifies and assists seniors, disabled individuals, and those needing special accommodations. • Enhancing Public Awareness – Provides clear communication on evacuation orders, shelter locations, and re-entry procedures. A well-executed Evacuation Plan ensures Orange can quickly move residents to safety, reducing injuries and loss of life during emergencies.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	Yes	Citywide Recovery Plan	Administration and Department Managers
Impact on Risk Reduction: The Post-Disaster Recovery Plan reduces risk by: • Restoring Critical Services Quickly – Prioritizes infrastructure repairs, utilities, and public safety operations. • Supporting Residents & Businesses – Provides recovery resources, financial aid guidance, and rebuilding assistance. • Minimizing Economic Impact – Accelerates reopening of businesses, schools, and essential services. • Enhancing Long-Term Resilience – Implements mitigation strategies to reduce future disaster risks.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
A strong Recovery Plan ensures Orange can rebuild efficiently, restore normalcy faster, and strengthen resilience against future disasters.			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the City of Orange Township.

Table 18-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 74 Construction Codes, Uniform	Building & Construction Division
Impact on Risk Reduction: There is hereby established in the City of Orange Township a State Uniform Construction Code enforcing agency within the Department of Planning and Economic Development to be known as the "Division of Building and Construction," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. The enforcing agency shall be a division of the Department of Planning and Economic Development. The Fire Prevention Officer shall be responsible to the Fire Department for administrative and budgeting purposes, except as follows: For the purposes only of the enforcement of any subcode, specifically designated for such Fire Protection Subcode enforcement in Part II of the regulations of the New Jersey Uniform Construction Code within the jurisdiction of the enforcing agency, the Fire Protection Subcode Official shall be subject to the procedures and policies of the enforcing agency and shall be primarily responsible to the Construction Official.			
Zoning or Land Use Regulations	Yes	Chapter 210 Development Regulations	Planning Board
Impact on Risk Reduction: Purposes of this chapter relating to hazard mitigation include: • Encourage appropriate use or development of land in a manner which will promote the public health, safety, morals and general welfare. • Secure safety from fire, flood, panic and other natural and man-made disasters. • Provide adequate light, air and open space. • Promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods and the community as a whole, as well as the preservation of the environment. • Provide sufficient space, in appropriate locations, for a variety of residential, recreational, commercial and industrial uses and open spaces, both public and private, according to their respective environmental requirements in order to meet the needs of all citizens. • Encourage the location and design of transportation routes, which will promote the free flow of traffic, while discouraging the location of such facilities and routes, which result in congestion or blight. • Promote the conservation of historic sites and districts, open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land.			
Subdivision Regulations	Yes	Chapter 210 Development Regulations, Article VII Subdivision Review	Planning Board
Impact on Risk Reduction: The purpose of this article shall be to provide rules, regulations, and standards to guide land subdivision in the City of Orange Township in order to promote the public health, safety and general welfare of the municipality. It shall be			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.			
Site Plan Regulations	Yes	Chapter 210 Development Regulations, Article VI Site Plan Review	Planning Board
Impact on Risk Reduction: The purpose of this article is to guide the appropriate use and development of the land in a manner which will provide the public health, safety, and general welfare, to promote the free flow of traffic while discouraging traffic congestion and to promote a desirable visual environment through creative development techniques and good civic design and arrangements.			
Stormwater Regulations	Yes	Chapter 115 Illicit Connections to Municipal Storm Sewer System Prohibited; Chapter 210 Development Regulations, Article V Development Standards	Public Works
Impact on Risk Reduction: The purpose of Chapter 115 is to prohibit illicit connections to the City of Orange Township municipal separate storm sewer system(s) owned or operated by the City of Orange Township, so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply. Chapter 210 establishes minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 95 Flood Damage Prevention	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: A. Protect human life and health. B. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. C. Manage the alteration of natural floodplains, stream channels and shorelines; D. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. E. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. F. Contribute to improved construction techniques in the floodplain. G. Minimize damage to public and private facilities and utilities. H. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. I. Minimize the need for rescue and relief efforts associated with flooding. J. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. K. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. L. Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Environmental Protection Regulations	Yes	Chapter 181 Soil Removal; Chapter 203 Water	City Engineer, Public Works
Impact on Risk Reduction: Chapter 181 states that the unregulated and uncontrolled removal, relocation, filling and excavation of soil by the owners of property within the City of Orange Township has resulted in conditions detrimental to the public health, safety and general welfare; and a continuance of the unregulated and uncontrolled removal, relocation, filling and excavation of soil in, upon or from lands within the boundaries of the City of Orange Township, in the County of Essex, will result in serious and irreparable damage to the public welfare by reason of soil erosion by wind and water; inadequate and improper surface water drainage or a complete lack of same, the decrease in, or the destruction of the fertility of the soil, the removal of lateral support of abutting streets, lands and premises; the creation of excessive amounts of dust and the deposit of such dust upon adjoining property, particularly buildings, shrubbery and trees; the deposit upon the pavements of the streets of the Township of large quantities of mud or dust; the creation of depressions which form mosquito breeding places; the creation of depressions and pits dangerous to small children; the deterioration of property values; the rendering of lands unfit or unsuitable for their most appropriate uses; and the creation of other conditions hampering and interfering with the coordinated and harmonious physical development of the Township. Chapter 203 includes provisions for emergency water shortage procedures.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

18.3.2 Administrative and Technical Capabilities

The table below summarizes the City of Orange Township's departments, boards, and committees that contribute to risk reduction.

Table 18-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	Planning Board; Zoning Board of Adjustment
Planning Department	The Department of Planning & Economic Development oversees a broad range of programs aimed at improving neighborhoods and encouraging growth in the City of Orange Township. Its primary mission is to plan, organize, lead, control and deliver urban planning, zoning and economic development services to meet the needs of both private and public sectors of the City of Orange Township's burgeoning economy. The Department includes the Planning Division, which manages planning and zoning activities throughout the City of Orange Township, including preparation of the City of Orange Township's Master Plan and zoning regulations, as well as providing technical and policy guidance to the Mayor, City Council, Planning Board and Zoning Board of Adjustment on issues affecting physical development of the City of Orange Township. Zoning Enforcement Division, led by the City of Orange Township's Zoning Officer, which is the initial stop for all construction projects to

Department / Board / Committee	Description and Role in Risk Reduction
	ensure that plans are in compliance with the City of Orange Township's permitted use and bulk standards, or to refer the application to one of the City's land use boards for further review.
Public Works / Highway Department	The Department of Public Works (DPW) provides services for residents throughout the year. DPW responsibilities include administering the following Divisions: • Street Maintenance: The Street Maintenance Division maintains (including snow plowing and snow removal) all municipal roads. It cleans and sweeps improved roads and is responsible for the installation and maintenance of traffic signs (street names, stop, no turn on red, and no parking signs, etc.). The Street Maintenance Division is also responsible for road markings, including crosswalks, fire lanes and parking stalls. • Parks Maintenance: The Parks Maintenance Division maintains the upkeep of 8 city parks totaling 12 acres, as well as City-owned lots, and three in-ground swimming pools. It is responsible for the planning, care of more than trees along public streets, as well as trees, shrubs and flowers in municipal parks and on public grounds. • Vehicles & Equipment: The Vehicles and Equipment Division is in charge of preventive maintenance and repair of municipally-owned vehicles and other mechanical equipment used by the DPW, police, fire and recreation departments. • Buildings & Grounds: The Building and Grounds Division is responsible for maintaining public facilities. The Building and Grounds Division is also responsible for shoveling snow from the walks of all public buildings and setting up the Council Chambers for Council meetings, various boards and Municipal Court sessions. Building and Grounds installs and removes holiday decorations and lights in the business downtown business districts for the Urban Enterprise Zone. DPW coordinates with utility providers of gas, electricity, and water to ensure that all areas of the City of Orange Township are receiving services, and to resolve problems that may occur due to storms and other emergencies. The Township's water and sewer utility provides service to all residential and commercial properties. The utility is responsible for overseeing all aspects of the physical infrastructure, logistical operations and maintenance, and water allocation permits. The sewer division maintains and repairs storm and sanitary sewers, inlets, manholes and sanitary sewage pump stations.
Construction / Building / Code Enforcement Department	The Department of Planning & Economic Development Building & Construction Division, which reviews and processes applications for construction permits, issues permits, inspects permitted work, issues occupancy certificates, and enforces violations of the New Jersey Uniform Commercial Code.

Department / Board / Committee	Description and Role in Risk Reduction
	The Department of Planning & Economic Development Code Enforcement Division, which is responsible for enforcing the Township's property maintenance regulations.
Engineering Department	Remington & Vernick Engineers assists the township in implementing the new stormwater regulations, assists in review of plans to ensure best stormwater management practices are being followed in areas of new development, assist township with investigation of areas of flooding to determine cause and possible steps to remediate.
Parks and Recreation Department	Department of Recreation - focuses on conducting recreational activities and learner programs for our youth as well as adults. Some of the many programs we conduct are golf, tennis, baseball, basketball, volleyball, kickball, computer camp, music, drama, dance, television production, origami, arts and crafts, flag football, soccer, football, swimming, life guard training, wrestling, karate, volleyball and double-dutch.
Open Space Board / Committee	-
Environmental Board / Commission	The Environmental Commission shall: • Conduct research into the use and possible use of the open land areas of the City of Orange Township. • Coordinate the activities of unofficial bodies organized for similar purposes. • Keep a Natural Resources index from all open areas, publicly and privately owned, included open marsh land, swamps, and other wetlands and to obtain information on the proper use of such areas. • Recommend, from time to time, to the Planning Board, plans and programs for inclusion in the Master Plan of the township for the development and use of such lands. • Study and make recommendations concerning open space preservation, water resource management, air pollution control, solid waste management, noise control, environmental appearance, marine resources, protection of flora and fauna and any other environmental concerns which affect the enjoyment and health of the public. • Refer matters to the proper City authorities whenever violations of environmental law come to its attention. • Coordinate and/or respond to volunteer neighborhood efforts to solve environmental problems. This includes convening at least every two years a conference at which municipal officials and citizens shall discuss the status of environmental services and the means to improve them. • Assist in the formulation of funding plans submitted to the Green Acres/Green Trust program of the New Jersey Department of Environmental Protection. The City of Orange Township also has a Green Team.
Emergency Management / Public Safety Department	Office of Emergency Management
Fire Department	The City of Orange Township Fire Prevention is responsible and oversees inspections for the commercial and homeownership properties in

Department / Board / Committee	Description and Role in Risk Reduction
	Orange. The bureau enforces the New Jersey Uniform Fire Code Statutes and the City of Orange Township Ordinances.
Additional departments, boards, and committees	-

The table below summarizes the City of Orange Township's staff with skills and expertise that contribute to risk reduction.

Table 18-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Nishuane Group is responsible for designing and managing the development of the Township. Their focus is creating sustainable, efficient and livable spaces by considering infrastructure, transportation zoning and other community needs.
Engineer	Contractor - Remington & Vernick
Stormwater Officer	-
Resilience / Sustainability Officer	-
Grant Writer	Millennium Strategies is responsible for researching, drafting and submitting proposals to secure funding from government agencies and other organizations.
Staff with benefit / cost analysis expertise	-
Staff trained in conducting substantial damage determinations	-
Staff trained in GIS	Assistant to the OEM Deputy Coordinator/GIS uses mapping and spatial analysis tools to assess, visualize, and manage emergency-related data. In Orange, NJ, GIS experts support the Office of Emergency Management (OEM) by providing real-time geographic insights to enhance disaster preparedness, response, and recovery efforts.
Staff that provide support to socially vulnerable populations	The Department of Community Services works to promote the well-being of children, young adults and the senior community. The goal is to improve the community by highlighting education, prevention, physical activity and environmental awareness.
Additional staff with skills and expertise that contribute to risk reduction	-

The table below summarizes development and permitting capabilities of the City of Orange Township.

Table 18-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Land Use Boards- Planning and Zoning Board.
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Floodplain
How does your jurisdiction inventory land available for new development?	Not tracked
What percentage of your jurisdiction is available for new development?	Not tracked

18.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the City of Orange Township.

Table 18-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	At the time of this plan update, the Township has not applied for or received FEMA pre-disaster mitigation funding
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has applied for and received HMGP funding, which included backup generators for the Township.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	-
Capital improvements funding	Yes	Incorporated into the annual budget and used to fund equipment and improvements to public safety in the Township and redevelopment projects.
Open space acquisition programs	Yes	NJDEP Green Acres and Blue Acres
Impact fees for developers of new homes	-	-
User fees for water, sewer, gas, or electric	Yes	-
Stormwater utility fees	-	-
Authority to levy taxes for specific purposes	-	-
Ability to incur debt through bonds	Yes	Through general obligation bonds
Other financial resources available for hazard mitigation	-	-

18.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the City of Orange Township.

Table 18-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	The Township uses Notify Me® which allows residents to sign up for emergency and non-emergency alerts.
Public Information Officer	-
Website	Information on stormwater management is included on the Water Department web page; main city page provides announcements and upcoming meetings
Social media	Facebook, YouTube, X (formerly Twitter)
Public safety campaigns	The Fire and Police Departments provide public safety information on their websites
Newsletters	-
Hazard education programs for schools	-
Outreach to socially vulnerable populations	Through the Department of Community Services and Recreation Department

Outreach Capability	Description and Role in Risk Reduction
Other outreach capabilities	OrangeTV, Urban Enterprise Zone (UEZ) Program

18.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the City of Orange Township.

Table 18-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The Township has adopted the new floodplain ordinance in 2023 and all the regulations have been followed. The responsible floodplain manager reviews the application and determines the level of the required permitting.
What local department is responsible for floodplain management?	Construction Code Official
Are any staff certified floodplain managers (CFMs)?	No
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Yes
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	N/A
How many properties have been mitigated (elevation or acquisition)?	N/A
Summarize the jurisdiction's Substantial Damage determination procedures.	Damage of any original sustained by a structure whereby the cost of restoring the structure to its before damage condition equal or exceed 50 percent of the market value of the structure before the damage occurred.
Summarize the jurisdiction's Substantial Improvement procedures.	Any reconstruction, rehabilitation, addition, or the improvement of a structure taking place, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

18.3.6 Community Classifications

Table 18-14 summarizes the City of Orange Township's participation in community classification programs.

Table 18-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-

Program	Participation Status / Classification	Date Classified
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Bronze	September 21, 2023
Other Programs	Not participating	-
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): FEMA 2024a; NWS n.d.; NFPA 2024; Sustainable Jersey 2024

18.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the City of Orange Township has in place and will use to prepare for changes in risk due to climate change.

Table 18-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	• Increased Flooding – More intense and frequent heavy rainfall events may overwhelm stormwater systems, leading to increased street and basement flooding, especially in flood-prone areas. • More Severe Storms – Hurricanes, nor'easters, and other severe weather events may become more intense, causing stronger winds, greater precipitation, and extended power outages. • Extreme Heat Events – Rising temperatures may result in longer and more frequent heatwaves, posing health risks to vulnerable populations, including the elderly and those with preexisting conditions. • Infrastructure Strain – Increased temperatures and severe storms may accelerate wear and tear on roads, bridges, and public utilities, leading to higher maintenance costs and potential service disruptions. • Public Health Risks – Rising temperatures and shifting weather patterns may contribute to increased air pollution, vector-borne diseases, and other health concerns. • Economic & Community Impact – More frequent hazard events can lead to increased insurance costs, property damage, and economic strain on residents and businesses.
What information does the jurisdiction use to understand potential climate change impacts?	NJDEP, Rutgers University
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	The City of Orange Township developed a Community Energy Plan that details the specific strategies that the City of Orange Township will pursue in the coming years to reduce greenhouse gas emissions from the local energy system. The Plan covers municipal operations such as

Adaptive Capacities	Comments
	the municipal vehicle fleet and buildings, as well as public policies and programs designed to support the community in reducing emissions.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Department of Planning and Economic Development City Engineer
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Following the work plan strategies outlined in the Township's Community Energy Plan
How does the jurisdiction educate the public on potential climate change impacts?	Through various programs and departments

18.3.8 Capability Assessment Summary

The City of Orange Township's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The City of Orange Township determined the following hazard capability effectiveness ratings.

Table 18-16. City of Orange Township Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

18.3.9 Opportunities to Improve Capabilities and Integration

- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality

is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.

- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

18.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the City of Orange Township were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The City of Orange Township reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the City of Orange Township discussed the following local factors that led to modifying the hazard rankings:

- Disease Outbreak was adjusted from low to medium due to the frequency of diseases occurring in and impacting the City of Orange Township.
- Flood was adjusted from medium to high due to the frequency of flood events and stormwater impacts.
- Severe Winter Weather was adjusted from medium to high due to the frequency and severity of winter weather events.
- The City of Orange Township agreed with the remainder of the calculated hazard rankings.

Table 18-17. Township of the City of Orange Township Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	High
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	High
Wildfire	Low

18.5 Jurisdictional Mitigation Strategy

18.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 18-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Orange-001	**Generator for Fire Station #2:** Purchase and install generator and components for Fire Station #2.	Fire Department	In Progress – identifying funding	Include in the 2025 HMP	Yes - Purchase and install generator and components for Fire Station #2.
2020-Orange-002	**Mitigate flood-prone properties, including RL/SRL properties:** Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners, and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes.	NFIP Floodplain Administrator, supported by homeowners	Ongoing Capability	Include in the 2025 HMP	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the City of Orange Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Orange-003	**Establish Warming/Cooling Shelters:** The Township will establish warming/cooling shelters at already established facilities.	OEM	In Progress. The City of Orange Township OEM coordinates emergency response through partnerships and MOUs with local organizations. For heat emergencies and Code Blue events, OEM utilizes churches, schools, Ball Park field houses, and council chambers as cooling and warming centers. These locations provide shelter for vulnerable populations, ensuring rapid and efficient response. OEM also works with public safety agencies to manage resources, public notifications, and transportation, ensuring a community-focused and cost-effective approach to emergency preparedness.	Include in the 2025 HMP	Problem: The City of Orange Township faces ongoing challenges in providing a long-term solution for heat emergencies and Code Blue events. Relying on temporary shelters through partnerships with churches, schools, and municipal facilities creates inconsistencies due to staffing constraints and budget limitations. Additionally, securing full commitment from private partners at a moment's notice remains difficult, impacting emergency response efficiency. Solution: To address these challenges, the City of Orange Township aims to establish a dedicated, fully equipped warming and cooling station capable of housing individuals in need during extreme weather events. This facility would provide consistent, reliable shelter without the unpredictability of temporary solutions. Additionally, securing dedicated funding for OEM will ensure adequate staffing, resources, and operational

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
					sustainability, reducing strain on the budget while enhancing emergency response capabilities.
2020-Orange-004	**Outreach to non-city owned critical facilities in floodplain and critical facilities exposed to other hazards:** The FPA will conduct outreach to facility owners and discuss options for mitigation.	FPA	Ongoing Capability	No – this is an ongoing capability that the City of Orange Township performs as necessary	-
2020-Orange-005	**Protect Orange Water Pumping Station at Gist Place:** The Township will conduct a feasibility assessment to determine the level of exposure and mitigation options. The Township will then implement the selected action.	Engineering	No Progress	No, no longer a priority	-

18.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Orange Township identified the following mitigation efforts completed since the last HMP:

- Stormwater management improvements and flood mitigation projects.
- Upgrades to emergency response infrastructure and communication systems.
- Expansion of public education and outreach initiatives.
- Development of sustainable and resilient building practices.
- Strengthened collaboration with county, state, and federal partners to secure funding and resources.
- The City of Orange Township OEM coordinates emergency response through partnerships and MOUs with local organizations. For heat emergencies and Code Blue events, OEM utilizes churches, schools, Ball Park field houses, and council chambers as cooling and warming centers. These locations provide shelter for vulnerable populations, ensuring rapid and efficient response. OEM also works with public safety agencies to manage resources, public notifications, and transportation, ensuring a community-focused and cost-effective approach to emergency preparedness.

18.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the City of Orange Township identified the following issues that require mitigation.

- The Campbells Pond Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (10/21/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The City of Orange Township faces ongoing challenges in providing a long-term solution for heat emergencies and Code Blue events. Relying on temporary shelters through partnerships with churches, schools, and municipal facilities creates inconsistencies due to staffing constraints and budget limitations. Additionally, securing full commitment from private partners at a moment's notice remains difficult, impacting emergency response efficiency.
- The Township's Fire Station #2 is a community lifeline and critical asset to the community. It does not have a backup power source and cannot fully operate during power outages. Without the station being able to function, they cannot provide fire services to the community.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City of Orange Township has 16

repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.

- The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by the City of Orange Township.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

18.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The City of Orange Township's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 18-19. City of Orange Township 2025 Mitigation Actions by Hazard Addressed

Project Number	*Project Name*	*Disease Outbreak*	*Drought*	*Earthquake*	*Extreme Temperature*	*Flood*	*Geological Hazards*	*Severe Weather*	*Severe Winter Weather*	*Wildfire*
2025-City of Orange Township-01	Campbells Pond Dam			X		X	X	X		
2025-City of Orange Township-02	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-City of Orange Township-03	Establish Warming/Cooling Shelters				X	X		X	X	
2025-City of Orange Township-04	Generator for Fire Station #2	X	X	X	X	X	X	X	X	X

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-City of Orange Township-05	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-City of Orange Township-06	Pre-Flood Draw Down of Orange Reservoir					X		X		
2025-City of Orange Township-07	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-City of Orange Township-08	Watershed Improvement Plan	X	X		X	X				

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 18-20. City of Orange Township 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-City of Orange Township-01	Campbells Pond Dam	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	Medium
2025-City of Orange Township-02	Disaster Debris Management Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	0	11	High
2025-City of Orange Township-03	Establish Warming/Cooling Shelters	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-City of Orange Township-04	Generator for Fire Station #2	1	1	1	1	1	0	0	1	1	1	0	1	1	0	10	Medium
2025-City of Orange Township-05	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	1	1	0	1	1	1	1	0	1	11	High
2025-City of Orange Township-06	Pre-Flood Draw Down of Orange Reservoir	1	1	1	1	0	0	1	1	1	1	1	1	1	0	11	High
2025-City of Orange Township-07	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-City of Orange Township-08	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-City of Orange Township-01: Campbells Pond Dam

Lead Agency:	Engineer	
Supporting Agencies:	Dam manager, NJDEP Bureau of Dam Safety, County Engineer	
Hazard(s) of Concern:	Earthquake, Flood, Geological Hazards, Severe Weather	
Description of the Problem:	The Campbells Pond Dam is a significant hazard dam located in the municipality and has been found to have a poor safety rating based on their most recent inspections (10/21/2022). Dams with poor or unsatisfactory safety ratings have deficiencies that could potentially make dam failure more likely to occur or the consequences of dam failure more significant.	
Description of the Solution:	The municipal engineer will work with dam managers, the NJDEP Bureau of Dam Safety, and the County Engineer to review the most recent inspections of dams in the municipality that have resulted in a poor or unsatisfactory safety rating, identify the deficiencies, determine the necessary repairs and improvements necessary to address the deficiencies, identify available funding sources for the identified repairs/improvements, and implement the cost-effective repairs/improvements.	
Estimated Cost:	Low for initial assessment of options, TBD for total cost based on mitigation actions selected	
Potential Funding Sources:	HMGP, BRIC, FMA (for activities benefiting NFIP-insured structures), NJDEP, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2	
Benefits:	Dam failure will be avoided, which will reduce the risk of harm to people and property downstream. Certain safety requirements will be met that can allow for funding to be received for further mitigation projects.	
Impact on Socially Vulnerable Populations:	The most vulnerable populations may live directly downstream of the dam and lack the ability to receive notifications of dam failure or evacuate when notified. Preventing dam failure allows those communities to remain intact and reduces the risk of loss o	
Impact on Future Development:	Future development downstream of dams will also be protected from dam failure.	
Impact on Critical Facilities/Lifelines:	Critical roads and utilities will be protected from potential damage or loss from unintended dam releases.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is resulting in an increase to annual precipitation. Much of this increase is in the form of heavy rainfall events. Consideration should be taken for increases in frequency and severity of rainfall events to ensure that the dam is designed	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Work without County Engineer involvement	Improvements made but may lack appropriate support from County, including data and potential funding access
	Remove dam	Without proper analysis, dam removal may increase flooding risk

2025-City of Orange Township-02: Disaster Debris Management Plan

Lead Agency:	City OEM and DPW
Supporting Agencies:	City Council
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	2, 3, 5, 6
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	The action will result in increased post disaster capabilities.
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Rely on federal cleanup	These services may or may not be available
Rely on state cleanup	These services may or may not be available

2025-City of Orange Township-03: Establish Warming/Cooling Shelters

Lead Agency:	OEM	
Supporting Agencies:	City Council	
Hazard(s) of Concern:	Extreme Temperature, Flood, Severe Weather, and Severe Winter Weather	
Description of the Problem:	The City of Orange Township faces ongoing challenges in providing a long-term solution for heat emergencies and Code Blue events. Relying on temporary shelters through partnerships with churches, schools, and municipal facilities creates inconsistencies due to staffing constraints and budget limitations. Additionally, securing full commitment from private partners at a moment's notice remains difficult, impacting emergency response efficiency.	
Description of the Solution:	To address these challenges, the City of Orange Township aims to establish a dedicated, fully equipped warming and cooling station capable of housing individuals in need during extreme weather events. This facility would provide consistent, reliable shelter without the unpredictability of temporary solutions. Additionally, securing dedicated funding for OEM will ensure adequate staffing, resources, and operational sustainability, reducing strain on the budget while enhancing emergency response capabilities.	
Estimated Cost:	Medium	
Potential Funding Sources:	Capital Improvement, FEMA HMGP and BRIC	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 3, 6, 7	
Benefits:	This action protects public health and safety and provides residents a place to go during extreme temperature events and power outages.	
Impact on Socially Vulnerable Populations:	This action protects public health and safety and provides residents a place to go during extreme temperature events and power outages.	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events and the need for warming/cooling shelters for residents.	
Mitigation Category:	Education and Awareness Project	
CRS Category:	Emergency Services, Public Information	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Establish microgirds throughout the City of Orange Township to provide power during extreme temperature events	Costly and difficult to implement.
	Outside agencies setting up warming/cooling centers as needed	Not always an option esepcially during longer events; staff resources may not be available

2025-City of Orange Township-04: Generator for Fire Station #2

Lead Agency:	Fire Department	
Supporting Agencies:	City Council, City DPW	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	The Township's Fire Station #2 is a community lifeline and critical asset to the community. It does not have a backup power source and cannot fully operate during power outages. Without the station being able to function, they cannot provide fire services to the community.	
Description of the Solution:	The City of Orange Township will purchase and install generator and components for Fire Station #2. This will provide continuity of operations and allow the fire station to function during power outages.	
Estimated Cost:	Medium	
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6, 7	
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.	
Impact on Future Development:	This action results in protection of a critical facility that could support future development.	
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.	
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.	
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Emergency Services, Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Microgrid	Costly and difficult to implement.
	Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-City of Orange Township-05: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City of Orange Township has 16 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the City of Orange Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	FEMA BRIC, FMA and HMGP; Local match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-City of Orange Township-06: Pre-Flood Draw Down of Orange Reservoir

Lead Agency:	Mayors Council Rahway River Watershed Flood Control
Supporting Agencies:	Township of Millburn
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The Rahway River flows down from the 62-are Orange Reservoir into the Township of Millburn's business district and has a history of cresting during heavy rainfall. Flooding has been severe, resulting in major damages to cars, homes, businesses, and threats to life. The Orange Reservoir is owned by the City of Orange Township.
Description of the Solution:	The City of Orange Township Council passed a resolution in 2023 that let Millburn Township study the Orange Reservoir's potential as a retention basin during storms. The aim would be to use the lake to hold back thousands of gallons of water from entering the Rahway River, greatly reducing the volume of water flowing downstream. The idea is to install pipes that could drain the reservoir before a storm. This would increase the capacity of the reservoir, allowing more water to fill the reservoir before entering the Rahway River, reducing the amount of water heading downstream.
Estimated Cost:	USACE estimates the project to cost $20 million to $80 million
Potential Funding Sources:	BRIC, FMA (for activities benefiting NFIP-insured structures), HMGP, Infrastructure Investment and Jobs Act funding
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 3, 5, 6
Benefits:	This action would reduce flood risk along the Rahway River downstream of the Orange Reservoir. Millburn Township believes that flooding could be reduced by as much as three feet with this project implemented.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	All development downstream of the Orange Reservoir on the Rahway River would benefit from this action.
Impact on Critical Facilities/Lifelines:	The Reservoir is a lifeline facility.
Impact on Capabilities:	This action would add a new flood risk reduction capability.
Climate Change Considerations:	A warmer atmosphere means storms have the potential to be more intense and occur more often, including increased periods of intense rain events. These changes are likely to increase flood risks.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Expand the carrying capacity of the channel	This may result in faster flooding of downstream areas
Build lake at Arboretum	Loss of other habitat for bird sanctuary

2025-City of Orange Township-07: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resourc
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-City of Orange Township-08: Watershed Improvement Plan

Lead Agency:	Township Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be redu
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

18.6 Jurisdictional Hazard Mitigation Team

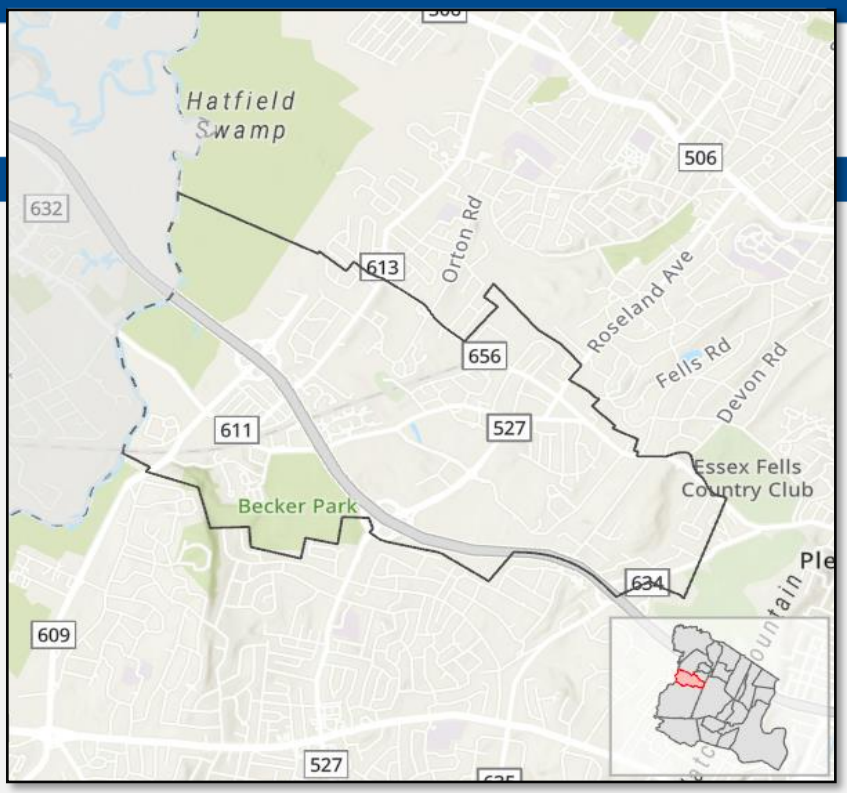
Table 18-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Elvin Padilla Jr., OEM Coordinator	Name and Title:	Todd Warren, Deputy OEM Coordinator
Address:	29 North Day Street, Orange, NJ 07050	Address:	29 North Day Street, Orange, NJ 07050
Phone Number:	862-438-0647	Phone Number:	973-952-6311
Email:	epadillajr@orangenj.gov	Email:	todd.warren@orangenjpolice.com
NFIP Floodplain Administrator			
Name and Title:	Marty Mayes, Director of Public Works		
Address:	29 North Day Street, Orange, NJ 07050		
Phone Number:	973952-6081		
Email:	mmayes@orangenj.gov		

Table 18-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Bill Bishop, Assistant to the OEM Deputy Coordinator/GIS	Provided information and reviewed the City of Orange Township's annex, attended meetings, provided information and reviewed the Township's annex, and identified mitigation strategies
Derek Dorah, Engineer (Remington & Vernick)	Provided information and reviewed the City of Orange Township's annex
Laquana Best, Director of Planning & Economic Development	Provided information and reviewed the City of Orange Township's annex
Elvin Padilla Jr., OEM Coordinator	Primary point of contact for the City of Orange Township during the 2025 Essex County HMP update, served on the Planning Partnership, attended meetings, provided information and reviewed the Township's annex, and identified mitigation strategies
Todd Warren, Deputy OEM Coordinator	Alternate point of contact for the City of Orange Township during the 2025 Essex County HMP update, served on the Planning Partnership, attended meetings, provided information and reviewed the City of Orange Township's annex, and identified mitigation strategies

Borough of Roseland



POPULATION STATISTICS

6,211
TOTAL POPULATION (2023 ACS)

0.06%
Change in population since 2010 Census

2,445
TOTAL HOUSEHOLDS

AT RISK POPULATION

1,443
Population Over 65

471
Population Under 5

503
Living With Disability

65
Households Without Vehicle

567
People Renting Homes

POVERTY AND LANGUAGE

191
Households Below Poverty Level

519
Population With English as 2nd Language

POPULATION AND BUSINESSES

14,558
Daytime Population

505
Total Businesses

3,110
Total Employees

FLOOD VULNERABILITY

115
Number of People in 1% SFHA

40
Number of Buildings in 1% SFHA

3
Community Lifelines in 1% SFHA

19 Borough of Roseland

19.1 Jurisdictional Profile

The Borough of Roseland contains approximately 3.5 square miles (2,240 acres) and is situated in the northwestern part of Essex County, New Jersey, along the border of Morris County. Roseland is adjacent to the Townships of Livingston, West Orange, West Caldwell, and East Hanover, as well as the Borough of Essex Fells, all within Essex County. Additionally, the Township of East Hanover (Morris County) borders Roseland to the west. Interstate 280 runs east and west through the Borough (Borough of Roseland 2020).

Roseland is a suburban community with predominately single-family detached housing units and single-family attached housing units. Commercial development is limited to two business districts located at the intersection of Eagle Rock Avenue/Roseland Avenue and Eagle Rock Avenue/Eisenhower Parkway. Office development exists along Livingston Avenue and Eisenhower Parkway (Borough of Roseland 2020).

The floodplains of Passaic River, Foulerton's Brook, North Branch Foulerton's Brook, and Canoe Brook are occupied by residential, industrial, and commercial buildings, parkland, and undeveloped lands. The Passaic River forms the western corporate limits of Roseland and drains the entire Borough through its tributaries. Foulerton's Brook originates in Livingston and flows northwesterly to its confluence with Passaic River in the vicinity of Interstate 280. North Branch Foulerton's Brook originates in Essex Fells and flows southwesterly into Roseland. It continues in this direction while draining the northern half of the Borough. The brook changes direction in the vicinity of Livingston Avenue and the Prudential property and then flows westerly before joining Foulerton's Brook near Interstate 280. Canoe Brook originates in West Orange and flows southwesterly through Roseland, draining the southeastern portion of the community (FEMA 2020).

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

19.2 Jurisdictional Risk Assessment

The following sections assess the Borough of Roseland's risk to the hazards of concern identified for the 2025 HMP update.

19.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Borough of Roseland's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Borough experienced during hazard events since the last hazard mitigation plan update.

Table 19-1. Hazard Event History Since 2020

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	While impacts were countywide, the Borough did not identify additional impacts/losses.
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	The Borough had downed trees and power lines that led to road closures and power outages. Borough police and DPW had overtime related to debris removal, debris disposal, and traffic control. The Borough received funding and reimbursement from FEMA for this event.
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Ida caused damage to municipal property and buildings due to backup of water from the heavy rain. Debris was removed along with trees that needed to be removed. The Borough received reimbursement for these services and cleanup from FEMA.

Source: FEMA 2024; NOAA NCEI 2025

19.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. Roseland has three areas that in times of heavy, and a period of rain fall floods. The first is the east end of town which covers Birch Drive, and Thackery Drive. In this area the basement of a few homes on Birch Dive could have basement flooding, and over on Thackery Drive a pumping station is located that if the generator that is installed there fails the water could fill the building causing damage.

The second area is located behind our center area effecting Mitchell Ave, Gates Ave, and Godtrey Ave. The Fulerton Brook continues through this area and with heavy rains could flood the basement of a few homes in this area.

The third area is in the west end of town where the Fullerton brook flows through the areas of fourth, Third, and Second Ave., this also during heavy rain could flood homes located near the Brook. As the Brook continues it also travels down to Eisenhower Parkway where a restaurant is located that at times of heavy rain experiences flooding in the building.

The major damage from flood events is typically flooded basements that require the Borough's fire department to perform pump outs and the loss of a generator at the pumping station.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Borough of Roseland.

Table 19-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
28	$34,806	$8,601,000	29	$317,578	3	0

Source: FEMA 2025; FEMA 2024a; FEMA 2024b
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 19-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Well 11 (Roseland)	Water Systems	X
Roseland Pump Station	Water Systems	X
Essex County Environmental Center	Safety and Security	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

19.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Borough of Roseland, including major residential/commercial/industrial development and major infrastructure development.

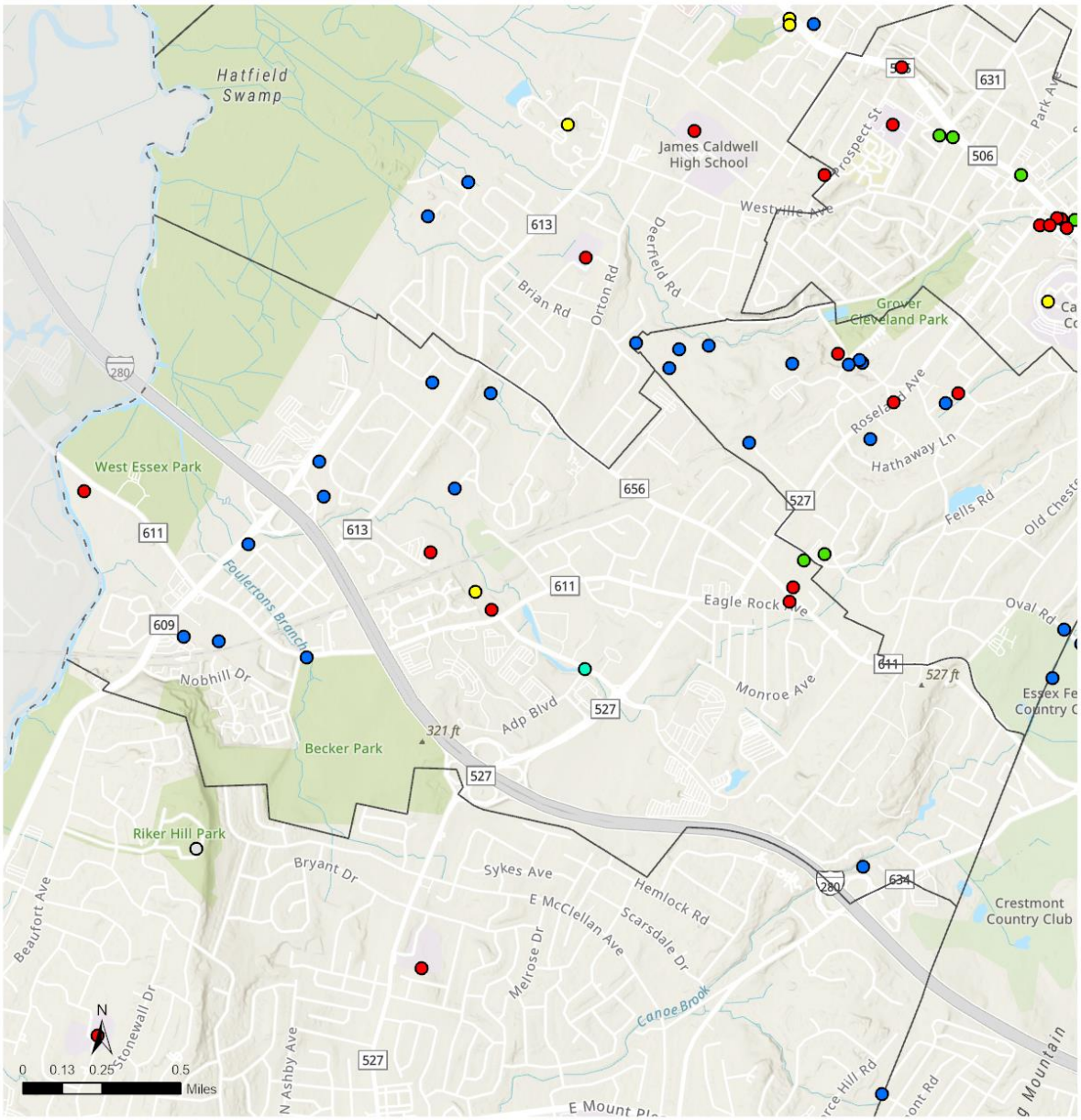
Table 19-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Avalon Bay	Residential	234	84 Livingston Ave.	No	Under Construction
Avalon Bay	Residential	286	6 Becker Farm Rd.	No	Under Construction
Woodmont	Residential	223	65 Livingston Ave	No	Construction not started
Gardens at Roseland	Residential	209	146 Harrison Ave.	No	Under construction

19.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Borough of Roseland that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 19-1. Borough of Roseland Community Lifelines

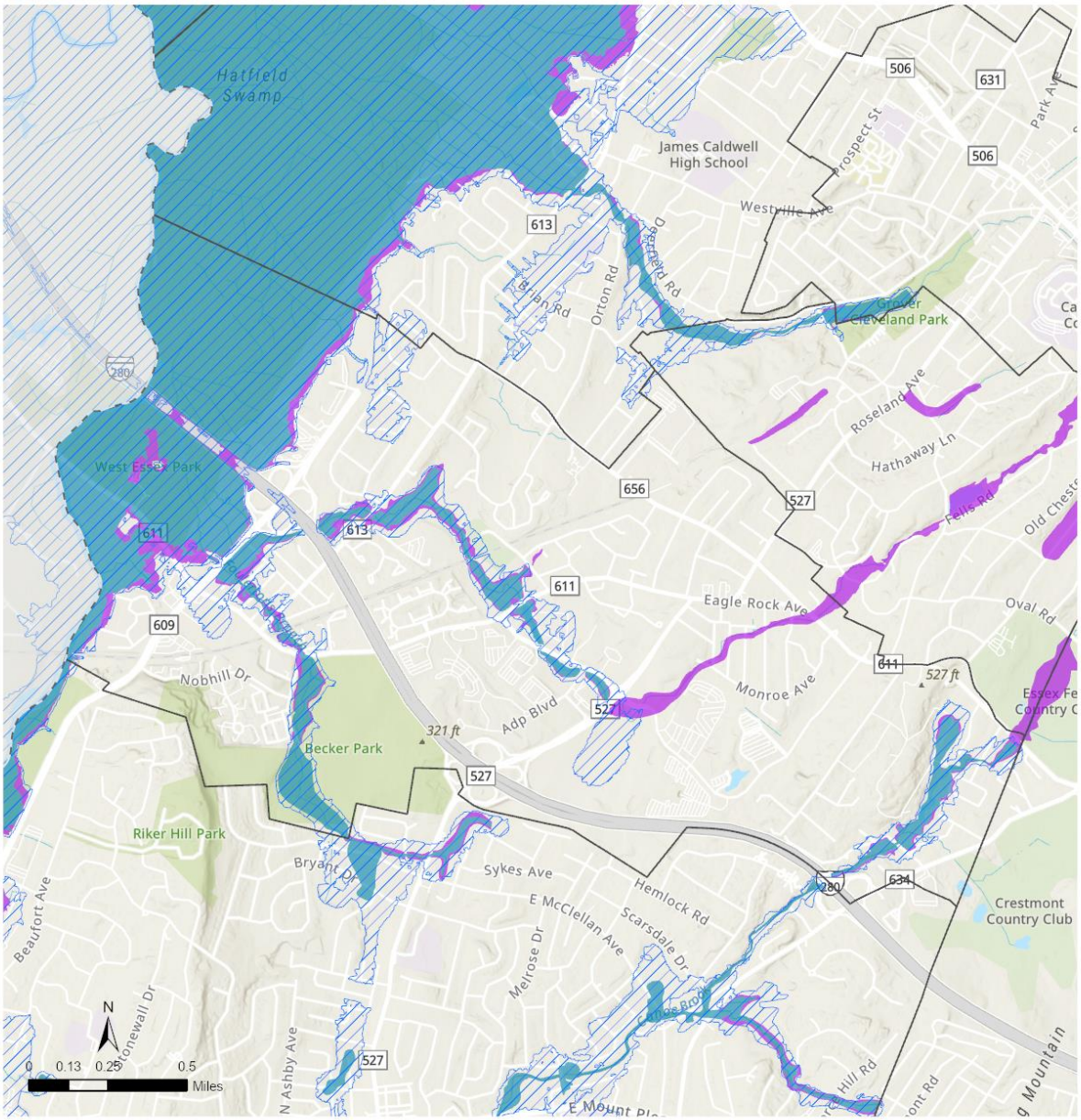


Roseland Borough: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 19-2. Borough of Roseland Flood-Related Hazards

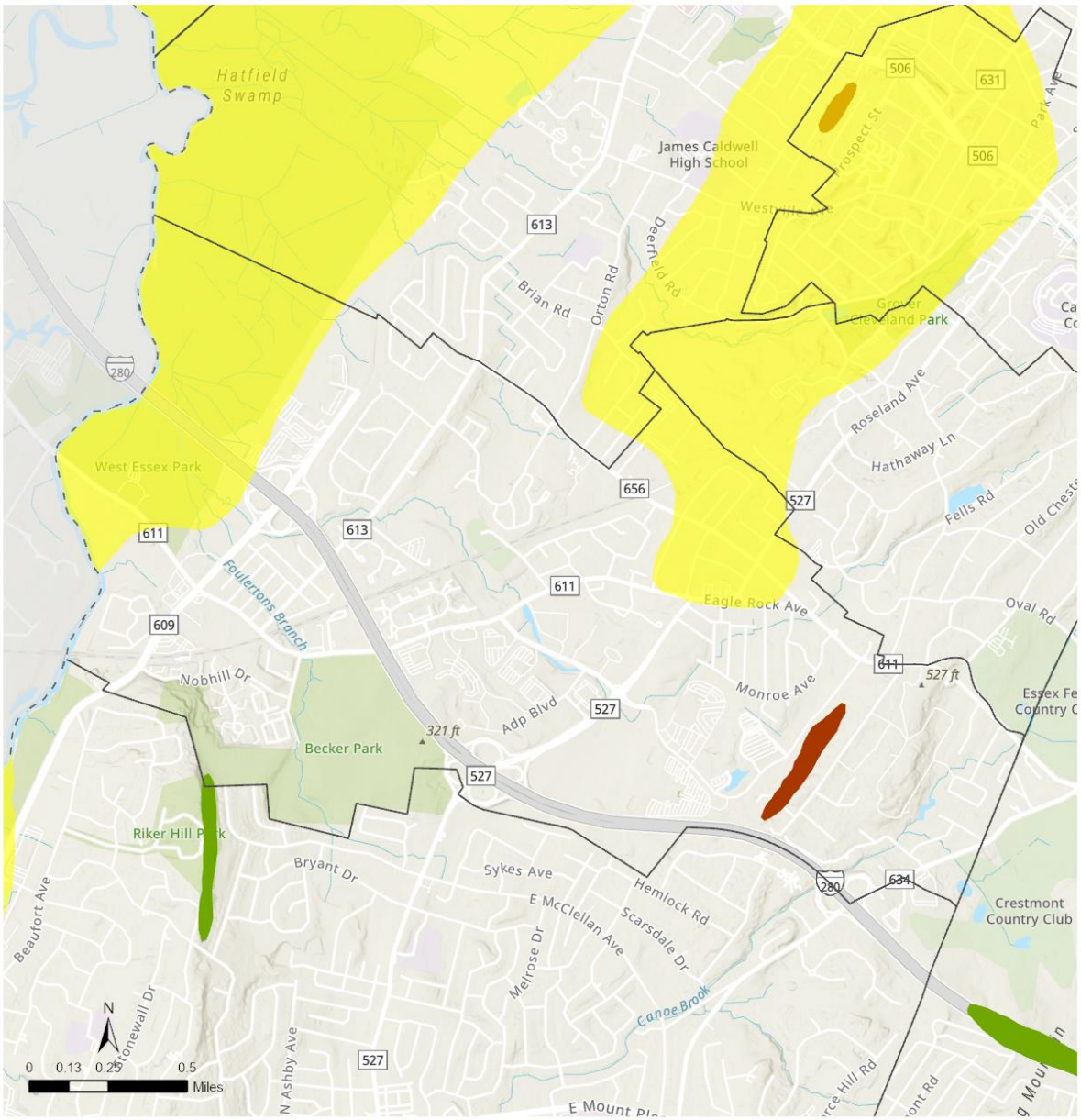


Roseland Borough: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 19-3. Borough of Roseland Geological Hazards



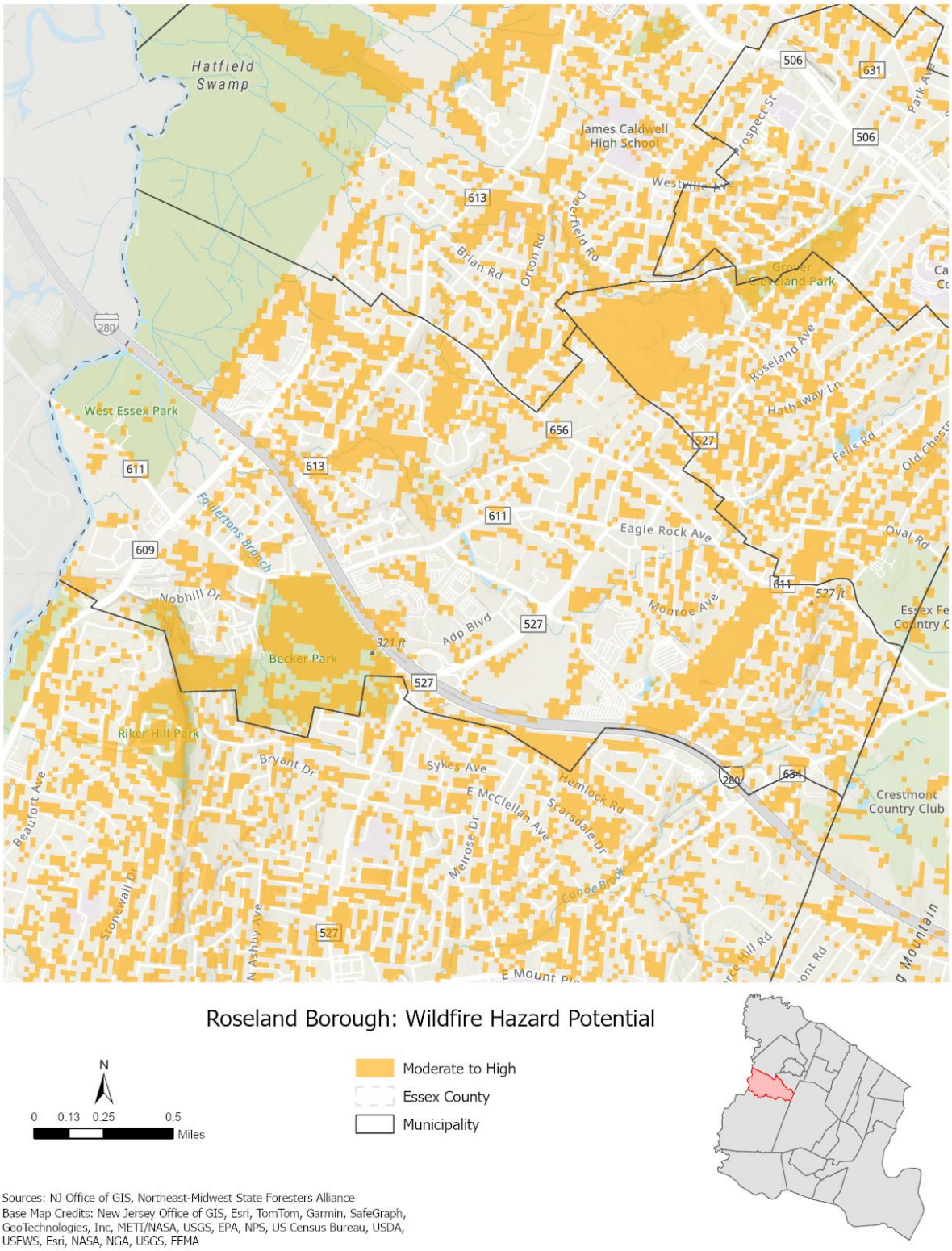
Roseland Borough: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 19-4. Borough of Roseland Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

19.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Borough of Roseland, climate change is likely to have the following impacts:

- Increase in precipitation is leading to impacts on the Borough's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Borough.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Borough and will require new construction and redevelopment to elevate higher than what is currently outlined in the Borough's flood damage prevention ordinance.

19.2.5 Risk Assessment Summary

- The Borough is experiencing pedestrian safety concerns due to inadequate crossing infrastructure. Several areas lack electronic crossing signals, leading to increased risk of accidents and reduced accessibility for pedestrians.
- Frequent flooding events in the Borough damages structures and there are 3 repetitive loss properties.
- The traffic signals at Passaic Ave by Noeker School, Eisenhower Parkway by the Roseland Commons Plaza, and Livingston Ave by Choctaw do not have backup power and cannot function during power outages.

19.3 Jurisdictional Capability Assessment

The Borough of Roseland performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

19.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Borough of Roseland.

Table 19-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Borough of Roseland Master Plan (1982); reexamination in December 2020	Planning Board
Impact on Risk Reduction: The Roseland Borough Master Plan was first adopted in 1962, which was subsequently revised in 1978 and again in 1982. The Roseland Planning Board reexamined the Master Plan in 1988, 1994, 2000, 2004, and most recently on December 6, 2010. Housing Element & Fair Share Plans were adopted in 1986, 1995, 2006, 2008 and 2020. One of the goals in the 2020 reexamination is to limit development in environmentally sensitive areas including strict adherence to applicable floodplain and wetlands regulations.			
Capital Improvement Plan	Yes	Part of the budget annual update	Finance
Impact on Risk Reduction:			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan for the Borough of Roseland (2007)	Public Works
Impact on Risk Reduction: The Stormwater Management Plan helps the Borough address the impacts of stormwater runoff within the municipality. It helps in reducing flood risk, improving water quality, maintaining groundwater recharge, and reducing soil erosion.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan for the Borough of Roseland (2021)	Public Works and Engineer
Impact on Risk Reduction: The Stormwater Pollution Prevention Plan helps the Borough manage and reduce pollutants in stormwater runoff. The plan includes how the Borough conducts education and outreach regarding stormwater pollution, how they identify and eliminate unauthorized discharges into storm sewer systems, and how they implement best management practices for stormwater pollution prevention.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Borough of Roseland to prepare for, respond to, and recover from hazard events.

Table 19-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Roseland EOP (2023 to present)	OEM
Impact on Risk Reduction: The Borough's EOP is updated every two years. The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Borough has.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	Yes	Roseland EOP (2023 to present)	OEM
Impact on Risk Reduction: The Borough's EOP is updated every two years. The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Borough has. It includes an annex that discusses evacuation procedures in the Borough.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Roseland EOP (2023 to present)	OEM
Impact on Risk Reduction: The Borough's EOP is updated every two years. The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Borough has. It includes an annex that discusses public health resources and procedures in the Borough.			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Borough of Roseland.

Table 19-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 10 Building and Housing; Chapter 13 Fire Prevention and Protection	Construction Official
Impact on Risk Reduction: Chapter 10 established in the Borough a State Uniform Construction Code Enforcing Agency to be known as the Construction Code Enforcement Bureau, consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. Chapter 13 adopts the New Jersey Uniform Fire Code. The local enforcing agency shall be the Bureau of Fire Prevention of the Borough of Roseland.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Zoning or Land Use Regulations	Yes	Chapter 30 Land Development	Planning Board
Impact on Risk Reduction: It is the purpose of the Borough of Roseland in adopting the Land Development Regulations to exercise to the fullest the powers granted to the Borough by the State of New Jersey to manage land development through zoning, and through the use of subdivision, site plan, and planned unit development controls and through the exercise of police power generally. It is the further purpose of the Borough in adopting this chapter to organize and codify all powers pertaining to land use regulation into one (1) comprehensive and cohesive system which will facilitate administration and minimize procedural difficulties and technical conflicts inherent in separate ordinances while providing reasonable and necessary protection of the public health, safety, morals and general welfare in accordance with the provisions of N.J.S.A. 40:55D-1 et seq.			
Subdivision Regulations	Yes	Chapter 30 Land Development, 30-302.1 Subdivision Review	Planning Board
Impact on Risk Reduction: All subdivisions are subject to the review procedures			
Site Plan Regulations	Yes	Chapter 30 Land Development, 30-302.2 Site Plan Review	Planning Board
Impact on Risk Reduction: Except as herein provided, no Zoning or Construction Permit shall be issued for the erection of or addition to any structure or for the creation of any parking spaces on properties or for the addition of driveways and/or paving on properties or for a change in use for any structure until a site plan has been reviewed and approved by the Board, except that the approval of a site plan shall not be necessary for the construction of or addition to a detached single or two-family dwelling unit used solely for residential purposes and its customary accessory building(s), nor for any building construction which does not require the issuance of a construction permit. Nothing contained herein shall eliminate the obligation to obtain any required permits.			
Stormwater Regulations	Yes	Chapter 30 Land Development, 30-512 Stormwater Management	Planning Board
Impact on Risk Reduction: The purpose of this section is to establish minimum stormwater management requirements and controls for "major development." Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for green infrastructure, water quality, quantity, and groundwater recharge.			
Floodplain Regulations	Yes	Chapter 22 Floodplain Management	Floodplain Administrator
Impact on Risk Reduction: The purposes and objectives of these regulations are to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: 1. Protect human life and health. 2. Prevent unnecessary disruption of commerce, access, and public service during times of flooding. 3. Manage the alteration of natural floodplains, stream channels and shorelines. 4. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. 5. Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
6. Contribute to improved construction techniques in the floodplain. 7. Minimize damage to public and private facilities and utilities. 8. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. 9. Minimize the need for rescue and relief efforts associated with flooding. 10. Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. 11. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. 12. Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22.			
Environmental Protection Regulations	Yes	Chapter 18 Environmental Regulations; Chapter 20 Soil and Soil Moving; Chapter 21 Shade Trees	Public Works
Impact on Risk Reduction: Chapter 18 provides for the replacement or reimbursement of the specialized and sometimes nonreusable equipment required by State and Federal regulations to be made available in the Borough in case of fire, leakage or spillage involving any hazardous material. This chapter entitles the Borough to reimbursement for any expendable items used by the Borough or any of its agencies in extinguishing any fire, stopping or containing any leak or controlling any spill of hazardous materials. The chapter also regulates the outdoor application of fertilizer so as to reduce the overall amount of excess nutrients entering waterways, thereby helping to protect and improve surface water quality. Chapter 20 states that the unregulated and uncontrolled removal, relocation, filling and excavation of soil by the owners of property within the Borough is likely to result in conditions detrimental to the public health, safety and general welfare of the citizens of the Borough; and the unregulated and uncontrolled removal, relocation, filling and excavation of soil in, upon or from lands within the boundaries of the Borough will create one or more of the following conditions: a serious erosion by wind and water; inadequate and improper surface water drainage or a complete lack of the same; a decrease in or destruction of the fertility of the soil; the removal of lateral support of abutting streets, land and premises; the creation of excessive amounts of dust and the deposit of dust upon adjoining property, particularly buildings, shrubbery and trees.; the deposit upon the streets of the Borough of large quantities of mud, dirt or dust; the creation of depressions which may form mosquito breeding places; the creation of depressions and pits dangerous to small children; the deterioration of adjoining property values; the rendering of lands unfit or unsuitable for their most appropriate uses; and the creation of other conditions hampering and interfering with the coordinated and harmonious physical development of the Borough. Chapter 21 regulates the removal of trees within the Borough; to protect trees and plants within the Borough; and to provide penalties for violations.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

19.3.2 Administrative and Technical Capabilities

The table below summarizes the Borough of Roseland's departments, boards, and committees that contribute to risk reduction.

Table 19-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board's responsibilities include adoption of a Master Plan, Subdivision control and site plan review for permitted uses, Recommendations as to the official map of the Borough, Conditional use applications, Recommendations as to the zoning ordinance or amendments thereto, Review of Capital Improvement Projects, and Variances under certain circumstances in connection with site plans and subdivisions. The Zoning Board of Adjustment has the following powers and duties in connection with the administration of this zoning ordinance: • To hear and decide requests for variances from the provisions of this zoning ordinance pursuant to the procedures and standards set forth the zoning ordinance and The Municipal Land Use Law. • To hear and decide appeals from any order, requirement, decision, determination, or interpretation made by the zoning administrator, planning director or other official in the administration or the enforcement of the zoning ordinance. • To hear and decide applications for certificates of nonconforming use pursuant to the procedures and standards set forth the zoning ordinance and The Municipal Land Use Law. To hear and decide requests for interpretation of the zoning map or ordinance, or for decisions on other special questions upon which the Board is authorized to act.
Planning Department	No
Public Works / Highway Department	The Public Works Department handles maintenance and repair of borough roads and buildings, coordinates garbage and recycling schedules, and handles special pickup of branches, leaves, bulk and metal goods for the community.
Construction / Building / Code Enforcement Department	The Code Enforcement Department is responsible for enforcing the housing codes in the Borough of Roseland. These codes cover the minimum standards required for occupancy of all residential and commercial structures in Roseland and are in place to protect the safety of our residents, ensure the stability and upward mobility of property values, and to maintain a pleasant and clean community. The Department is also responsible for the enforcement of all regulations covering privately owned vacant land, vacant properties, and foreclosed properties. In addition, the Department operates various other programs to ensure that all our residents have safe and habitable housing and places of business. The Construction Code officials serve the citizens of Roseland by enforcing the Uniform Construction Code of the State of New Jersey. Construction Code is comprised of four Sub-Departments: Building, Electrical, Plumbing, and Fire.
Engineering Department	No
Parks and Recreation Department	The duty of the Recreation Committee is to plan, promote, study, and make recommendations regarding recreational programs within the Borough and undertake such projects as requested by the governing body. Upon request of the Governing Body the Committee may

Department / Board / Committee	Description and Role in Risk Reduction
	recommend action to improve, maintain, equip and staff the playgrounds and recreational facilities.
Open Space Board / Committee	No
Environmental Board / Commission	The Environmental Commission was established for the protection, development or use of natural resources, including water resources located within the territorial limits of the borough. The Environmental Commission duties include: • Conducting research into the use and possible use of the open land areas in the borough. • Keep and index of all open area, publicly and privately owned, including open march lands, swamps, wetlands. • Study and make recommendations and propose ordinances concerning open space preservation, water resources management, air pollution control, solid waste management, noise control, soil and landscape protection, environmental appearance, marine resources and protection of flora and fauna. • Review environmental impact reports and stream encroachment applications. • Recommend to the Planning Board plans and programs for inclusion of the Master Plan. The General purposes for the Green Team include: • Managing Roseland's participation in the Sustainable Jersey program; • Encouraging the Borough residents and employees to pursue sustainable practices where possible and implement the Borough's environmental goals; • Work with the existing groups within the Borough whose actions effect environmental issues so as to eliminate duplication and ensure that important tasks are covered; • Coordinate input for the Sustainable Roseland web page; • Provide advice and suggestions to the Planning Board, the Board of Adjustment, the Environmental Commission and the Landmarks and Historic District Commission to ensure that environmental issues are considered in their deliberations and actions; • Promote the causes of sustainability within the Borough.
Emergency Management / Public Safety Department	Roseland Police Department
Fire Department	The Roseland Fire Department is an all-volunteer department consisting of nearly 40 members and cadets operating from a single station in Roseland, New Jersey. The Fire Department provides the following services: fire suppression, automobile rescue, technical rescue, high angle rescue, hazardous materials response, water rescue, basement pump-outs, fire prevention education, medical first response, and have members serving on the West Essex Technical Rescue Team.
Additional departments, boards, and committees	The Landmarks & Historic District Commission is responsible for the protection, enhancement, perpetuation and use of improvements and landscape features of special character or special historical or aesthetic interest or value is a public necessity and is required in the interest of the health, prosperity, safety and welfare of the people.

The table below summarizes the Borough of Roseland's staff with skills and expertise that contribute to risk reduction.

Table 19-9. Technical/Staffing Capabilities

Staff	*Description and Role in Risk Reduction*
Planner	Planning Board
Engineer	Consulting engineer
Stormwater Officer	Superintendent of Public Works
Resilience / Sustainability Officer	None
Grant Writer	Consulting engineer
Staff with benefit / cost analysis expertise	None
Staff trained in conducting substantial damage determinations	None
Staff trained in GIS	Consulting engineer
Staff that provide support to socially vulnerable populations	The Affordable Housing Team works in partnership with the housing administrator to enable the development of affordable housing in the Borough. In Roseland, affordable housing is supported in two ways – through planning policy and through the provision of Government grants. The duties of the Senior Citizens' Advisory Board are to recommend measures to meet the needs of the senior citizens in the Borough and to further recommend to the Council such proposals that the Board deems appropriate for local legislative action. The Senior Transportation Committee meets with representatives from Caldwell and West Caldwell (Joint Senior Citizen Bus participants) and recommends measures to meet the needs of the senior citizens regarding senior transportation to the Council for Local Legislative Action.
Additional staff with skills and expertise that contribute to risk reduction	None

The table below summarizes development and permitting capabilities of the Borough of Roseland.

Table 19-10. Development and Permitting Capabilities

Development and Permitting Procedure	*Comment*
What department or outside agency is responsible for issuing development permits?	Zoning Board and Planning Board
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Wetlands and flood hazard zones
How does your jurisdiction inventory land available for new development?	No
What percentage of your jurisdiction is available for new development?	Unknown

19.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Borough of Roseland.

Table 19-11. Fiscal Capabilities

Financial Resource	*Accessible (Yes/No)*	*Comment and History of Use for Hazard Mitigation*
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	-
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	-
Community Development Block Grants (CDBG, CDBG-DR)	Yes	-
Capital improvements funding	Yes	Part of the Borough's annual budget
Open space acquisition programs	Yes	NJDEP Green Acres, NJDEP Blue Acres
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Sewer $400/year/user, water billed per usage
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Through specific assessment.
Ability to incur debt through bonds	Yes	Through general obligation bonds and special tax bonds.
Other financial resources available for hazard mitigation	No	-

19.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Borough of Roseland.

Table 19-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	CivicReady
Public Information Officer	No
Website	https://www.roselandnj.org/
Social media	Facebook, Flickr, Instagram, LinkedIn, X (formerly Twitter), YouTube
Public safety campaigns	Roseland Community Center provides information to residents before, during, and after storms.
Newsletters	Roseland's PEG television station, television station Bulletin Board, social media channels, the Borough website, the Borough newsletter, Borough calendars – printed and digital, and other printed communications, and the Roseland Community Center
Hazard education programs for schools	Yes – fire prevention week
Outreach to socially vulnerable populations	Roseland's PEG television station, television station Bulletin Board, social media channels, the Borough website, the Borough newsletter, Borough calendars – printed and digital, and other printed communications, and the Roseland Community Center

Outreach Capability	Description and Role in Risk Reduction
Other outreach capabilities	Roseland's PEG television station, television station Bulletin Board, social media channels, the Borough website, the Borough newsletter, Borough calendars – printed and digital, and other printed communications, and the Roseland Community Center

19.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Borough of Roseland.

Table 19-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The Superintendent of Public Works reviews all permits, and assigns inspectors under his command to evaluate all requests, and materials.
What local department is responsible for floodplain management?	Department of Public Works. DPW Superintendent evaluates, and issues all permits.
Are any staff certified floodplain managers (CFMs)?	Superintendent of Public Works
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	The Police Department has on file all general complaints when a residence calls for assistance from flood damage.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	A few residents have inquired to the Borough Council of what steps are being considered to maintain the Fullerton Brook.
How many properties have been mitigated (elevation or acquisition)?	None
Summarize the jurisdiction's Substantial Damage determination procedures.	When buildings and structures are damaged due to any cause including but not limited to man-made, structural, electrical, mechanical, or natural hazard events, or are determined to be unsafe as described in N.J.A.C. 5:23; and for applications for building permits to improve buildings and structures, including alterations, movement, repair, additions, rehabilitations, renovations, ordinary maintenance and minor work, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Construction Official, shall: 1. Estimate the market value, or require the applicant to obtain a professional appraisal prepared by a qualified independent appraiser, of the market value of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made. 2. Determine and include the costs of all ordinary maintenance and minor work, as discussed in Section 22-102.2, performed in the floodplain regulated by this chapter in addition to the costs of those improvements regulated by the Construction Official in substantial damage and substantial improvement calculations.
Summarize the jurisdiction's Substantial Improvement procedures.	

Floodplain Administration	Comments
	3. Compare the cost to perform the improvement, the cost to repair the damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, where applicable, to the market value of the building or structure. 4. Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage. 5. Notify the applicant in writing when it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the building code is required and notify the applicant in writing when it is determined that work does not constitute substantial improvement or repair of substantial damage. The Floodplain Administrator shall also provide all letters documenting substantial damage and compliance with flood resistant construction requirements of the building code to the NJDEP Bureau of Flood Engineering.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAC – 5/1/2018
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Meets the minimum

19.3.6 Community Classifications

Table 19-14 summarizes the Borough of Roseland's participation in community classification programs.

Table 19-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Participating but not certified	N/A
Other Programs	Fire ISO Protection Class 3	
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

19.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018).

The table below summarizes the capabilities that the Borough of Roseland has in place and will use to prepare for changes in risk due to climate change.

Table 19-15. Adaptive Capacity for Climate Change

Adaptive Capacities	*Comments*
What climate change associated risks have been identified by the jurisdiction?	More severe storms, stronger winds than in the past
What information does the jurisdiction use to understand potential climate change impacts?	County and State reports
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	None at this time
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Superintendent of public works and borough engineer
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	Ongoing discussion with borough engineer, DPW superintendent, and borough administrator
How does the jurisdiction educate the public on potential climate change impacts?	During times of severe weather approaching the Borough puts out warning to residents through web site, and Borough alert system

19.3.8 Capability Assessment Summary

The Borough of Roseland's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Borough of Roseland determined the following hazard capability effectiveness ratings.

Table 19-16. Borough of Roseland Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

19.3.9 Opportunities to Improve Capabilities and Integration

The following have been identified as opportunities to improve capabilities and integration in the Borough of Roseland:

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Borough does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Borough does not have a Substantial Damage Response Plan. Because the Borough is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Borough for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
- The Borough does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Borough will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.

19.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Borough of Roseland were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Borough's reduction of risk through current capabilities.

The Borough of Roseland reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Borough discussed the following local factors that led to modifying the hazard rankings:

- The Borough adjusted the ranking for disease outbreak from low to medium based on the recent occurrences and impacts of outbreaks.
- The Borough agreed with the remainder of the calculated hazard rankings.

Table 19-17. Borough of Roseland Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	Medium
Geologic (Landslide)	Low

Hazard	*Hazard Ranking*
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

19.5 Jurisdictional Mitigation Strategy

19.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 19-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-ROSELAND-001	**Provide portable generator for traffic signals:** Obtain backup power to ensure continuity of operations of transportation/infrastructure.	Borough OEM	In Progress / Ongoing – most locations are done (battery backup plus generator); three remaining Started in 2012 - received funding through FEMA funding (after Sandy, rec'd money for 4); after that, using OEM budget to purchase	Yes	Passaic Ave by Noeker School Eisenhower Parkway by the Roseland Commons Plaza Livingston Ave by Choctaw Purchasing battery backup and generator capabilities for the traffic signals (purchasing generator to run the traffic lights)
2020-ROSELAND-002	**Steel Court Flooding Project:** Address flooding near Woodland Road and Steel Court. Install a second pipe for a distance of 150 feet to address flooding.	Borough Engineering	No Progress	No – this project would create downstream flooding	-
2020-ROSELAND-003	**Study regional stream corridor of South Branch of Foulteron Brook:** Regional stream corridor study through the lower elevations of the South Branch of Foulteron Brook encompassing three county-owned culverts at road crossings.	Borough Engineering	Complete – Essex County completed this study	No – project is complete	-
2020-ROSELAND-004	**Provide permanent backup generator for OEM building:** Obtain backup power to ensure continuity of operations at critical facilities.	Borough OEM	Complete – purchased and installed in 2024; funded through the Borough's capital improvement budget	No - project is complete	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-ROSELAND-005	**Investigate adding line item to budget for Hazard Mitigation.:** The Borough will consider hazard mitigation projects identified in this HMP when constructing upcoming operating and capital improvement budgets.	Borough Administration	Ongoing Capability	No – this is part of the annual budget and capital improvement plan for the Borough	-
2020-ROSELAND-006	**Update FPA Ordinance for duties of Borough Engineer:** Borough will update FDPO to designate the engineer, who is also a CFM, as the FPA.	Borough Administration, Borough Engineering	Complete – this has been incorporated into the Borough's FDPO	No – complete	-
2020-ROSELAND-007	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Planning Board	Ongoing Capability – during reexaminations of the Master Plan, the Borough will incorporate the HMP accordingly	No – ongoing capability/part of the Planning Board	-
2020-ROSELAND-008	**Sustainable Jersey Participation:** It is recommended that the Borough evaluate certification under the program (http://www.sustainablejersey.com/).	Borough Administration	In Progress – the Borough is participating but not certified	No – Borough is participating and will work towards certification	-
2020-ROSELAND-009	**Remove school from 2017 EOP evacuation staging area:** The First Aid Squad has backup power, but the school does not. The school should be removed as the primary evacuation staging site from EOP.	Borough OEM	Complete – the school is no longer the evacuation staging area. The First Aid Squad now serves as the staging area.	No - complete	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-ROSELAND-010	**Mitigate flood-prone properties, including RL properties in the Canoe Brook floodplain:** Conduct outreach to flood-prone property owners, including RL/SRL property owners, and provide information about mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes that experience flooding.	Borough Engineering	In Progress	Yes	There are 3 RL properties in the Borough; the Borough will conduct outreach to those property owners and provide them with information on mitigation measures to reduce flood risk.
2020-ROSELAND-011	**Birch Dr. / Thackery Dr. Drainage Project:** Add capacity and create a discharge bypass to direct the additional stormwater downstream past the culverts that are limiting flow due to lack of capacity.	Borough Engineering	No Progress	No – project was evaluated and it was determined that it is not viable and would increase flooding downstream	-
2020-ROSELAND-012	**Determine pump plan:** Borough will investigate options for securing the two critical pumps.	Borough Engineering	In Progress	No – the Borough is implementing a pumping station maintenance and rehabilitation program	-
2020-ROSELAND-013	**Essex County Environmental Center:** Borough will reach out to the county to	Borough Engineering	No Progress	No – this is not a borough-owned facility	-

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?*	
				Yes/No *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
	discuss mitigation strategies and BMPs for facilities in the floodplain.			and does not have jurisdiction over facility	

19.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Borough of Roseland identified the following mitigation efforts completed since the last HMP:

- The Borough performs routine maintenance and clearing of brooks to keep clear of debris and allow water to flow freely.

19.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Borough of Roseland identified the following issues that require mitigation.

- The Borough does not have a disaster debris management plan in place.
- The Borough is experiencing pedestrian safety concerns due to inadequate crossing infrastructure. Several areas lack electronic crossing signals, leading to increased risk of accidents and reduced accessibility for pedestrians.
- Frequent flooding events in the Borough damages structures and there are 3 repetitive loss properties.
- The traffic signals at Passaic Ave by Noeker School, Eisenhower Parkway by the Roseland Commons Plaza, and Livingston Ave by Choctaw do not have backup power and cannot function during power outages.
- As an NFIP community, the Borough does not have a substantial damage response plan in place.
- By December 2027, the Borough will be required to have a watershed improvement plan in place as part of NJDEP's MS4 permit process.

19.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Borough of Roseland's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 19-19. Borough of Roseland 2025 Mitigation Actions by Hazard Addressed

Project Number	*Project Name*	*Disease Outbreak*	*Drought*	*Earthquake*	*Extreme Temperature*	*Flood*	*Geological Hazards*	*Severe Weather*	*Severe Winter Weather*	*Wildfire*
2025-Roseland Borough-01	Disaster Debris Management Plan		X	X	X	X	X	X	X	X

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Roseland Borough-02	Improving pedestrian crossings throughout the Borough	X	X	X	X	X	X	X	X	X
2025-Roseland Borough-03	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Roseland Borough-04	Provide portable generator for traffic signals	X	X	X	X	X	X	X	X	X
2025-Roseland Borough-05	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Roseland Borough-06	Watershed Improvement Plan	X	X		X	X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 19-20. Borough of Roseland 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Roseland Borough-01	Disaster Debris Management Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	1	13	High
2025-Roseland Borough-02	Improving pedestrian crossings throughout the Borough	1	1	1	1	1	0	0	1	1	1	0	1	1	1	11	High
2025-Roseland Borough-03	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	1	1	1	1	1	0	1	10	Medium
2025-Roseland Borough-04	Provide portable generator for traffic signals	1	1	1	1	1	0	0	1	1	1	0	1	1	1	11	High
2025-Roseland Borough-05	Substantial Damage Response Plan	1	1	1	1	1	0	0	1	1	1	1	1	0	0	10	Medium
2025-Roseland Borough-06	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	0	1	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Roseland Borough-01: Disaster Debris Management Plan

Lead Agency:	Borough OEM and DPW	
Supporting Agencies:	Borough Council	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff Time	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 3, 5, 6	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

2025-Roseland Borough-02: Improving pedestrian crossings throughout the Borough

Lead Agency:	Borough OEM and DPW
Supporting Agencies:	Borough Council
Hazard(s) of Concern:	Earthquake, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	The Borough is experiencing pedestrian safety concerns due to inadequate crossing infrastructure. Several areas lack electronic crossing signals, leading to increased risk of accidents and reduced accessibility for pedestrians. There is a need to improve pedestrian crossings by installing electronic crossing signals in key locations to improve safety and provide a more walkable community.
Description of the Solution:	The Borough will conduct an assessment of pedestrian crossings to identify and prioritize areas requiring electronic crossing signals, taking into account pedestrian traffic patterns, accident history, and community feedback. Upon completing this assessment, the Borough will develop a plan and seek funding for the acquisition, installation, and ongoing maintenance of the necessary equipment for the crossing signals.
Estimated Cost:	Low to Medium
Potential Funding Sources:	USDOT Safe Streets and Roads for All (SS4A) Grant Program, EPA Smart Growth Support, Municipal Budget, Capital Improvement
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 5, 7
Benefits:	Enhances safety, improves traffic, increases accessibility to pedestrians
Impact on Socially Vulnerable Populations:	Audible signals create more accessibility for people with visual or cognitive impairments; improves infrastructure for those with mobility issues
Impact on Future Development:	Provides safer crossings in areas seeing development
Impact on Critical Facilities/Lifelines:	Roadways and surrounding structures are identified as community lifelines
Impact on Capabilities:	Increasing safety and providing walkability in the Borough
Climate Change Considerations:	N/A
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Preventative, Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Upgrade current signage / Install high-visibility crosswalk markings and additional signage; while an option, not as effective as electronic signage
	Education and Awareness Campaign / Implement education program for drivers and pedestrians but does not address overall problem

2025-Roseland Borough-03: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 16 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the City will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	FEMA BRIC, FMA and HMGP; Local match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Roseland Borough-04: Provide portable generator for traffic signals

Lead Agency:	Borough OEM and DPW
Supporting Agencies:	Borough Police
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	The traffic signals at Passaic Ave by Noeker School, Eisenhower Parkway by the Roseland Commons Plaza, and Livingston Ave by Choctaw do not have backup power and cannot function during power outages. As a result, Borough police need to direct traffic or roads need to close until power is restored.
Description of the Solution:	Purchase battery backup and generator capabilities for the traffic signals (purchasing generator to run the traffic lights) located at Passaic Ave by Noeker School, Eisenhower Parkway by the Roseland Commons Plaza, and Livingston Ave by Choctaw.
Estimated Cost:	Medium
Potential Funding Sources:	Municipal budget, FEMA HMGP
Implementation Timeline:	Within 5 years
Goals Met:	1, 6
Benefits:	Continuity of operations; allows traffic lights to function during power outages
Impact on Socially Vulnerable Populations:	All residents using the roadways in these sections of the Borough will benefit from this project, including socially vulnerable populations
Impact on Future Development:	Any new or redevelopment in these areas will benefit from this project
Impact on Critical Facilities/Lifelines:	Roadways and surrounding structures are identified as community lifelines
Impact on Capabilities:	Provides risk reduction and continuity of operations
Climate Change Considerations:	Frequent and intense storms will likely cause more power outages; this project will provide backup power to allow traffic lights to work
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.
Microgrid	Costly and difficult to implement.

2025-Roseland Borough-05: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.	
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan	
Goals Met:	2, 5	
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.	
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resourc	
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.	
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.	
Impact on Capabilities:	This action improves disaster recovery capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**

	No Action	Current problem continues
	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Roseland Borough-06: Watershed Improvement Plan

Lead Agency:	Borough Engineer, DPW, and Council	
Supporting Agencies:	NJDEP	
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather	
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.	
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.	
Estimated Cost:	Medium for planning, High for implementation of identified projects	
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget	
Implementation Timeline:	Completion required by December 2027	
Goals Met:	1, 2, 5, 7	
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be redu	
Impact on Socially Vulnerable Populations:	TBD by identified projects	
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.	
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.	
Impact on Capabilities:	This action will improve stormwater capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.	
Mitigation Category:	Natural Resource Protection	
CRS Category:	Structural Projects, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

19.6 Jurisdictional Hazard Mitigation Team

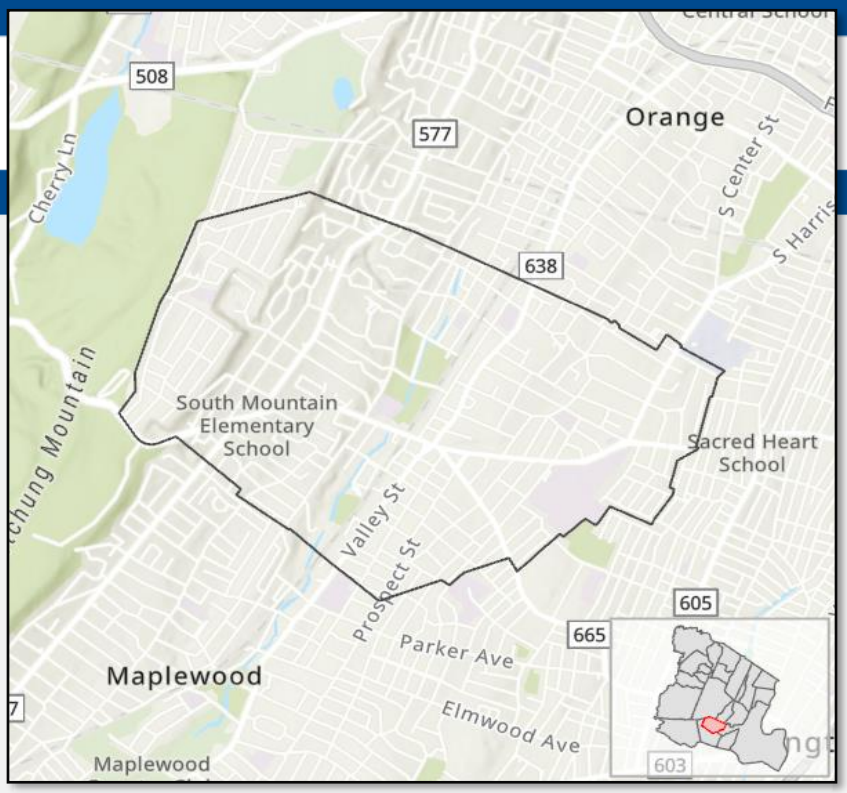
Table 19-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	John Matheis, OEM Coordinator	Name and Title:	Bill Collins, Deputy OEM Coordinator
Address:	140 Eagle Rock Avenue, Roseland, NJ 07068	Address:	140 Eagle Rock Avenue, Roseland, NJ 07068
Phone Number:	973-403-6840	Phone Number:	973-403-6840
Email:	jmatheis@roselandnj.org	Email:	williamcollins3@gmail.com
NFIP Floodplain Administrator			
Name and Title:	Joseph Pomante, Engineer/FPA		
Email:	jpomante@boswellengineering.com		

Table 19-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
John Matheis, OEM Coordinator	Primary point-on-contact for the Borough throughout the Essex County HMP update, served on the Planning Partnership for the HMP update, attended meetings, provided input for the Township's annex, identified mitigation strategies, reviewed the draft annex

Village of South Orange



POPULATION STATISTICS

18,299
TOTAL POPULATION (2023 ACS)

0.11%
Change in population since 2010 Census

5,932
TOTAL HOUSEHOLDS

AT RISK POPULATION

2,365
Population Over 65

1,049
Population Under 5

1,504
Living With Disability

143
Households Without Vehicle

1,934
People Renting Homes

POVERTY AND LANGUAGE

644
Households Below Poverty Level

627
Population With English as 2nd Language

POPULATION AND BUSINESSES

16,445
Daytime Population

598
Total Businesses

8,939
Total Employees

FLOOD VULNERABILITY

0
Number of People in 1% SFHA

6
Number of Buildings in 1% SFHA

1
Community Lifelines in 1% SFHA

20 VILLAGE OF SOUTH ORANGE

20.1 JURISDICTIONAL PROFILE

The Village of South Orange is located in the middle of Essex County and is bordered to the north by the Township of West Orange and the Cities of Orange and East Orange, to the east by the City of Newark, and to the south and west by the Township of Maplewood. The land of South Orange Village was originally part of property acquired by Robert Treat in 1666 from the Lenape Tribe. As the population grew, the rail lines on New Jersey transit expanded to South Orange allowed commuters to get directly to Penn Station in New York City 30 minutes. Seton Hall University is in the Village.

South Orange Village's governing body is comprised of an elected Village Council consisting of six elected Councilmembers and an elected Mayor, all seven of whom serve four-year terms without any remuneration. Three Councilmembers are elected biennially.

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

After Hurricane Ida, the Village received funding from FEMA to install a backup generator at the Department of Public Works building. The facility is floodprone and the generator was installed above the base flood elevation. The generator allows the Village to operate Public Works before, during, and after disasters.

20.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Village of South Orange's risk to the hazards of concern identified for the 2025 HMP update.

20.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Village of South Orange's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Village experienced during hazard events since the last hazard mitigation plan update.

Table 20-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Declared a SOE on 3/13/20. Received $435,557.99 in CARES Act funds and NJ Health Grants. Losses were due to closure of recreation and other department revenue streams. Money was also spent on additional supplies, extra health staff and sanitizing

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
			materials. The SOE was rescinded on 5/11/23.
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Declared a SOE on 8/4/20. South Orange suffered $257,151 of losses and damages. There was building damage to the north side of the fire department at 31 Crest Drive, caused by a falling tree. In addition, damage was done to multiple streets and sidewalks, causing approximately 3,319 CY of debris to be collected. SOE was rescinded on 8/6/20.
December 16, 2020 – December 17, 2020	Winter Storm Gail	A nor'easter hit northeastern parts of the United States, including New Jersey. There was roughly 12 inches of snow.	Declared SOE on 12/16/20. Rescinded SOE on 12/17/20. There were no impacts other than increased costs for DPW staff.
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Declared SOE on 9/1/21. South Orange suffered approximately $5,000,000 in damage. Multiple streets were torn up. The DPW building flooded, causing over $350,000 in damage. The Performing Arts Center had major flood damage. Clean up costs were over $150,000, resulting in the removal of 414 tons of debris. The sports fields and village pool were damaged. The community center, already undergoing renovations, suffered flooding damage. The police department suffered water damage. SOE was rescinded on 9/3/21.

Source: FEMA 2024; NOAA NCEI 2025

20.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

FEMA flood maps do not adequately address flood risk in the Village because flood risk is not primarily related to riverine flooding and because the actual flood area exceeded Zone AE in limited areas during recent storm events (Ida). The primary flood risk within the Village is related to surcharged storm drain

systems and elevated ground water rather than riverine flooding. This creates flash flooding in roadways and sometimes impacts private structure basements outside the mapped floodplain.

Most of the currently mapped floodplain consists of municipal parkland and municipal facilities. There is only one privately owned structure (101 South Orange Avenue West) partially within the currently mapped floodplain. This is a single-story commercial building within the downtown area. There are areas of the downtown which are beyond Zone AE that were damaged during Ida. It is unknown if this was due to inaccuracies in the mapping or surcharging storm drain systems or both. The Village indicated that the primary flood risk in the Village is not reflected to riverine flooding and that it is related to surcharged storm drain systems and elevated groundwater. This leads to flash flooding on roadways and impacts private structure basements outside of the mapped floodplain.

The Village's Department of Public Works garage, office, and entire property continuously flood as a result of the property being in the floodplain. The Newstead area is prone to flooding and one house sustains repetitive damage.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Village of South Orange.

Table 20-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
54	$52,862	$16,768,000	63	$633,899	5	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

There have been no structures in the Village that have been declared substantially damaged in flood events.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 20-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
South Orange Public Works	Safety and Security	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

20.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Village of South Orange, including major residential/commercial/industrial development and major infrastructure development.

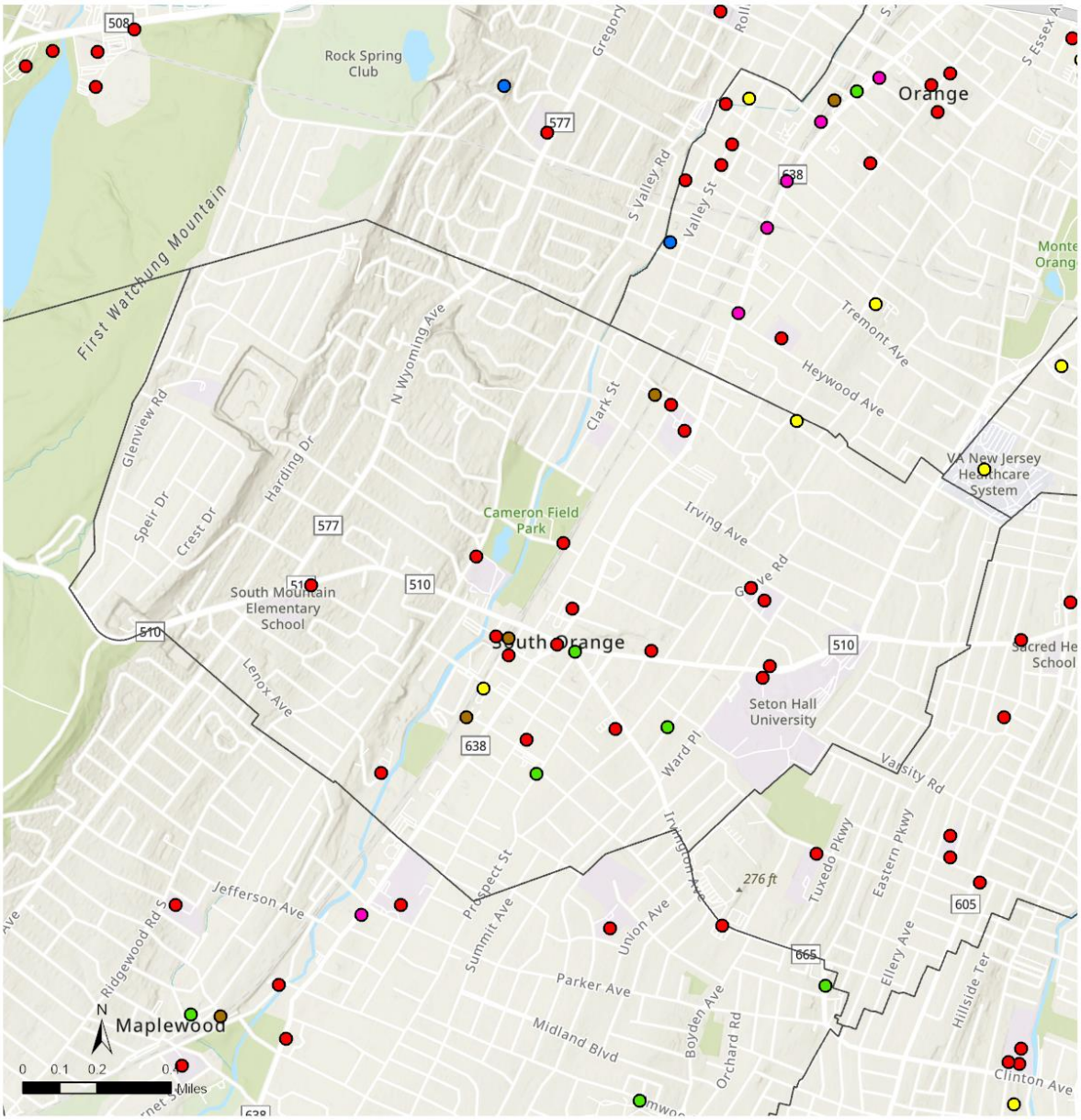
Table 20-4. Recent and Expected Future Development

Property or Development Name	*Type (Res., Com., Ind., infrastructure)*	*# of Units or Structures*	*Address or Parcel ID*	*Hazard Zone(s)*	*Status of Development or Year Complete*
South Orange has had a variety of development since the last HMP. However, all of the development was considered "redevelopment" in the sense that all parcels previously contained development and impervious coverage. Using the HMP's definition of redevelopment and filtering out under 4-unit residential development, no new major developments of vacant land took place. This reflects both the lack of vacant land, and the Village's dedication to adaptive reuse, sustainable redevelopment, and open space protection.					

20.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Village of South Orange that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 20-1. Village of South Orange Community Lifelines

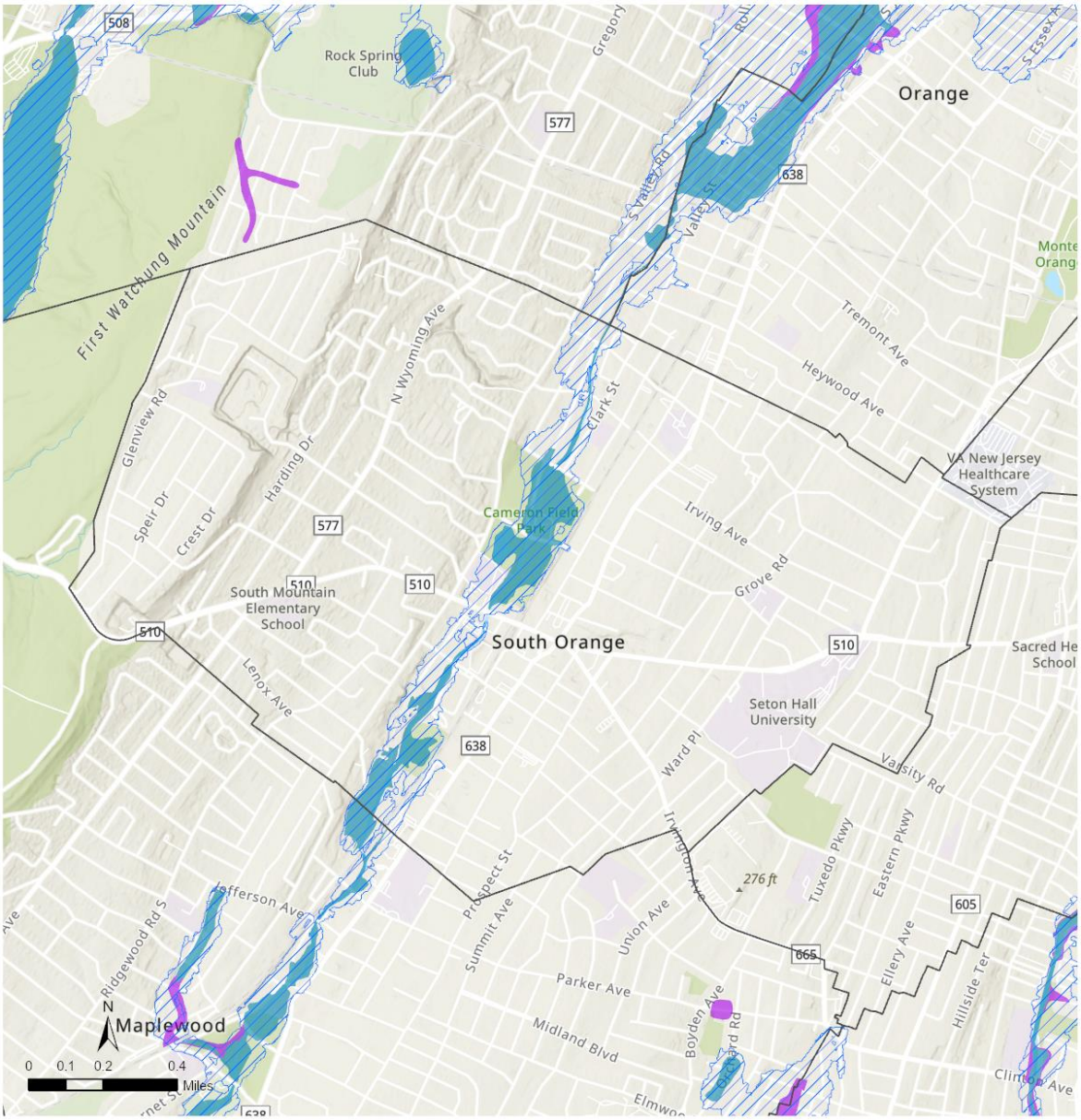


South Orange Village Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 20-2. Village of South Orange Flood-Related Hazards

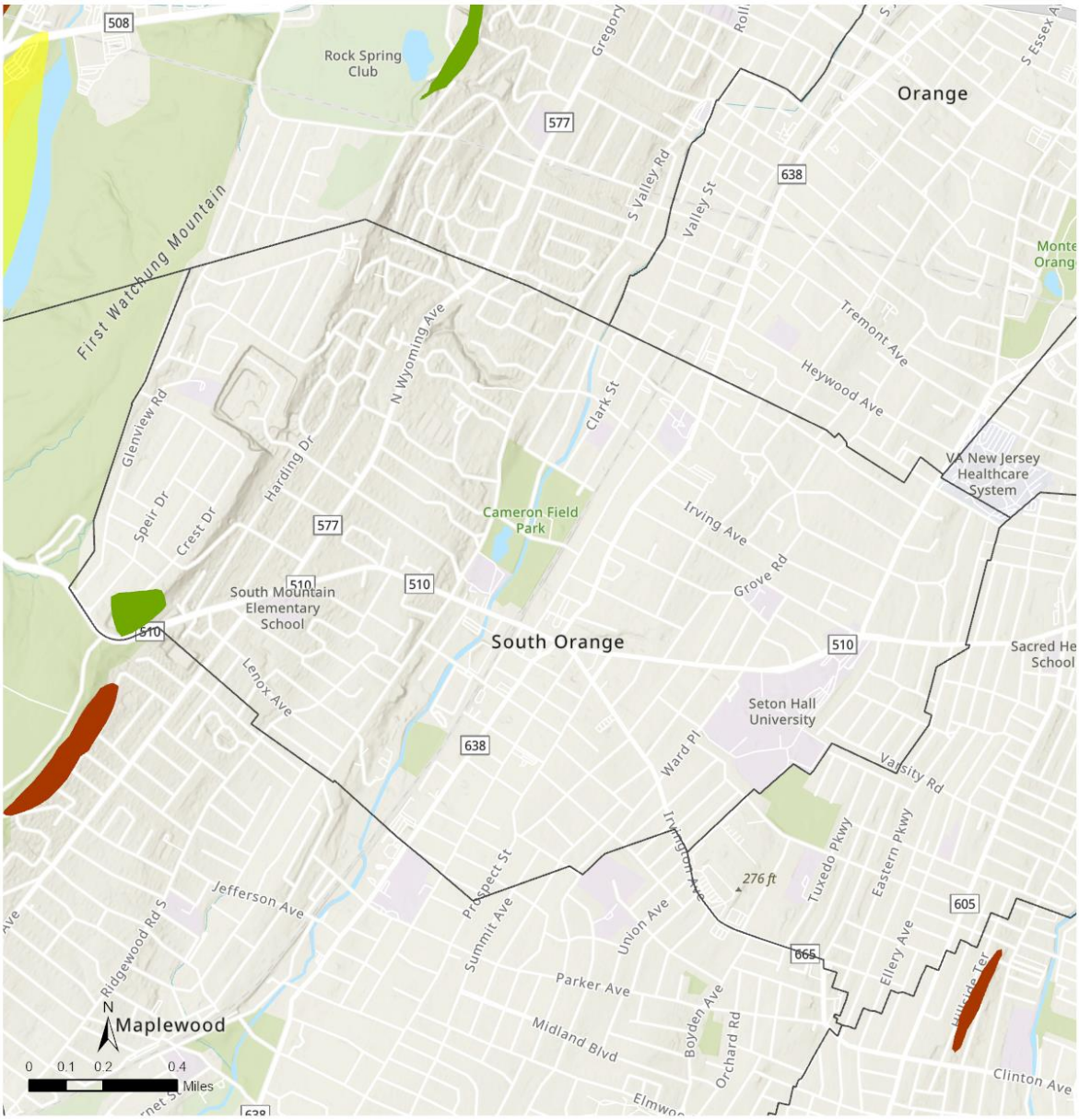


South Orange Village Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 20-3. Village of South Orange Geological Hazards



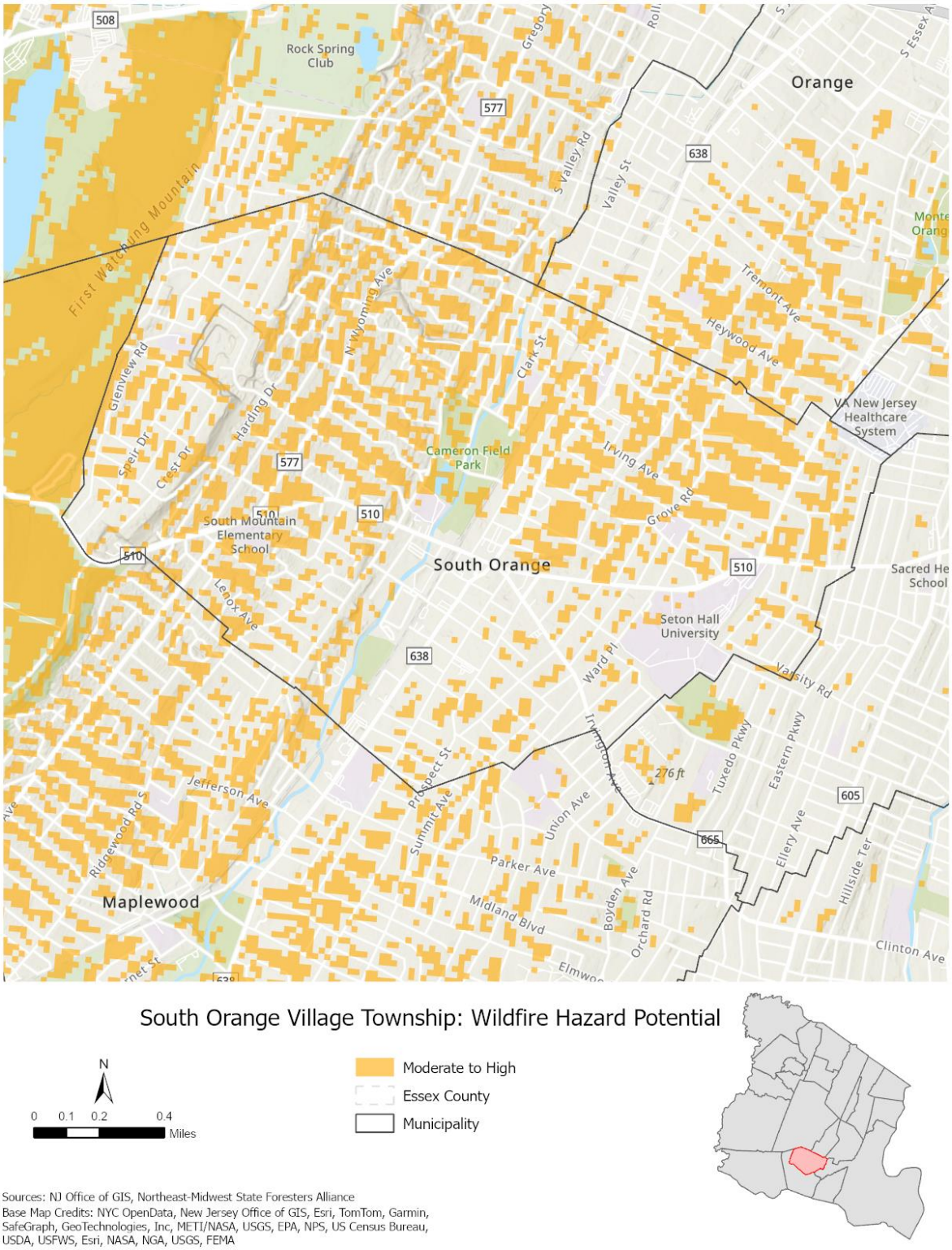
South Orange Village Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 20-4. Village of South Orange Wildfire Hazard



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

20.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Village of South Orange, climate change is likely to have the following impacts:

- Increase in precipitation is leading to impacts on the Village's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Village.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Village and will require new construction and redevelopment to elevate higher than what is currently outlined in the Village's flood damage prevention ordinance.

20.2.5 Risk Assessment Summary

- The recent flooding from Hurricane Isaias exposed major vulnerabilities in key municipal buildings, including the performing arts center and police department. The performing arts center needs enhanced flood control measures. The police department, which sustained severe damage to its ceiling and workout room, requires improvements to protect from future floods.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Village has 5 repetitive loss properties, but other properties may be impacted by flooding as well.
- Since Hurricane Ida, the village has made several minor repairs and changes to the building to enhance flood protection. The bathroom and locker room have been redone, with fixtures elevated and mounted on the wall, ensuring everything is at least three feet above the ground. They are elevating as much as possible, including mechanicals, chemicals, secondary containment, and tanks, all of which are now off the ground and mounted to the wall. Tires are secured with tie straps to the wall when not in use. The offices have been relocated to 298 Walton. Additionally, they are currently in the process of installing a generator outside of the floodplain, elevated at the entrance to the facility.
- The culvert at 101 South Orange Avenue West in the center of the village is failing. During large rain events, this culvert backs up and floods the village. Improvements are needed to reduce or eliminate flooding.

20.3 Jurisdictional Capability Assessment

The Village of South Orange performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities

- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

20.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Village of South Orange.

Table 20-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	South Orange Master Plan (2021)	Planning and Zoning Boards
Impact on Risk Reduction: The vision outlined in master plan informs important policy decisions affecting land development, from individual residential renovations to the proper location of business districts and preserved open space. Additionally, it will serve as a high-level guide for the Village's Planning and Zoning Boards in their review of applications that come before them and the Board of Trustees. It includes discussions on the waterbodies, floodprone areas, and steep slopes of the Village. It also identifies potential mitigation actions related to flooding and climate change.			
Capital Improvement Plan	Yes	Annual	Village Council
Impact on Risk Reduction: The Capital Improvement Plan is part of the annual budget. Projects include greenway projects, building upgrades, repaving roadways, and drainage improvements.			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan	Engineering
Impact on Risk Reduction: The Municipal Stormwater Management Plan (MSWMP) was developed in accordance with N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. The goals of this plan are to: • Reduce flood damage, including damage to life and property; • Minimize, to the extent practical, any increase in storm water runoff from any new development; • Reduce soil erosion from any development or construction project; • Assure the adequacy of existing and proposed culverts and bridges, and other instream structures; • Maintain groundwater recharge; • Prevent, to the greatest extent feasible, an increase in nonpoint pollution; • Maintain the integrity of stream channels for their biological functions, as well as for drainage; • Minimize pollutants in storm water runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
• Protect public safety through the proper design and operation of storm water basins.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan (April 2018)	Engineering
Impact on Risk Reduction: Stormwater Pollution Prevention Plan April 2018 https://southorange.org/DocumentCenter/View/1386/Storm-Water-Pollution-Prevention-Plan			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	South Orange Master Plan (2021)	Planning and Zoning Boards
Impact on Risk Reduction: Part of the South Orange Master Plan			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Management Plan. Adopted December 2015.	Administration, DPW Shade Tree Department
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	South Orange Master Plan (2021)	Planning and Zoning Boards
Impact on Risk Reduction: Part of the South Orange Master Plan			

The table below summarizes the emergency response and recovery plans that guide the Village of South Orange to prepare for, respond to, and recover from hazard events.

Table 20-6. Emergency Response and Recovery Planning Capabilities

Plan Name	*Capability in Place? (Yes/No)*	*Name and Date*	*Department/Agency Responsible*
Emergency Operations Plan	Yes	EOP, December 2024	Office of Emergency Management
Impact on Risk Reduction: The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Village has.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	EOP, December 2024	Office of Emergency Management
Impact on Risk Reduction: The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Village has.			
Evacuation Plan	Yes	EOP, December 2024	Office of Emergency Management
Impact on Risk Reduction: The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Village has. It includes an annex that discusses evacuation procedures in the Village.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	EOP, December 2024	Office of Emergency Management
Impact on Risk Reduction: The EOP is based on all-hazard response to emergencies, listing specific hazards and resources that the Village has. It includes an annex that discusses public health resources and procedures in the Village.			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Village of South Orange.

Table 20-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes		Construction Official
Impact on Risk Reduction: The Uniform Construction Code is administrated by the Construction Official, and includes the Building, Electrical, Plumbing, and Fire Subcode Officials and Inspectors, which serve to enforce the various codes adopted by the Uniform Construction Code. Construction permits are required for most projects in strict accordance with the requirements of the State of New Jersey Uniform Construction Code, N.J.A.C. 5:23.			
Zoning or Land Use Regulations	Yes	Chapter 185, Part 13 – Land Development, Zoning	Planning and Zoning Boards
Impact on Risk Reduction: Zoning regulations in the Village guide land use and development within the community. The Village restricts development in critical environmental areas, including flood hazard areas and steep slopes.			
Subdivision Regulations	Yes	Chapter 185, Part 5 – Land Development, Subdivisions	Planning Board
Impact on Risk Reduction: The Planning Board shall act as the approving authority for subdivision plats as a condition for filing such plats with the County Recording Officer, either individually or as a part of simultaneous application, and for site plan approval as follows: • For minor subdivisions. • For preliminary and final major subdivisions. • For subdivisions which also require conditional use approval. • For minor and major subdivisions which require site plan approval. • For subdivisions in which a variance is requested in accordance with N.J.S.A. 40:55D-70c.			
Site Plan Regulations	Yes	Chapter 185, Part 1 – Land Development, Site Plan Review	Planning Board
Impact on Risk Reduction: No development shall take place within the Village, nor shall any land be cleared or altered, nor shall any watercourse be diverted or filled, nor shall any parking areas, accessory or otherwise, be constructed, installed or enlarged, nor shall any building permit, zoning permit, certificate of occupancy or other required permit be issued with respect to any such structure, land or parking area, except in accordance with an approval of such development granted pursuant to this Part 4, unless exempted.			
Stormwater Regulations	Yes	Chapter 303 – Stormwater Management	Construction Official
Impact on Risk Reduction:			
Floodplain Regulations	Yes	Chapter 160 – Flood Damage Prevention	
Impact on Risk Reduction: It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: 1. Protect human life and health; 2. Minimize expenditure of public money for costly flood-control projects; 3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; 4. Minimize prolonged business interruptions; 5. Minimize damage to public facilities and utilities, such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard; 6. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood-blight areas;			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
7. Ensure that potential buyers are notified that property is in an area of special flood hazard; and 8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. Any new construction or substantial improvements must have the lowest floor, including basement, elevated to or above the base flood elevation. At the time of this plan update, the Village's flood damage prevention ordinance does not meet NJDEP's minimum requirements.			
Environmental Protection Regulations	Yes	Chapter 334 (Trees and Shrubbery)	Village
Impact on Risk Reduction: Chapter 334 (Trees and Shrubbery) – requires permits for removing or destroying trees in the Village			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Historic Preservation Ordinance			

20.3.2 Administrative and Technical Capabilities

The table below summarizes the Village of South Orange's departments, boards, and committees that contribute to risk reduction.

Table 20-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board consists of nine members and two alternates. They are authorized to exercise power with regard to: • Drafting and adopting the Master Plan for the Village; • Reviewing subdivision and site plan applications for permitted uses; • Reviewing conditional use applications; • Drafting recommendations as to the zoning ordinance or amendments; • Redevelopment Plan; and • "C" Variances under certain circumstances in connection with site plans and subdivisions. The Zoning Board of Adjustment consists of seven members and two alternates, each of whom is appointed by the Village Council for a term of: four years for regular members and two years for alternate members. The Board conducts regularly scheduled hearings after public notice and depending upon the classification of relief sought, may approve or deny on application for a variance. The decision of the Board is usually final. However, any party aggrieved by the Board's action may file an appeal in civil court. Other powers of the Board include hearing

Department / Board / Committee	Description and Role in Risk Reduction
	and deciding on appeal applications of decisions made by an administrative officer, such as the Zoning Officer; and to interpret the zoning map or zoning ordinance.
Planning Department	South Orange Village's Zoning Department provides assistance and guidance in the development of lands in South Orange Village pursuant to the land use ordinance, the master plan and New Jersey's Municipal Land Use Law (MLUL). Duties include enforcing codes and ordinances to providing customer support to residents.
Public Works / Highway Department	The Department of Public Works (DPW) is responsible for maintaining the infrastructure throughout the municipality, including municipal grounds and buildings, parks, street signs, roadways, sewers, and municipal owned trees, as well as recycling from Public Works Yard and Recycling Center. The DPW maintains the 1,050 storm water catch basins on the streets. The Shade Tree Division is responsible for planting, trimming, removing, and caring for the 6,000+ shade trees in the right of way along our 46 miles of streets and approximately 75 acres of public parks. The Sewer Division is responsible for managing 51 miles of sanitary sewers and 28 miles of storm sewers.
Construction / Building / Code Enforcement Department	The Building and Code Enforcement Department is responsible for: • Issuing building permits for construction, demolition, remodeling and repair of structures, upon the approval of applications for same. • Issuing permits for signs, commercial, air-conditioning, oil burners and oil tanks; • Performing inspections for and issuing certificates of continued occupancy and certificates of habitability (for rentals); • Investigating complaints of violations of Village codes and ordinances dealing with building codes; Coordinating all regulatory inspections relating to buildings and structures which are not vested in any other department or division. The department makes all building inspections authorized or required by general law or the Building and Property Maintenance code of the Village and enforces the provisions of such laws and ordinances.
Engineering Department	The Department of Engineering oversees the design and preparation of plans and specifications for all municipal projects authorized by the Village Council.
Parks and Recreation Department	The mission of the Department of Recreation & Cultural Affairs is to enhance the quality of life in South Orange, by providing a well-rounded program of leisure time activities for community residents of all ages and interests.
Open Space Board / Committee	No
Environmental Board / Commission	The Environmental Commission was established to protect and restore the quality of our air, water, and open space. The Commission is composed of seven citizen volunteers, two alternates, and one liaison to the Village Council and also oversees the Green Team. The Commission is required by law to keep a Natural Resources Inventory and a list of all open areas, publicly or privately owned, to ensure proper use of such

Department / Board / Committee	Description and Role in Risk Reduction
	lands. The index of open lands is kept both as part of the Recreation and Open Space Index (ROSI) provided by the Village to the NJ State Dept. of Environmental Protection, and by the Village Planner as part of the Master Plan.
Emergency Management / Public Safety Department	The South Orange Village Office of Emergency Management (OEM) coordinates multi-agency responses to emergencies and disasters within South Orange. It is responsible for alerting and notifying appropriate agencies when disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disaster; developing preparedness plans and procedures for response to and recovery from disasters; and developing and providing materials for the public.
Fire Department	South Orange Village is served by the South Essex Fire Department.
Additional departments, boards, and committees	No

The table below summarizes the Village of South Orange's staff with skills and expertise that contribute to risk reduction.

Table 20-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Yes – Village Planning Board
Engineer	Yes – Village Engineer/Department of Engineering
Stormwater Officer	Yes
Resilience / Sustainability Officer	Yes
Grant Writer	Yes
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	Yes
Staff trained in GIS	Yes
Staff that provide support to socially vulnerable populations	Yes
Additional staff with skills and expertise that contribute to risk reduction	Yes

The table below summarizes development and permitting capabilities of the Village of South Orange.

Table 20-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	South Orange Engineering, Building, & Zoning Departments
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Steep slopes, site contamination, water bodies, flood hazard areas, and wetlands are mapped in the Master Plan and reviewed as part of development permits
How does your jurisdiction inventory land available for new development?	Land available for new development is based on a determination of water and sewer utility service capacity, examination of environmentally sensitive areas, as well as the availability and

Development and Permitting Procedure	Comment
	approvability of sites based on property titles and consistency with the rules and regulations of all agencies with jurisdiction over the site.
What percentage of your jurisdiction is available for new development?	Per the most recent Smart Growth Plan, less than 1% of the Village land area consists of vacant land (outside of road and railroad ROWs)

20.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Village of South Orange.

Table 20-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	While available, this has not been used for Hazard Mitigation.
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	After Hurricane Ida, this was used to obtain a generator for the Department of Public Works.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	While available, this has not been used for Hazard Mitigation.
Capital improvements funding	Yes	While available, this has not been used for Hazard Mitigation.
Open space acquisition programs	Yes	While available, this has not been used for Hazard Mitigation.
Impact fees for developers of new homes	Yes	While available, this has not been used for Hazard Mitigation.
User fees for water, sewer, gas, or electric	Yes	While available, this has not been used for Hazard Mitigation.
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	While available, this has not been used for Hazard Mitigation.
Ability to incur debt through bonds	No	-
Other financial resources available for hazard mitigation	No	-

20.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Village of South Orange.

Table 20-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Yes, Konexus
Public Information Officer	Yes
Website	Yes, southorange.org
Social media	Yes, Facebook, X, Instagram
Public safety campaigns	Yes
Newsletters	Yes, Village Gaslight
Hazard education programs for schools	No
Outreach to socially vulnerable populations	Yes, social worker

Outreach Capability	Description and Role in Risk Reduction
Other outreach capabilities	No

20.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Village of South Orange.

Table 20-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	To date no administrative services have been requested/needed relative to private properties. Engineering has provided guidance when municipal facilities have been flooded.
What local department is responsible for floodplain management?	Engineering
Are any staff certified floodplain managers (CFMs)?	Yes, the Village Engineer.
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	No. There are so few structures that a formal list is unnecessary.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No one has requested flood mitigation (elevation or acquisition).
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No one has requested flood mitigation (elevation or acquisition) from the Village. The Village has discussed mitigation for its Public Works facility directly with FEMA.
How many properties have been mitigated (elevation or acquisition)?	Unknown/none.
Summarize the jurisdiction's Substantial Damage determination procedures.	We would follow FEMA P-758 "*Substantial Improvement/Substantial Damage Desk Reference*".
Summarize the jurisdiction's Substantial Improvement procedures.	We would follow FEMA P-758 "*Substantial Improvement/Substantial Damage Desk Reference*".
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV: 07/09/2012 & CAC: 05/06/2013
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None we are aware of.
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	Yes.

20.3.6 Community Classifications

Table 20-14 summarizes the Village of South Orange's participation in community classification programs.

Table 20-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-

Program	Participation Status / Classification	Date Classified
Sustainable Jersey Municipal Certification	Bronze	September 19, 2024
Other Programs	Fire ISO Protection Class (Class 4)	August 2014
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

20.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Village of South Orange has in place and will use to prepare for changes in risk due to climate change.

Table 20-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Rising sea levels is our main risk associated with climate change since flooding is an issue.
What information does the jurisdiction use to understand potential climate change impacts?	We receive information from the county and our environmental commission.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	We have a Storm Water Pollution Prevention Plan and a Municipal Storm Water Management Plan.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	The Village Engineer is a certified Floodplain Manager.
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	We apply for Sustainable Jersey grants.
How does the jurisdiction educate the public on potential climate change impacts?	South Orange relies on our Environmental Commission to empower residents with the knowledge that their individual and collective actions directly affect their environment and their own health.

20.3.8 Capability Assessment Summary

The Village of South Orange's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Village of South Orange determined the following hazard capability effectiveness ratings.

Table 20-16. Village of South Orange Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Weak
Extreme Temp	Strong
Flood	Strong
Geologic (Landslide)	Weak
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

20.3.9 Opportunities to Improve Capabilities and Integration

The following have been identified as opportunities to improve capabilities and integration in the Village of South Orange:

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Village does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Village does not have a Substantial Damage Response Plan. Because the Village is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it will provide an outline to the Village for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
- The Village's current flood damage prevention ordinance (Chapter 160) has not been updated to meet NJDEP's current model ordinance. The Village identified this a mitigation action and will update Chapter 160 to reflect the changes in the model ordinance.

20.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Village of South Orange were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Village's reduction of risk through current capabilities.

The Village of South Orange reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Village discussed the following local factors that led to modifying the hazard rankings:

- The Village adjusted extreme temperature from medium to high due to rising temperatures in the summer and winter.

- The Village adjusted the ranking for flood from medium to high due to rising sea levels causing the Rahway River to flood more frequently.
- The Village adjusted the ranking for severe winter weather from medium to high due to the colder temperatures.
- The Village adjusted the ranking for wildfire from high to medium due to less forested areas located in the Village.
- The Village agreed with the remainder of the calculated hazard rankings.

Table 20-17. Village of South Orange Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	High
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	High
Wildfire	Medium

20.5 Jurisdictional Mitigation Strategy

20.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 20-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-S ORANGE -001	**Retrofit/elevate DPW building:** Feasibility study for flood hazard mitigation of the building.	Village Engineering	In Progress – Village has made minor repairs/changes to the building since Ida to provide flood protection. Redid the bathroom and locker room (elevated and mounted on the wall). Everything is at least three feet above the ground. Elevating as much as they can (mechanicals, chemicals, secondary containment, tanks, etc.) – everything is off the ground/mounted to the wall. Tires are mounted with tie straps to the wall when not in use. Relocated the offices to 298 Walton. Currently in the process of installing a generator. Outside of the floodplain and elevated at the entrance to the facility.	Keep in the 2025 HMP – would like to alter/relocate to higher elevation. Received funding from Ida (reimbursement funds) to make the improvements. Generator – grant funded through HMGP	The Village will relocate the DPW building to a higher elevation in the municipality. This will reduce or eliminate flood damage to the building and equipment and allow the DPW to function properly during natural hazard events.
2020-S ORANGE -002	**Public outreach, education, mitigation information program:** Provided information to residents from the NFIP program. Will develop a website with links to information.	Village Engineering	Ongoing Capability – municipal website; lots of updates; including new forms and information for residents. New quarterly publication that is mailed to all homes – includes information on all	No – ongoing capability and constantly making improvements/updates	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
			types of topics including engineering issues, improvement schedules, promoting emergency alert systems Social media During Ida, FEMA and NJOEM were available to meet with residents to inform them on flood insurance and ways the state and FEMA can help.		
2020-S ORANGE -003	**Mitigate vulnerable structures:** Phase 1: Identify appropriate candidates and determine the most cost-effective mitigation option (in progress). Phase 2: Work with the property owners to implement the selected action based on available funding from FEMA and local match availability.	Village Engineering, FPA	In Progress – municipal structures – improvements made to the building that houses the performing arts center (changes made in terms of flood control to mitigate future events); police department was renovated due to flooding from Isaias – ceiling, workout room, etc.; DPW building/complex Areas in the village more prone to flooding than others; have done scoping of systems in those areas to identify mitigation efforts Homes are not within the floodplain – stormwater systems cause the flooding –	Keep in the 2025 HMP – reword/split up into different actions	There are residential homes in the Village that flood as a result of stormwater flooding. Because they are not in the floodplain, there are limited funding resources available to mitigate the homes. The Village will complete a study of the stormwater system in the areas where homes flood to identify improvements to mitigate flood risk to the homes and areas. Complete feasibility studies in floodprone areas in the Village to identify mitigation efforts to reduce flood risk. Majority of risk is related to stormwater systems and

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
			no homes are eligible because they are not in the floodplain		those systems will need improvements to reduce flood risk.
2020-S ORANGE -004	**Enhance/expand the Village's tree maintenance program and coordination with utilities (PSEG):** Phase 1 working with PSEG is complete. Phase II for tree inventory and database upload.	Village Administration	Ongoing/Complete - If Village gets calls/concerns from residents, DPW has a tree contractor; anything that is wire related or behind the house the contractor can address; DPW will provide assistance if they need help with debris removal.	The Village redid their tree ordinance (adopted in November) – planting appropriate trees (native, non-invasive, etc.)	
2020-S ORANGE -005	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Village Planner	Complete. The master plan was adopted in 2021 – integrated the HMP and all other plans in place – available online.	Complete – plan was updated in 2021 and reviewed/integrated the HMP	-
2020-S ORANGE -006	**Baird Center Basement Flooding:** Building renovation to include basement floodproofing.	Village Administrator	Complete. Completed about 6 months ago – funded through capital improvement.	No – project was completed in 2024	-
2020-S ORANGE -007	**Culvert Failure:** The Village will investigate options for remediating the culvert.	Village Engineer	No Progress – the Village does not have jurisdiction over this road.	No – Village does not have jurisdiction of the roadway and cannot implement mitigation measures to reduce risk.	-

20.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Village of South Orange identified the following mitigation efforts completed since the last HMP:

- Current DPW facility was damaged during Hurricane Ida. Since then, the Village has made several minor repairs and changes to the building to enhance flood protection. The bathroom and locker room have been redone, with fixtures elevated and mounted on the wall, ensuring everything is at least three feet above the ground. They are elevating as much as possible, including mechanicals, chemicals, secondary containment, and tanks, all of which are now off the ground and mounted to the wall. Tires are secured with tie straps to the wall when not in use. The offices have been relocated to 298 Walton. Additionally, the Village is currently in the process of installing a generator outside of the floodplain, elevated at the entrance to the facility.
- River Greenway Project
    - Since the early 2000s, South Orange has been working to create a Greenway along the East Branch of the Rahway River, running from W. Montrose Avenue to Maplewood. The Village completed the first phase of the Greenway (in two parts) in Meadowland Park between 2008 and 2014, using $4 million in federal, state, and county funds. The existing Greenway bike/pedestrian path and bridges run from Meadowbrook Lane past Floods Hill and the South Orange Pool to South Orange Avenue.
    - The second phase of the project, expected to begin by summer 2024, will complete a path from Third Street through Waterlands Park to Chyzowych Field, near the Maplewood border at Parker Avenue. A new bridge will carry the Greenway over the river past the DPW yard and the former pump house.
    - Phase 3 of the Greenway will address the gap between South Orange Avenue and Third Street, and Phase 4 will provide pavement striping and signage, to create a walk and bike connection to near the border with Orange.
- Grove Park Drainage Improvement Project
    - In 2021 South Orange Village Engineer and Department of Public Works initiated drainage improvements in Grove Park to mitigate ongoing puddling after rainfalls. Remediation efforts were made to increase proper flow and ensure more surface water will be directed to the main storm water system.

20.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Village of South Orange identified the following issues that require mitigation.

- The recent flooding from Hurricane Isaias exposed major vulnerabilities in key municipal buildings, including the performing arts center and police department. The performing arts center needs enhanced flood control measures. The police department, which sustained severe damage to its ceiling and workout room, requires improvements to protect from future floods.

- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Village has 5 repetitive loss properties, but other properties may be impacted by flooding as well.
- Since Hurricane Ida, the village has made several minor repairs and changes to the building to enhance flood protection. The bathroom and locker room have been redone, with fixtures elevated and mounted on the wall, ensuring everything is at least three feet above the ground. They are elevating as much as possible, including mechanicals, chemicals, secondary containment, and tanks, all of which are now off the ground and mounted to the wall. Tires are secured with tie straps to the wall when not in use. The offices have been relocated to 298 Walton. Additionally, they are currently in the process of installing a generator outside of the floodplain, elevated at the entrance to the facility.
- The culvert at 101 South Orange Avenue West in the center of the village is failing. During large rain events, this culvert backs up and floods the village. Improvements are needed to reduce or eliminate flooding.
- The Village does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The Village's current flood damage prevention ordinance does not use the current model ordinance and does not meet the minimum requirements set forth by NJDEP and FEMA.
- The Village will be required to have a Watershed Improvement Plan in place as part of NJDEP's MS4 permit process. At this time, the Village does not have a plan in place and will need one before December 2027.

20.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Village of South Orange's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 20-19. Village of South Orange 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards (Landslide)	Severe Weather	Severe Winter Weather	Wildfire
2025-Village of South Orange-01	Mitigate flood-prone municipal properties					X		X		
2025-Village of South Orange-02	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Village of South Orange-03	Retrofit/elevate DPW building					X		X		
2025-Village of South Orange-04	South Orange Ave Culvert					X		X		
2025-Village of South Orange-05	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Village of South Orange-06	Update Flood Damage Prevention Ordinance					X		X		
2025-Village of South Orange-07	Watershed Improvement Plan	X	X	X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 20-20. Village of South Orange 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Village of South Orange-01	Mitigate flood-prone municipal properties	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	Medium
2025-Village of South Orange-02	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	0	1	1	1	1	0	0	8	Medium
2025-Village of South Orange-03	Retrofit/elevate DPW building	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	Medium
2025-Village of South Orange-04	South Orange Ave Culvert	1	1	1	1	0	0	1	1	1	1	1	1	1	0	11	High
2025-Village of South Orange-05	Substantial Damage Response Plan	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	Medium
2025-Village of South Orange-06	Update Flood Damage Prevention Ordinance	1	1	1	1	1	1	0	1	1	0	1	1	1	0	11	High
2025-Village of South Orange-07	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Village of South Orange-01: Mitigate Flood-Prone Municipal Properties

Lead Agency:	Village Engineering, Floodplain Administrator
Supporting Agencies:	DPW
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The recent flooding from Hurricane Isaias exposed major vulnerabilities in key municipal buildings, including the performing arts center and police department. The performing arts center needs enhanced flood control measures. The police department, which sustained severe damage to its ceiling and workout room, requires improvements to protect from future floods.
Description of the Solution:	To increase resilience of key municipal buildings from future flooding, the Village will implement flood control measures and improvements to the performing arts center, police department, and DPW complex. This includes: Performing Arts Center - install flood control systems (flood barriers, sump pumps, and drainage improvements) to reduce flood damage. Police Department - make improvements to previously damaged areas, implementing waterproofing measures and elevating mechanicals.
Estimated Cost:	$1 million+
Potential Funding Sources:	FEMA BRIC, FMA (for activities benefiting NFIP-insured structures), and HMGP; capital improvement
Implementation Timeline:	Long-Term
Goals Met:	1, 2, 6
Benefits:	Reduces/eliminates flood damage to municipal properties; continuity of operations during and after flood events
Impact on Socially Vulnerable Populations:	Protecting municipal properties will allow the Village to provide essential services to the socially vulnerable populations before, during, and after flood events
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	Reduces/eliminates flood damage to municipal properties, all community lifelines, and provides continuity of operations during and after flood events
Impact on Capabilities:	This action will improve emergency response and services to the community.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. These factors will be incorporated into the mitigation improvements of
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	Medium
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Implement nonstructural flood control measures to reduce the risk of flooding without major construction projects. / Provides some protection to the buildings but will not reduce overall flood impacts and may not be operational during flooding.
	Relocate all buildings / Costly; Village is fully built out and there are no areas outside of the floodplain to relocate buildings

2025-Village of South Orange-02: Mitigate Flood-Prone Properties, Including RL/SRL Properties

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	N/A	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Village has 5 repetitive loss properties, but other properties may be impacted by flooding as well.	
Description of the Solution:	There are residential homes in the Village that flood as a result of stormwater flooding. Because they are not in the floodplain, there are limited funding resources available to mitigate the homes. The Village will complete a study of the stormwater system in the areas where homes flood to identify improvements to mitigate flood risk to the homes and areas. Complete feasibility studies in floodprone areas in the Village to identify mitigation efforts to reduce flood risk. Majority of risk is related to stormwater systems and those systems will need improvements to reduce flood risk.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA BRIC, FMA and HMGP; Local match from property owners	
Implementation Timeline:	3 years	
Goals Met:	1, 2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Village of South Orange-03: Retrofit/elevate DPW building

Lead Agency:	Village Engineering, Floodplain Administrator	
Supporting Agencies:	DPW	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Since Hurricane Ida, the village has made several minor repairs and changes to the building to enhance flood protection. The bathroom and locker room have been redone, with fixtures elevated and mounted on the wall, ensuring everything is at least three feet above the ground. They are elevating as much as possible, including mechanicals, chemicals, secondary containment, and tanks, all of which are now off the ground and mounted to the wall. Tires are secured with tie straps to the wall when not in use. The offices have been relocated to 298 Walton. Additionally, they are currently in the process of installing a generator outside of the floodplain, elevated at the entrance to the facility.	
Description of the Solution:	The Village will relocate the DPW building to a higher elevation in the municipality. This will reduce or eliminate flood damage to the building and equipment and allow the DPW to function properly during natural hazard events.	
Estimated Cost:	$1 million+	
Potential Funding Sources:	FEMA BRIC, FMA (for activities benefiting NFIP-insured structures), and HMGP; capital improvement	
Implementation Timeline:	Long-Term	
Goals Met:	1, 2, 6	
Benefits:	Reduces/eliminates flood damage to municipal properties; continuity of operations during and after flood events	
Impact on Socially Vulnerable Populations:	Protecting municipal properties will allow the Village to provide essential services to the socially vulnerable populations before, during, and after flood events	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Reduces/eliminates flood damage to municipal properties, all community lifelines, and provides continuity of operations during and after flood events	
Impact on Capabilities:	This action will improve emergency response and services to the community.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. These factors will be incorporated into the mitigation improvements of	
Mitigation Category:	Structure and Infrastructure Project	
CRS Category:	Property Protection	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Implement nonstructural flood control measures to reduce the risk of flooding without major construction projects.	Provides some protection to the buildings but will not reduce overall flood impacts and may not be operational during flooding.
	Deployable flood barriers	Requires deployment and staff time; takes away resources during flooding events

2025-Village of South Orange-04: South Orange Ave Culvert

Lead Agency:	Village Engineering and DPW
Supporting Agencies:	Essex County
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	The culvert at 101 South Orange Avenue West in the center of the village is failing. During large rain events, this culvert backs up and floods the village. Improvements are needed to reduce or eliminate flooding.
Description of the Solution:	The Village Engineer will complete an engineering survey of the South Orange Ave. culvert to determine the proper size and improvements necessary to provide stormwater capacity. The Village DPW will complete the necessary improvements identified by the engineer.
Estimated Cost:	Medium
Potential Funding Sources:	FEMA HMGP and BRIC; capital improvement; municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 5
Benefits:	Overall flooding will be reduced, which will result in less frequency of road closures and reduced damage occurring to culverts and roadways during severe events. Businesses are likely to remain in place if they are able to remain open, or re-open sooner
Impact on Socially Vulnerable Populations:	Areas that were previously vulnerable to frequency or severe flooding events will be less likely to be impacted by flooding events.
Impact on Future Development:	Future development in the impacted area will be less likely to be flooded.
Impact on Critical Facilities/Lifelines:	• Transportation routes are more likely to remain open • Evacuation routes will remain intact. • Access to health and medical facilities will be maintained, both for healthcare workers and the population who requires treatment for injuries and illness.
Impact on Capabilities:	Allows for resource staging to take place where the need is greatest ahead of a flood event.
Climate Change Considerations:	Climate change is likely to result in more frequent and severe rainfall events. This action will meet changing stormwater needs as the result of climate change.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection, Structural Project
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Remove roadway / Roadway cannot be removed
	Raingardens / Raingardens are unlikely to be able to absorb enough stormwater to prevent flooding during severe rainfall events.

2025-Village of South Orange-05: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	N/A
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Village of South Orange-06: Update Flood Damage Prevention Ordinance

Lead Agency:	Construction, Floodplain Administrator
Supporting Agencies:	NJDEP and FEMA
Hazard(s) of Concern:	Flood
Description of the Problem:	A recent audit of New Jersey's model ordinances by FEMA for conformance with NFIP, resulted in a review of existing local flood damage prevention ordinances. Based upon FEMA's review, specific language related to NFIP regulations was not consistent. Additionally, it was determined that better coordination was needed between the three sets of regulations that regulate development and construction in the floodplain. These regulations are: the NFIP implemented by local floodplain administrators, 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 local Construction Official. NJDEP used this feedback to develop a model Code Coordinated Ordinance and continues to work with municipalities to update flood damage prevention ordinances to the Code Coordinated Ordinance.
Description of the Solution:	After obtaining the appropriate review and concurrence by the NFIP State Coordinator and the FEMA Regional Office, the municipality will update and adopt the Code Coordinated Ordinance.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 3, 5
Benefits:	The updated ordinance will improve floodplain management, meet NFIP requirements, and increase resilience of new and substantially improved structures in the floodplain.
Impact on Socially Vulnerable Populations:	The action will result in better regulation of construction standards within the Special Flood Hazard Area where significant risk to socially vulnerable populations exists.
Impact on Future Development:	The action will result in stronger regulation of construction standards for future development in the Special Flood Hazard Area.
Impact on Critical Facilities/Lifelines:	Critical facilities and lifelines located in the Special Flood Hazard Area will be required to meet the same requirements as general building construction that are set forth in the ordinance.
Impact on Capabilities:	This action will improve floodplain management capabilities through better outlining of responsibilities and administrative procedures.
Climate Change Considerations:	The updated ordinance includes the State's higher standards that are in place to address heightened flood risk due to climate change such as those for floodway rise and mandatory freeboard have been incorporated in these new model ordinances.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Preventative
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Modify existing flood damage prevention ordinance / Time intensive
	Leave NFIP / Residents lose flood insurance coverage

2025-Village of South Orange-07: Watershed Improvement Plan

Lead Agency:	Village Engineer
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

20.6 Jurisdictional Hazard Mitigation Team

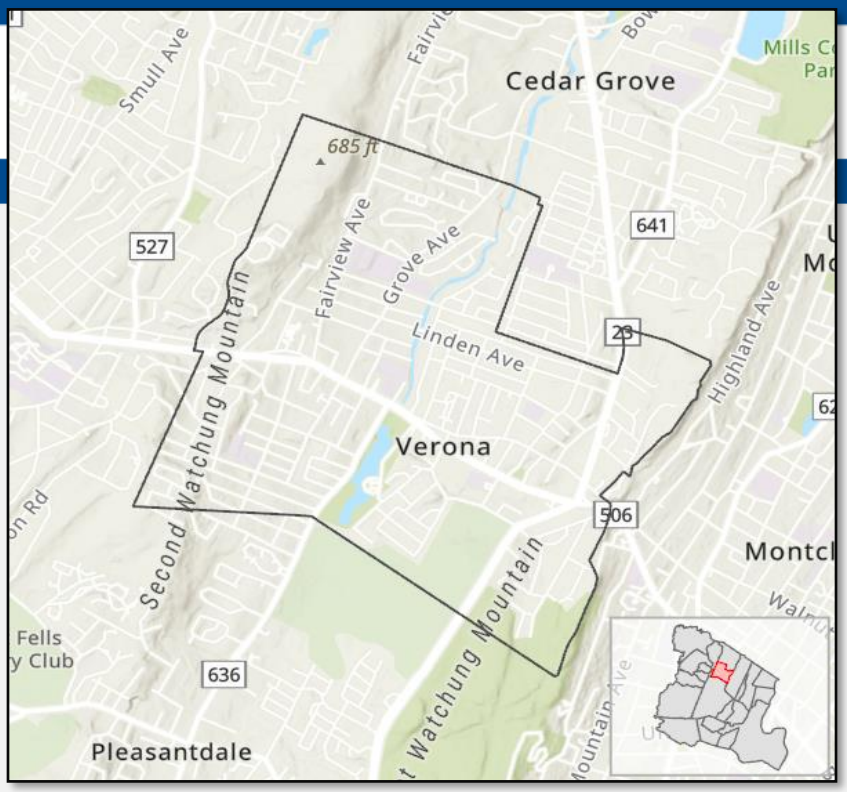
Table 20-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Julie Doran, Village Administrator	Name and Title:	Scott Egelberg, OEM Coordinator
Address:	76 South Orange Avenue, Suite 302, South Orange, NJ 07079	Address:	76 South Orange Avenue, Suite 302, South Orange, NJ 07079
Phone Number:	973-378-7715 x2	Phone Number:	973-378-7715 x2
Email:	jdoran@southorange.org	Email:	segelberg@southorange.org
NFIP Floodplain Administrator			
Name and Title:	David Battaglia, Engineering		
Address:	76 South Orange Avenue, Suite 302, South Orange, NJ 07079		
Phone Number:	973-378-7715 x3390		
Email:	engineer@southorange.org		

Table 20-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Julie Doran, Business Administrator	Attended meetings, provided input for the Village's annex, identified mitigation strategies, reviewed the draft annex
Scott Egelberg, OEM Coordinator	Attended meetings, provided input for the Village's annex, identified mitigation strategies, reviewed the draft annex
Joe Foligno, DPW Director	Attended meetings, provided input for the Village's annex, identified mitigation strategies, reviewed the draft annex
David Battaglia	Attended meetings, provided input for the Village's annex, identified mitigation strategies, reviewed the draft annex
Greer Patras, Planner	Attended meetings, provided input for the Village's annex, identified mitigation strategies, reviewed the draft annex

Township of Verona



POPULATION STATISTICS

14,441
TOTAL POPULATION (2023 ACS)

0.08%
Change in population since 2010 Census

5,840
TOTAL HOUSEHOLDS

AT RISK POPULATION

3,130
Population Over 65

889
Population Under 5

1,490
Living With Disability

161
Households Without Vehicle

1,177
People Renting Homes

POVERTY AND LANGUAGE

690
Households Below Poverty Level

399
Population With English as 2nd Language

POPULATION AND BUSINESSES

12,105
Daytime Population

584
Total Businesses

7,341
Total Employees

FLOOD VULNERABILITY

121
Number of People in 1% SFHA

33
Number of Buildings in 1% SFHA

2
Community Lifelines in 1% SFHA

21 TOWNSHIP OF VERONA

21.1 JURISDICTIONAL PROFILE

The Township of Verona is situated between the First and Second Watchung Mountains in northcentral Essex County. It is divided by the Peckman River, a tributary of the Passaic River. Hilltop Reservation is the newest of the County parks, and is located along the Second Watchung Mountain in the Township. Eagle Rock Reservation is in the lower corner of the municipality along the First Watchung Mountain. Centered in Verona is beautiful Verona Park, home to Verona Lake and boathouse (Township of Verona 2018).

Verona Township is located in north-central Essex County. It is bounded by Cedar Grove Township, Montclair Township, West Orange Township, Essex Fells Borough, and North Caldwell Borough. It is home to Verona Lake (located within Verona Park) and the Peckman River (Township of Verona 2018).

The Township of Verona operates under the council-manager form of government. (N.J.S.A. § 40:69A-81, et seq.) The council consists of five members elected by the public. One of the councilors – chosen either by at-large election or by a vote among the councilors – serves as the mayor, who is merely the head of council and has no special privileges such as veto power. Council appoints the Municipal Clerk, the Tax Assessor and members of all boards and commissions. The council hires a Manager, who serves as the chief executive and administrative official (Township of Verona 2025).

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

21.2 JURISDICTIONAL RISK ASSESSMENT

The following sections assess the Township of Verona's risk to the hazards of concern identified for the 2025 HMP update.

21.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of Verona's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 21-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic (DR-4488)	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	As of October 28, 2001, Verona reported 1,168 cases resulting in 18 deaths. Closures of public schools and township facilities. Significant reimbursement from county, state and federal resources.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Township infrastructure suffered significant damage. Several contractors/vendors to mitigate damages to trees, roadways and sidewalks.
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Township infrastructure suffered significant damage. Several contractors/vendors to mitigate damages to trees, roadways and sidewalks.

Source: FEMA 2024; NOAA NCEI 2025

21.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. The Peckman River traverses through Verona Township from north to south, with a tributary entering from the east near Sunset Avenue. The Peckman River flows into the Passaic River. In Verona Township, the 100-year flood zone is found along the Peckman River and its tributary (Township of Verona 2018). The FEMA mapped floodplain captures all flood prone areas and adequately addresses flood risk in the Township.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of Verona.

Table 21-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
72	$117,118	$19,070,000	93	$932,173	9	1

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Approximately two dozen structures in the Township have been declared substantially damaged due to flooding in major weather events.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 21-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
B&G Garage	Safety and Security	X
Verona Park	Safety and Security	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

21.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of Verona, including major residential/commercial/industrial development and major infrastructure development.

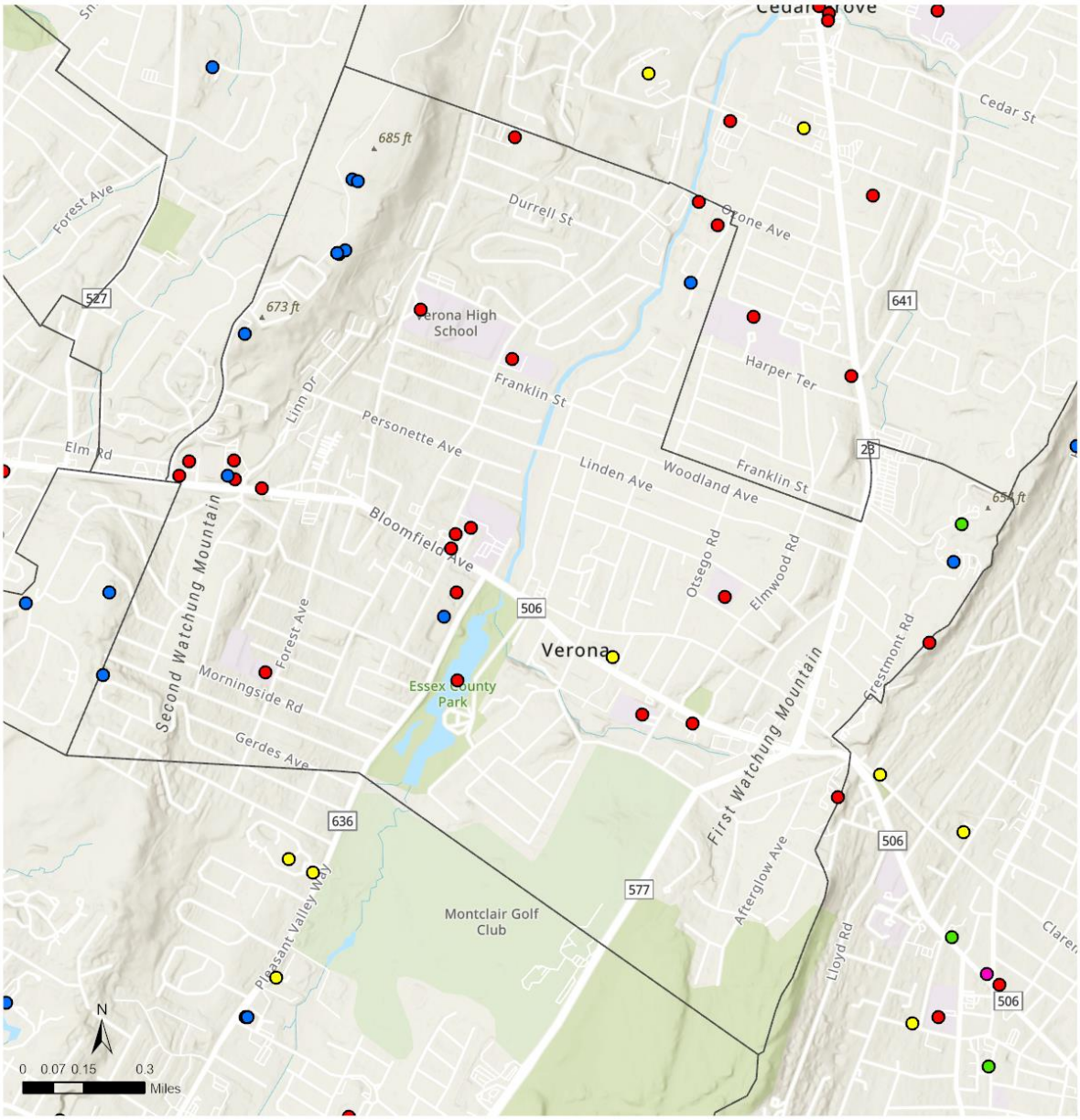
Table 21-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Verona Flats	Residentials	90	1,3, 5 Linn Drive	NO	2025
Verona Sunset Urban Renewal, LLC	Residential	1	1 Sunset Avenue	No	2027

21.2.3 Hazard Area Location and Extent

Hazard area location and extent maps were generated for the Township of Verona that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 21-1. Township of Verona Community Lifelines

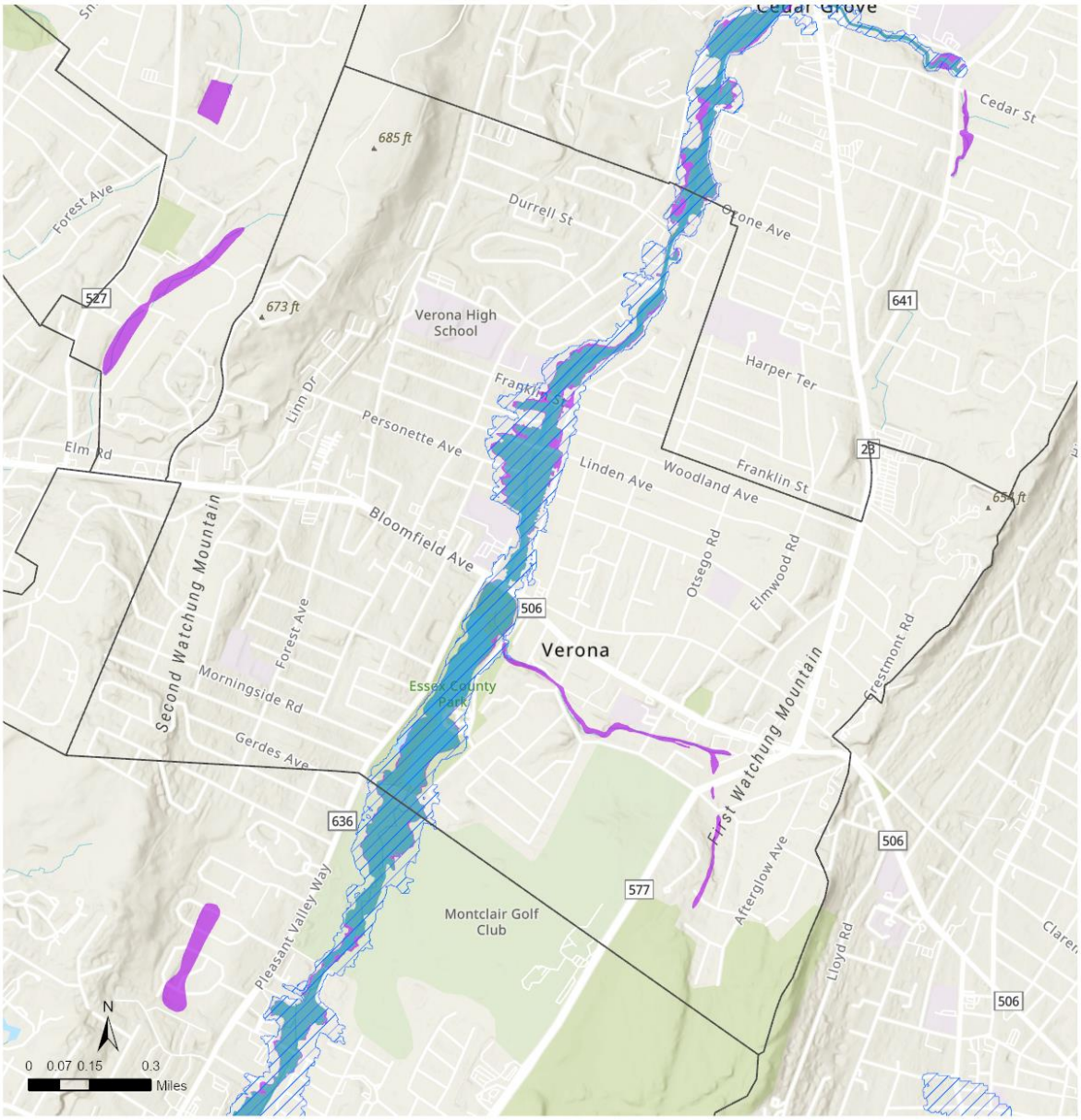


Verona Township: Community Lifelines

- Communications
- Energy
- Food, Hydration, Shelter
- Hazardous Materials
- Health and Medical
- Safety and Security
- Transportation
- Water Systems
- Other Facilities
- Essex County
- Municipality

Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 21-2. Township of Verona Flood-Related Hazards

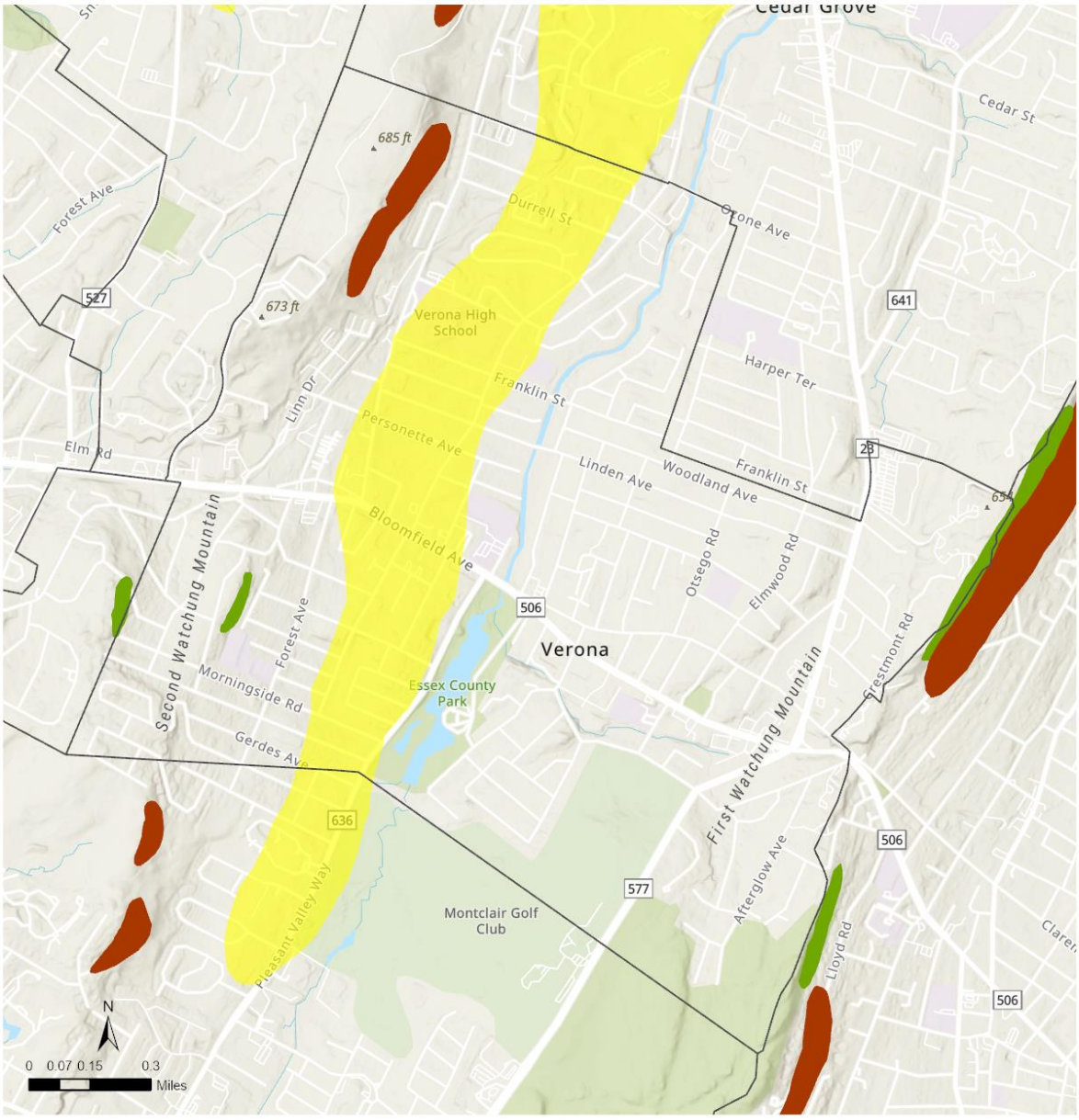


Verona Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 21-3. Township of Verona Geological Hazards



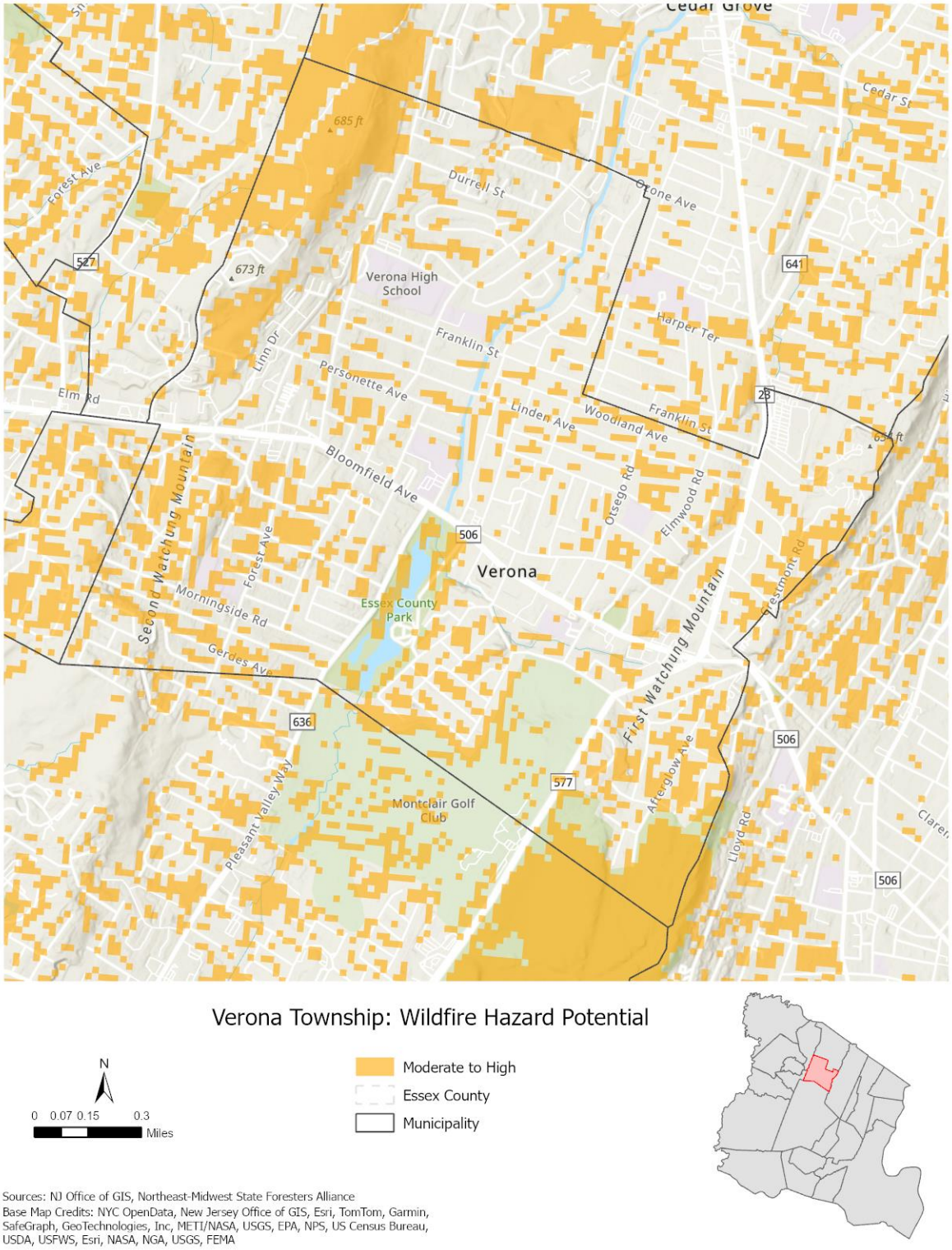
Verona Township: Geologic Hazards

NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality

Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 21-4. Township of Verona Wildfire Hazards



Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: NYC OpenData, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

21.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of Verona, climate change is likely to have the following impacts:

- Flood risk is likely to increase due to an increase in the frequency and severity of heavy precipitation events.
- The Township already experiences extreme heat events and these events are likely to increase in the future. The Township prepared a heat island assessment and mitigation report in November 2023. It provides an assessment of the urban heat island effects experienced in the Township.

21.2.5 Risk Assessment Summary

- The Verona Wastewater Collection System is being infiltrated by stormwater runoff. During rainfall events, suspected I&I leads to flooding issues. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.
- Verona's Sanitary Sewer System is aging and is susceptible to breaks and intrusions.
- The Township's water distribution lines are outdated. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 9 repetitive loss properties and 1 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.
- Five of the six schools in the Township lack backup power. Schools are critical facilities and can serve as short term shelter locations.

21.3 Jurisdictional Capability Assessment

The Township of Verona performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities

- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

21.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of Verona.

Table 21-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Township of Verona Master Plan (September 2022)	Planning Board
Impact on Risk Reduction: The Township's Master Plan guides planning and decision making for the important aspects of a high quality of life in the Township - appropriate land use; quality transportation infrastructure for pedestrians, bicyclists, transit users, and motorists; preservation of the Township's past while balancing modern building trends; access to quality parks and open spaces as well as community facilities including schools, parks, emergency services and others; and strategic economic growth in commercial areas. The Master Plan addresses these topics as it seeks to build on the community's assets, identifying strategies to address ongoing issues and opportunities, while positioning the Township of Verona as a desirable place to live, work, and visit for the next 10 years and beyond. Further, the Master Plan gives the community the legal basis for control over future development, as well as land use planning policy and serves as the basis for the Zoning Ordinance.			
Capital Improvement Plan	Yes	Annual Budget	Township Council
Impact on Risk Reduction:			
Stormwater Management Plan	Yes	Stormwater Management Plan	Verona Engineering
Impact on Risk Reduction: The Township is currently re-writing the Stormwater Management Plan (related to MS4 Tier A Community).			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan, 2012	Verona Engineering
Impact on Risk Reduction: Describes stormwater management and requirements to reduce pollution in runoff during site improvements.			
Floodplain Management Plan or Watershed Plan	Yes	Rutgers Engineering Study (2022)	Township Council
Impact on Risk Reduction: The Township worked with Rutgers University to develop an engineering study regarding flooding in the Township. The study identified flood risk throughout the municipality, high risk areas to flooding and erosion, and identifies recommendations to reduce or eliminate flood damages in the Township.			
Open Space Plan	Yes	Open Space and Recreation Plan (2021)	
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
The Open Space Plan proposes the implementation of a comprehensive open space program that addresses the natural, recreational, and historic land preservation needs expressed by Township residents. The goals and priorities of the plan are to: • Preserve remaining undeveloped lands in the Township. Existing undeveloped land is less than 2% of all land in Verona. • Provide space for outdoor recreation. • Improve existing open space and recreational lands in the Township. • Mitigate or protect against flooding due to increased stormwater surges and localized flooding. • Reduce the strain on existing infrastructure (traffic, schools, public utilities) in the community. • Buffer the Township's waterways from water pollution. • Protect and restore ecological functioning of the waterways. • Promote wildlife diversity. • Promote a healthy lifestyle and outdoor interests. • Encourage the protection and preservation of historic sites and buildings.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Management Plan (2020)	Shade Tree Commission
Impact on Risk Reduction: The preparation and consistent implementation of a Community Forestry Management Plan helps ensure that trees within the public right-of-way not only contribute to the environmental and economic vitality of the area, but also reduces potential hazards to public safety. The Township's plan enables the Township Council, the Township Manager, the Township Engineer, and the Shade Tree Commission to set attainable goals within the present budgetary constraints in meeting present and future tree maintenance needs. The plan includes an implementation plan that identifies mitigation strategies to reduce the impact of hazard trees, plant trees, and maintaining and caring for trees.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	Yes	Township of Verona Master Plan (September 2022)	Planning Board
Impact on Risk Reduction: The Township's Master Plan has two elements related to climate change – climate change vulnerability assessment and sustainability. The climate change vulnerability assessment identified the need to mitigate flood hazards, especially around Peckman River and the wastewater treatment plan. It also identified winter storms and the need for vacant areas to put snow after plowing. Regarding sustainability, one of the main issues in the Township is the increase in frequency and intensity of flooding and rainfall events that shows the need for greater stormwater efforts.			
Transportation Plan	Yes	Township of Verona Master Plan (September 2022)	Planning Board
Impact on Risk Reduction: The Township's Master Plan has a circulation element that focuses on transportation in the Township. It identifies goals to improve circulation.			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Economic Development Plan	Yes	Township of Verona Master Plan (September 2022)	Planning Board
Impact on Risk Reduction: The Township's Master Plan has an economic development element that provides overall goals, ways to improve, and issues.			
Redevelopment Plans	Yes	Third Round Housing Element and Fair Share Plan (May 2023)	Planning Board
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of Verona to prepare for, respond to, and recover from hazard events.

Table 21-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Township of Verona Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The Emergency Operations Plan guides emergency response to disaster events. The Plan is updated every two years.			
Continuity of Operations Plan / Continuity of Government Plan	Yes	Township of Verona Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Included in EOP. Sets procedures to maintain continuity of operations during hazard events.			
Evacuation Plan	Yes	Township of Verona Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Included in EOP. Provides procedures for evacuation prior to or during severe hazard events.			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Township of Verona Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Included in EOP. Guides response to disease outbreak events.			
Disaster Debris Management Plan	Yes	Township of Verona Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: Included in EOP. Designates procedures for disaster debris cleanup.			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			
Additional Emergency Response and Recovery Planning Capabilities			
List any additional emergency response or recovery plans that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • **Emergency Communication Plan** – outlines the procedures for responding to emergency situations. This plan is a collaborative effort between the Township Administration, the Chief of Police, and the Office of Emergency management, ensuring a unified approach to emergency response. The plan identifies key audience groups, spokespersons, and communication channels to ensure that critical information reaches the public in a timely and effective manner. The plan also outlines the steps necessary to bring an event to a close, ensuring a return to normalcy as quickly as possible.			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of Verona.

Table 21-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 190 Construction Codes, Uniform; Chapter 262 Fire Prevention	Construction Official
Impact on Risk Reduction: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. There is hereby established in the Township of Verona a State Uniform Construction Code enforcing agency to be known as the Construction Code Enforcement Bureau, consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. Chapter 262 adopts the Uniform Fire Safety Act and the New jersey Fire Code.			
Zoning or Land Use Regulations	Yes	Chapter 55 Land Use Procedures; Chapter 150 Zoning	Planning Board, Zoning Board
Impact on Risk Reduction: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 55 establishes the powers and procedures of the Planning Board and Zoning Board of Adjustment.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Chapter 150 was adopted for the promotion of the public health, safety, morals and general welfare. Among other purposes, those provisions are intended to provide for adequate light, air and convenience of access; to lessen congestion in the streets; to secure safety from fire and other dangers; to avoid undue concentration of population by regulating and limiting the use of land and the height and bulk of buildings wherever erected; to limit and determine the size of yards, courts and other open spaces and to regulate the density of population, all with reasonable consideration to the character of the district and its peculiar suitability for particular uses and with a view to conserving the value of property and encourage the most appropriate use of land throughout the Township of Verona.			
Subdivision Regulations	Yes	Chapter 466 Subdivision of Land	Planning Board
Impact on Risk Reduction: The Verona Town Council has adopted a new stormwater ordinance (March 11, 2024) based largely upon the newly enhanced stormwater model ordinances from NJ Future and The Watershed Institute's models. Verona has adopted the SWCO into its Zoning Code to heighten oversight on both Major and Minor Development compliance. This Ordinance applies within all zones of the Township, to ALL major development (based upon our reduced threshold of impervious and or disturbance); whether residential, commercial, or mixed; whether new development or redevelopment; and whether private or public sector. The ordinance will also apply to minor developments, defined as “any development that results in 400 or more square feet of new impervious surface or disturbs 2500 square feet or more on the site”. Minor development also includes private and public sector projects or activities and requires homeowners to manage stormwater runoff through the installation of green infrastructure. Minor Development section discusses low impact development techniques to mitigate runoff such as rain gardens, swales, pervious pavement systems, etc.			
Site Plan Regulations	Yes	Chapter 430 Site Plan Review	Planning Board
Impact on Risk Reduction: This chapter establishes a site plan review process by the Planning Board for proposed construction in Verona. The purpose of the review is to ensure the following: (1) Preservation of existing natural resources on the site. (2) Safe and efficient vehicular and pedestrian circulation, parking and loading. (3) Adequate screening, landscaping and location of structures. (4) Exterior lighting needed for safety reasons in addition to any requirements for streetlighting.			
Stormwater Regulations	Yes	Chapter 455 Stormwater Management	Township Engineer, Construction Code Official
Impact on Risk Reduction: The purposes of this article are as follows: A. To prohibit the spilling, dumping or disposal of materials other than stormwater to the municipal separate storm sewer system (MS4) operated by the Township of Verona so as to protect public health, safety, and welfare, and to prescribe penalties for the failure to comply. B. To prohibit illicit connections to the municipal separate sewer system(s) operated by the Township of Verona, so as to protect public health, safety, and welfare, and to prescribe penalties for the failure to comply. C. To establish requirements for the proper handling of litter, yard waste and pet solid waste in the Township of Verona, so as to protect public health, safety, and welfare and to prescribe penalties for the failure to comply. D. To prohibit the feeding of unconfined wildlife in any Township-owned park in Verona or on any other property owned or operated by the Township of Verona so as to protect public health, safety, and welfare, and to prescribe penalties for failure to comply. E. To require the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system operated by the Township of Verona so as to protect public health, safety, and welfare, and to prescribe penalties for failure to comply. F. To require dumpsters and other refuse containers that are outdoors or exposed to stormwater to be covered at all times and prohibit the spilling, dumping, leaking or otherwise discharge of liquids, semiliquids or solids			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
from the containers to the municipal separate stormwater system operated by the Township of Verona and/or the waters of the state so as to protect public health, safety, and welfare, and to prescribe penalties for the failure to comply. G. To regulate the outdoor application of fertilizer so as to reduce the overall amount of excess nutrients entering waterways, thereby helping to protect and improve surface water quality. This article does not apply to fertilizer application on commercial farms.			
Floodplain Regulations	Yes	Chapter 270 Flood Control and Damage Prevention (2023)	Floodplain Administrator
Impact on Risk Reduction: It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Protect human life and health; B. Minimize expenditure of public money for costly flood control projects; C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; D. Minimize prolonged business interruptions; E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard; F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; G. Ensure that potential buyers are notified that the property is in an area of special flood hazard; and H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. The ordinance does follows the code coordinated model ordinance provided by NJDEP needed to meet NFIP requirements. The Township requires new construction and substantial improvements in the floodplain to have the lowest floor elevated at or above the more restrictive for each flood zone.			
Environmental Protection Regulations	Yes	Chapter 493 Trees; Chapter 307 Invasive Plant and Tree Species; Chapter 440 Soil Removal	Shade Tree Commission
Impact on Risk Reduction: Chapter 493 finds that the preservation, maintenance, protection and planting of trees aids in the stabilization of soil by the prevention of erosion and sedimentation; reduces stormwater runoff and the potential damage it may create; aids in the removal of pollutants from the air and assists in the generation of oxygen; provides a buffer and screen against noise and pollution; provides protection against severe weather; aids in the control of drainage and restoration of denuded soil subsequent to construction or grading; provides a haven for birds and other wildlife and otherwise enhances the environment; protects and increases property values; preserves and enhances the Township's physical and aesthetic appearance; and generally protects the public health and safety as well as the general welfare. It is the intent, therefore, of this article to regulate and control the indiscriminate and excessive cutting of trees on private property in the Township. It is the further intent of this article to encourage property owners to preserve and build around trees whenever possible. Chapter 307 aims to promote and protect the public health and property through the control of the growth of invasive plant species and trees. Invasive plants can contribute to wildfire risk. Chapter 440 requires permits for the excavation or removal of soil.			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Additional Codes, Ordinance, and Regulations Capabilities			
List any additional codes, ordinances, or regulations that contribute to risk reduction. Provide the name, year, department/agency responsible, and the impact on risk reduction. • Chapter 501 Flood Control Advisory Board established the Verona-Cedar Grove Flood Control Advisory Board. The Board is charged with working together with residents, elected and appointed officials to study, propose solutions and plan for the finance, acquisition, construction, maintenance, operation or improvement of works for the collection, diversion, impoundment, transportation and disposal of surface water in order to foster flood control and promote a basin-wide or subbasin-wide approach to controlling floods, thereby protecting the public from the adverse effects of uncontrolled storm water drainage and conditions of flooding; Make recommendations to the governing body that will contribute to the overall management of the surface water of the Passaic River and the Peckman River basins, insofar as those basins impact upon the properties located within the Township; Make or cause to be made any necessary surveys, investigations, studies, borings, maps, plans, drawings and estimates of costs and revenues relating to the provision of flood control facilities; provided, however, the Board (or the Township of Verona on behalf of the Board) first secures or approves the full funding by way of budgetary appropriations or grants for such surveys, investigations and the like. Subject to the approval of the governing body of each of the member local units, the Verona-Cedar Grove Flood Control Board shall jointly receive and accept, on behalf of its member local units, from the federal or state government or any agency thereof, grants for the planning, acquisition, purchase, construction, extension, enlargement, reconstruction, improvement or financing of any of these facilities and to receive and accept contributions from any source of either money, property, labor or other things of value to be held, used and applied for the purposes for which these grants and contributions may be made. To provide the Council with periodic reports (at least biannually) with updates on actions and recommendations on flood control measures that should be considered in accordance with the Board's responsibilities.		

21.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of Verona's departments, boards, and committees that contribute to risk reduction.

Table 21-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Planning Board is charged with addressing permitted land uses. The Board is also responsible for the Township of Verona Master Plan. The Zoning Board of Adjustment reviews applications to utilize property in a manner not consistent with municipal zoning laws.
Planning Department	The Zoning Department is a resource to residents, property owners, contractors, business owners and design professionals on matters related to the Verona Township Zoning Code requirements and Municipal Land Use in order to build a successful and thriving community. The Zoning Department enforces the Zoning code in how land can be used and its purpose is to ensure balanced communities.
Public Works / Highway Department	The Public Works Department is responsible for maintaining and improving the Township's infrastructure, ensuring the safety and well-being of Verona's residents, businesses, and visitors. Services include snow plowing, leaf clearing, tree maintenance, road construction project management, water main maintenance and repair, wastewater treatment, and non-emergency resident complaints.

Department / Board / Committee	Description and Role in Risk Reduction
Construction / Building / Code Enforcement Department	The Building Department oversees the issuance and inspections for all building, plumbing and fire permits. The Zoning Officer determines if proposed construction work to be done or use of buildings follows the township's zoning ordinance. A variance may be required and mist go before the Board of Adjustment for approval if code is not met.
Engineering Department	Engineering is contracted out to Boswell Engineering.
Parks and Recreation Department	No
Open Space Board / Committee	No
Environmental Board / Commission	Sustainable Verona meets monthly and holds various community-wide events throughout the year in addition to continually working on new initiatives and actions. Verona Environmental Commission (VEC) conducts research into the use and possible use of the open land areas of the municipality and keeps an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands. They also confer on all major and minor site plans, land use, and subdivision applications from an environmental perspective. The Shade Tree Commission is responsible for the care of our public trees, shrubs, and landscapes. The commission is comprised of volunteers who are residents designated by the Township Manager.
Emergency Management / Public Safety Department	The Office of Emergency Management (OEM) is a component of municipal government that is responsible for emergency preparedness, mitigation, response, and recovery efforts throughout the township. Members of the OEM staff operate under the direction of the municipal Emergency Management Coordinator. Members of the OEM staff prepare operations plans for events in the township, prepare for natural disasters and other major incidents, provide training for the township's first responders to better enhance their service, and respond to incidents that require their expertise.
Fire Department	The Verona Fire Department is an all-volunteer fire department and provides fire and rescue services the residents of the Township, as well as mutual aid to surrounding communities.
Additional departments, boards, and committees	The Water and Sewer Department is responsible for providing the delivery of safe, reliable and high-quality water to the Verona community while also effectively managing stormwater and wastewater systems. They also provide stormwater management, wastewater collection, and wastewater treatment. The Verona Historic Preservation Commission is an agency established by the Town Council to assist in the identification and preservation of our town's landmarks and historical sites. The Neighborhood Traffic and Safety Committee is hereby charged with the following duties and responsibilities: • Work together with residents, elected and appointed officials to study, propose solutions and plan for the implementation of approved traffic calming and pedestrian safety measure.

Department / Board / Committee	Description and Role in Risk Reduction
	• May review and make recommendation to the Zoning Board of Adjustment and the Planning Board on site plans and subdivisions that are submitted to the Boards. • May propose, review and make recommendations on ordinances related to public safety. • To provide the Council and the Manager periodic reports and recommendations and advise on traffic safety questions/problems and the adequacy of all Township policies and procedures relating to safety.

The table below summarizes the Township of Verona's staff with skills and expertise that contribute to risk reduction.

Table 21-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	Contracted consultant: Boswell Engineering
Engineer	Contracted consultant: Boswell Engineering
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	Contracted consultant: Boswell Engineering
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	Building Department
Staff trained in GIS	Contracted consultant: Boswell Engineering
Staff that provide support to socially vulnerable populations	Senior services from Community Services include the senior bus, medical transport, the senior club, and other resources. The Multicultural Inclusion and Accessibility Advisory Committee is charged with the following duties and responsibilities: • Make recommendations regarding diverse cultural, economic, and social issues within our community to the Township Council • Propose solutions to the Township Council that ensure accessibility for all community members for our services and programs • Assist the Administration and the Dept. of Community Services with the organization, coordination, research, and manage actions in the Community as it relates to multicultural inclusion and accessibility of the Township's policies, programs, and services.
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of Verona.

Table 21-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Township building department, zoning board and planning board
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Permits are reviewed by township officials

Development and Permitting Procedure	Comment
How does your jurisdiction inventory land available for new development?	Land use maps
What percentage of your jurisdiction is available for new development?	Less than 10 percent

21.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of Verona.

Table 21-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	In 2013, the Township applied for and received HMGP funding for the purchase and installation of generators.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible
Capital improvements funding	Yes	Eligible
Open space acquisition programs	Yes	• Municipal Open Space, Recreation and Farmland and Historic Preservation Trust Fund • Essex County Recreation and Open Space Trust Fund • NJDEP Green Acres
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Accessible
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Accessible
Ability to incur debt through bonds	Yes	Accessible
Other financial resources available for hazard mitigation	No	-

21.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of Verona.

Table 21-12. Education and Outreach Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	To disseminate critical information, the township utilizes a multi-channel approach, including the emergency alert platform (Alert Verona), the township website, e-newsletter, social media, public access TV, local media outlets, and community bulletins and organizations. This ensures that residents, businesses, and visitors receive timely updates and information during emergency situations.
Public Information Officer	Each department and agency have separate PIO, but the Township Manager would submit communications on behalf of Township.

Outreach Capability	Description and Role in Risk Reduction
Website	https://www.veronanj.org/stormwater provides information on stormwater, including requirements and potential mitigation approaches.
Social media	Facebook, Twitter/X, Instagram, LinkedIn, and YouTube
Public safety campaigns	Public Safety Committee which includes a Township Council Liaison, Law Enforcement Liaison, Citizens, and other liaisons as needed.
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	No
Other outreach capabilities	No

21.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of Verona.

Table 21-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Profession services by consulting engineer includes permit review, inspections and capabilities.
What local department is responsible for floodplain management?	Public works thru consulting engineer.
Are any staff certified floodplain managers (CFMs)?	Twp. Consulting Engineer provides CFM services
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Yes.
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	Yes.
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Less than five
How many properties have been mitigated (elevation or acquisition)?	Zero
Summarize the jurisdiction's Substantial Damage determination procedures.	Ongoing and continuous collaboration between municipal staff and consulting professional.
Summarize the jurisdiction's Substantial Improvement procedures.	Our procedures are substantially limited by the private property owners in flood plain.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unsure.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	Not that we are aware of at this time.
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No.

21.3.6 Community Classifications

Table 21-14 summarizes the Township of Verona's participation in community classification programs.

Table 21-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Yes (Silver)	September 19, 2024
Other Programs	Yes – Fire ISO Protection Class (Class 3)	January 25, 2016
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

21.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of Verona has in place and will use to prepare for changes in risk due to climate change.

Table 21-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Flooding, stormwater flooding, winter storms
What information does the jurisdiction use to understand potential climate change impacts?	None identified
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	The 2022 Master Plan has a climate change vulnerability assessment that identified flooding and winter storms as the main vulnerabilities.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	None identified
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	No actions identified
How does the jurisdiction educate the public on potential climate change impacts?	No climate outreach is currently underway.

21.3.8 Capability Assessment Summary

The Township of Verona's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.

- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of Verona determined the following hazard capability effectiveness ratings.

Table 21-16. Township of Verona Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

21.3.9 Opportunities to Improve Capabilities and Integration

- The Stormwater Mitigation Plan requires update. The Plan should be integrated with the Hazard Mitigation Plan
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.

21.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of Verona were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of Verona reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the calculated hazard rankings.

Table 21-17. Township of Verona Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temp	Medium
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

21.5 Jurisdictional Mitigation Strategy

21.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 21-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Verona-001	**Stormwater Infiltration Study:** Conduct a study and identify the points of infiltration, causes, and solutions to problems. From this information, a plan to mitigate will be developed and then implemented.	Verona Engineering, Township Administration	In Progress. Smoke testing completed this summer which will result in an action plan moving forward in 2025 and beyond.	Yes.	Awaiting review and recommendations from professionals.
2020-Verona-002	**Stormwater System Upgrade:** The Township will upgrade the stormwater system to increase capacity on Derwent Ave.	Verona Engineering	Complete. Derwent Ave. Stormwater improvements completed.	No – this project has been completed	-
2020-Verona-003	**Stormwater Ordinance and Stormwater Mitigation Plan Update:** Re-writing stormwater ordinance and re-writing stormwater mitigation plan (related to MS4 Tier A Community) – To be completed by NLT 12/31/2020 as part of municipal master plan update. Any project with 0.25 acres of new impervious coverage, or 1 acre of land disturbance (Major Development by NJDEP) will institute higher standards with 400 sq. feet of impervious coverage, and 0.25 acres of	Verona Engineering, Verona Administration	Stormwater Ordinance Update Complete Stormwater Mitigation Plan In Progress	No Yes	- Develop the Township's Stormwater Mitigation Plan

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	land disturbance. This will require homeowners to institute mitigation projects including structural and non-structural projects. Education and outreach as part of MS4 Permit for Stormwater Mitigation/Green Infrastructure Implementation will also be necessary.				
2020-Verona-004	**Tree Ordinance:** Verona is updating/passing a tree ordinance which will require a township permit before the removal of trees on private property to reduce localized runoff.	Verona Engineering, Verona Administration	Complete. Can provide new ordinance.	No – project is complete	-
2020-Verona-005	**Sanitary Sewer Upgrades:** • Having repairs done, starting in 2 weeks. ○ Personette Ave and Derwent Ave. • Hitting areas one at a time. Start 10/2019 to 12/2022.	Verona Engineering, Verona Administration	In Progress. Smoke testing completed this summer which will result in an action plan moving forward in 2025 and beyond.	Yes	Awaiting review and recommendations from professionals
2020-Verona-006	**Water Distribution Piping Repair:** Verona will address water distribution piping over time, but will repair in phases:	Verona DPW, Verona Engineering,	In Progress. Water distribution replacement and repair as part of total street construction projects.	Yes.	As streets are reconstructed all utilities are participating in evaluating and replacing services.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	Ann Street, Steven Avenue, Cypress Avenue, Willow Terrace (2020); Howard Street, Marion Road, Maple Terrace, Hillside Ave, Forest Ave (identified area, to be addressed in 2-3 years); Brentwood Drive, Newman Ave, Floyd Rd, Otsego Road (identified area, to be addressed in 2-3 years); Fells Rd, Oak Ridge Rd, Bloomfield Ave, Stocker Rd, Upland Way (identified area, to be addressed in 2-3 years).	Verona Administration			
2020-Verona-007	**Critical Facility Flood Mitigation:** The Township will work to mitigate this structure to the 0.2% annual chance flood event or greater.	Verona OEM, Verona Administration	Ongoing Capability. Primary issue is funding.	No – ongoing capability that the Township continues to conduct outreach to facility owners/operators	-
2020-Verona-008	**RL/SRL Mitigation Outreach:** The Township will conduct public outreach to the RL properties to identify if there is interest in mitigation (elevation or acquisition). If there is no interest in mitigation, the Township will provide a list of options homeowners can use to protect their homes from future flood damage.	Verona OEM, Verona Administration	In Progress. Township continues to pursue funding options for the township and private property owners.	Yes	There are 9 RLs and 1 SRL in the Township; the Township will conduct outreach to property owners regarding flood risk and mitigation options

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Verona-009	**School Generators:** The Township will work to secure grant funding for the installation of generators at the schools.	Verona Engineering, Verona Administration	In Progress. One of six schools is served by backup generator.	Yes	
2020-Verona-010	**Peckman River Flood Study:** The Township of Verona will gather information and submit for FEMA Hazard Mitigation Grant Funding for a flood study of the Peckman River and its tributaries that run through the Township. The best identified alternative will be implemented.	Verona Engineering, Verona Administration	In Progress. Township has received a grant and NJDEP permits obtained for a section of Peckman Creek. The project will be bid in 2025 and construction will start.	Yes.	Working with county, state and federal partners. Twp has received a grant and NJDEP permits obtained for a section of Peckman Creek. The project will be bid in 2025 and construction will start.
2020-Verona-011	**Debris Management Plan:** The Township will develop a Debris Management Plan.	Verona Engineering	Completed. The Township has property to collect debris during storm/weather events.	No – project has been completed	

21.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of Verona identified the following mitigation efforts completed since the last HMP:

- The Township prepared a heat island assessment and mitigation report in November 2023. It provides an assessment of the urban heat island effects experienced in the Township. The assessment was used as part of the Township's Sustainable Jersey recertification and to be incorporated into the Township's land use element of the master plan. The assessment identified mitigation actions to address the areas of concern in the Township (Verona, New Jersey 2023).
- The Peckman River is the primary source of flooding in the Township. The Township is working with the County, NJDEP, FEMA, and USACE to help alleviate flooding. This includes natural debris removal/clearing trees after Hurricane Ida in 2022 and stabilization of streambanks.

21.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of Verona identified the following issues that require mitigation.

- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution.
- The Verona Wastewater Collection System is being infiltrated by stormwater runoff. During rainfall events, suspected I&I leads to flooding issues. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.
- Verona's Sanitary Sewer System is aging and is susceptible to breaks and intrusions.
- The Township's water distribution lines are outdated. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 9 repetitive loss properties and 1 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.
- Five of the six schools in the Township lack backup power. Schools are critical facilities and can serve as short term shelter locations.

21.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of Verona's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 21-19. Township of Verona 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of Verona-01	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Township of Verona-02	Watershed Improvement Plan	X	X		X	X		X		
2025-Township of Verona-03	Stormwater Infiltration Study					X		X		
2025-Township of Verona-04	Stormwater Mitigation Plan Update					X		X		
2025-Township of Verona-05	Sanitary Sewer Upgrades				X	X		X	X	
2025-Township of Verona-06	Water Distribution Piping Repair		X		X					X
2025-Township of Verona-07	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Township of Verona-08	Peckman River Flood Study					X	X	X	X	
2025-Township of Verona-09	Backup Power for Schools			X	X	X	X	X	X	X

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 21-20. Township of Verona 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of Verona-01	Substantial Damage Response Plan	1	1	1	1	1	0	0	1	1	1	1	1	0	1	11	High
2025-Township of Verona-02	Watershed Improvement Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	1	13	High
2025-Township of Verona-03	Stormwater Infiltration Study	1	1	1	1	0	0	1	1	1	1	1	1	1	1	12	High
2025-Township of Verona-04	Stormwater Mitigation Plan Update	1	1	1	1	0	0	0	0	1	1	1	1	1	1	10	Medium
2025-Township of Verona-05	Sanitary Sewer Upgrades	1	1	1	1	0	0	0	1	1	1	1	1	1	1	11	High
2025-Township of Verona-06	Water Distribution Piping Repair	1	1	1	1	0	0	1	1	1	1	1	1	1	1	12	High
2025-Township of Verona-07	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	0	1	1	1	1	0	1	9	Medium
2025-Township of Verona-08	Peckman River Flood Study	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-Township of Verona-09	Backup Power for Schools	1	0	1	1	1	0	0	0	1	1	1	0	1	1	9	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Township of Verona-01: Substantial Damage Management Plan

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	Public Works, OEM, Construction Department	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.	
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.	
Estimated Cost:	Low	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan	
Goals Met:	2, 5	
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.	
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.	
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.	
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.	
Impact on Capabilities:	This action improves disaster recovery capabilities.	
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.	
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**

	No Action	-
	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Township of Verona-02: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-Township of Verona-03: Stormwater Infiltration Study

Lead Agency:	Verona Engineering	
Supporting Agencies:	Township Administration	
Hazard(s) of Concern:	Severe Weather, Flood	
Description of the Problem:	The Verona Wastewater Collection System is being infiltrated by stormwater runoff. During rainfall events, suspected I&I leads to flooding issues. A full study is needed to identify the location of I&I to be addressed and reduce flooding risk.	
Description of the Solution:	Complete broader I&I studies to identify the location of I&I in the stormwater system and address identified locations.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA BRIC, Township capital funds	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 6	
Benefits:	Reduce I&I and flood risk	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action will address the water lifeline systems.	
Impact on Capabilities:	This action will improve stormwater capabilities in the Township.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of heavy rainfall events. This action will aim address I&I associated with these events.	
Mitigation Category:	Prevention, Structural Projects	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of Verona-04: Stormwater Mitigation Plan Update

Lead Agency:	Engineering	
Supporting Agencies:	Administration	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	The Stormwater Mitigation Plan requires update. The Plan should be integrated with the Hazard Mitigation Plan	
Description of the Solution:	During update of the Stormwater Mitigation Plan, Engineering will work with Township agencies to integrate hazard mitigation principles and recommendations into the plan.	
Estimated Cost:	The Township will also use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.	
Potential Funding Sources:	Municipal budget	
Implementation Timeline:	3 years	
Goals Met:	1, 3, 4	
Benefits:	Provides an opportunity for coordination amongst agencies and their planning efforts to improve the overall ability to address stormwater issues.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	Integrating mitigation into stormwater infrastructure planning.	
Impact on Capabilities:	A consolidated planning process brings together the capabilities of agencies and departments and better identifies what resources are available at any given point in time and where they are needed most.	
Climate Change Considerations:	Climate change is likely to increase heavy precipitation events which will increase the volume of stormwater runoff.	
Mitigation Category:	Prevention, Emergency Services	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Update plan without integration	Gaps in information and quality of the plan
	Update the plan but not consider future conditions	Future stormwater needs will not be met

2025-Township of Verona-05: Sanitary Sewer Upgrades

Lead Agency:	Verona Engineering	
Supporting Agencies:	Verona Administration	
Hazard(s) of Concern:	Extreme Temperature, Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	Verona's Sanitary Sewer System is aging and is susceptible to breaks and intrusions.	
Description of the Solution:	Identified locations for upgrade will have replacement of current materials with resilient materials.	
Estimated Cost:	High	
Potential Funding Sources:	Municipal Budget, Capital Improvements	
Implementation Timeline:	Within 5 years	
Goals Met:	2	
Benefits:	Maintained sanitary sewer capabilities.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	Supports current and future development needs	
Impact on Critical Facilities/Lifelines:	Protection of wastewater system	
Impact on Capabilities:	Maintains sanitary sewer capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of events that could contribute to sewer line failure including extreme temperature, floods, severe weather, and severe winter weather	
Mitigation Category:	Structural Projects	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Convert Township to septic	Not feasible
	Replace with current materials	Less resiliency

2025-Township of Verona-06: Water Distribution Piping Repair

Lead Agency:	Public Works	
Supporting Agencies:	Engineering	
Hazard(s) of Concern:	Drought, Extreme Temperature, Wildfire	
Description of the Problem:	The Township's water distribution lines are outdated. Old waterlines are more likely to have leaks or be prone to failure. Failure of the water lines can severely diminish the Township's firefighting capabilities.	
Description of the Solution:	The Township will update the Township's water distribution lines, replacing outdated lines with modern resilient materials.	
Estimated Cost:	High	
Potential Funding Sources:	NJ American Water	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 2, 6, 7	
Benefits:	The water distribution system will be updated to remove lead lines. New lines will be less likely to leak and fail, protecting the water supply.	
Impact on Socially Vulnerable Populations:	Underserved communities will receive updated water supply lines.	
Impact on Future Development:	All future development/redevelopment will be serviced by updated water lines.	
Impact on Critical Facilities/Lifelines:	This action protects the water supply.	
Impact on Capabilities:	This action protects firefighting capabilities.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of droughts. Extreme temperature events may further stress the water infrastructure system.	
Mitigation Category:	Property Protection, Climate Resiliency	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Have secondary water supply available for distribution in the event of failure of water lines	Unable to provide enough water supply for large events or firefighting
	Require homeowners to pay for water line replacements when completing other work	Not viable. Water lines for Township need to be done for full segments, not individual properties.

2025-Township of Verona-07: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administrator
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 9 repetitive loss properties and 1 severe repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).
Estimated Cost:	High
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection
Priority:	High

Alternatives:

Action	Evaluation
No Action	-
Levee around floodplain	Costly, not enough room
Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of Verona-08: Peckman River Flood Study

Lead Agency:	Administration	
Supporting Agencies:	Administrations of Cedar Grove, Little Falls, and Woodland Park, Public Works	
Hazard(s) of Concern:	Flood, Geological Hazards, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Peckman River is prone to flooding. Fallen trees, shoaling, and streambank collapses can lead to flooding issues in the Township and upstream. As multiple municipalities are impacted, a multiple municipality approach to reducing risk along the Peckman is needed.	
Description of the Solution:	The Township will work with the other municipalities impacted by flooding in the Peckman River in the region: Cedar Grove, Little Falls, and Woodland Park. A collective approach to maintenance of the river will be established including identifying and removing snags and fallen trees, addressing shoaling, and mapping the shoreline position to determine trends and areas that need to be addressed.	
Estimated Cost:	Medium	
Potential Funding Sources:	Municipal budgets	
Implementation Timeline:	3 years	
Goals Met:	1, 2, 5	
Benefits:	Flooding due to stream bank failure and debris snags will be reduced along the Peckman River.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	This action will increase the capabilities of the Township to maintain the Peckman River.	
Climate Change Considerations:	Climate change is likely to result in an increase in flooding events and severe weather events that cause downed trees and streambank erosion. This action aims to address the impacts and increased frequency of these events.	
Mitigation Category:	Natural Systems Protection, Community Capacity Building	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	
	Retreat from areas near Peckman River	High cost, unpopular
	Levees along Peckman River	Not feasible/environmentally damaging, costly

2025-Township of Verona-09: Backup Power for Schools

Lead Agency:	School facility managers
Supporting Agencies:	Engineer, OEM
Hazard(s) of Concern:	Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Five of the six schools in the Township lack backup power. Schools are critical facilities and can serve as short term shelter locations.
Description of the Solution:	The Engineer will provide support to school facility managers in determining the appropriately sized generators needed to power the schools. OEM will help identify funding opportunities.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, School budgets
Implementation Timeline:	Within 5 years
Goals Met:	1, 6, 7
Benefits:	This action protects public health and safety and ensures continued operation of critical facilities and their essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Children are socially vulnerable populations often rely on schools during disaster events.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to result in an increase of extreme temperature events. Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Microgrid / Costly and difficult to implement.
	Solar panels and battery backup / Solar power is unlikely to be able to provide battery power for extended power failure events.

21.6 Jurisdictional Hazard Mitigation Team

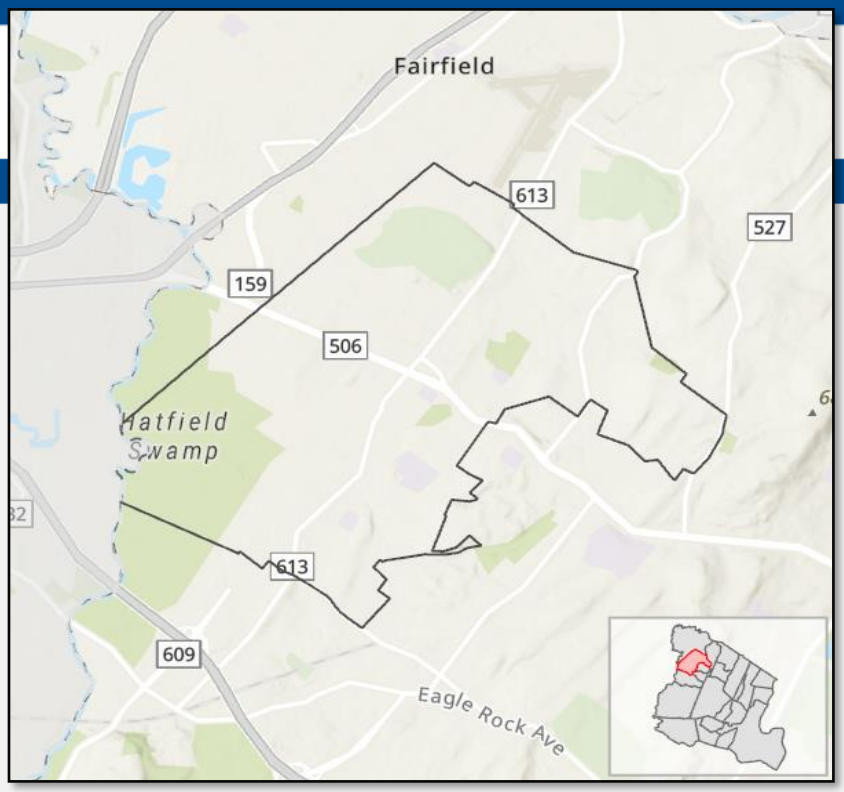
Table 21-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Joel Martin, VPD/OEM Coordinator	Name and Title:	J. Christopher Kiernan, Police Chief
Address:	600 Bloomfield Avenue Verona, NJ 07044	Address:	600 Bloomfield Avenue Verona, NJ 07044
Phone Number:	201-704-3074	Phone Number:	862-596-0710
Email:	Joel.martin@veronapolice.org	Email:	Christopher.kiernan@veronapolice.org
NFIP Floodplain Administrator			
Name and Title:	Peter Tenkate, Boswell Engineering		
Phone Number:	201-424-4740		
Email:	Ptenkate@boswellengineering.com		

Table 21-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Joel Martin, VPD/OEM Coordinator	Served on the Essex County 2025 HMP Planning Partnership, attended meetings, provided information on previous actions, capabilities, previous events, contributed to mitigation strategy, reviewed draft annex.
Kevin O'Sullivan, Township Manager	Provided information on capabilities

Township of West Caldwell



POPULATION STATISTICS

10,897
TOTAL POPULATION (2023 ACS)

0.01%
Change in population since 2010 Census

3,917
TOTAL HOUSEHOLDS

AT RISK POPULATION

1,931
Population Over 65

667
Population Under 5

876
Living With Disability

74
Households Without Vehicle

520
People Renting Homes

POVERTY AND LANGUAGE

248
Households Below Poverty Level

467
Population With English as 2nd Language

POPULATION AND BUSINESSES

13,399
Daytime Population

571
Total Businesses

5,688
Total Employees

FLOOD VULNERABILITY

43
Number of People in 1% SFHA

46
Number of Buildings in 1% SFHA

0
Community Lifelines in 1% SFHA

22 Township of West Caldwell

22.1 Jurisdictional Profile

The Township of West Caldwell is located in the northwestern portion of Essex County. The Township is bordered to the north by the Township of Fairfield, the east by the Borough of North Caldwell, the southeast by the Borough of Caldwell and Borough of Essex Fells, the south by Borough of Roseland, and the west by the Township of Montville in Morris County.

The Township of West Caldwell was part of the original land known as Horseneck. In 1798, Horseneck was renamed Caldwell Township for James Caldwell- an aid to George Washington's men during the Revolutionary War. In 1904, the population of Caldwell Township had grown so significantly that forming smaller governing bodies was essential. As a result, West Caldwell Township was formed (Township of West Caldwell 2014).

According to the U.S. Census Bureau, the Township has a total land area of 5.07 square miles, of which 5.055 square miles is land and 0.015 square miles is water. West Caldwell operates with a Mayor and Council consisting of six members in the Borough form of government. The Mayor is elected to a four-year term and each of the six Council members is elected to a three year term. Each Council member chairs one of the Township's six committees (Township of West Caldwell 2014).

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

22.2 Jurisdictional Risk Assessment

The following sections assess the Township of West Caldwell's risk to the hazards of concern identified for the 2025 HMP update.

22.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of West Caldwell's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 22-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580 deaths in Essex County over the course of the public health emergency.	Actions included contact tracing, Executive Orders Enforcement, continuity of government, personal protection equipment, vaccination, etc. Cost estimate of $1,550.396.00

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
August 4, 2020	Tropical Storm Isaias	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Collection and removal tree branches scattered throughout the town and collected curbside; Vegetative debris was hauled to the town's DPW site. A Contractor then hauled the roll-off dumpsters to their own debris site in Elizabeth, NJ. Cost of $36,375.00
January 31, 2021	Snow Event	22 inches of snow fell during Winter Storm Orlena.	Extensive work involved in snow removal town wide. Approximately $50,000.00
September 1 - 3, 2021	Remnants of Hurricane Ida	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Overflowing streams and catch basins especially in hilly areas resulted in washed away roadways and sidewalks. Dirt, rock, and pavement was removed and disposed of. Roads and sidewalks were repaired. Cost of $1,044,972.00

Source:

22.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey.

In West Caldwell, flood prone locations are located inside and outside of the mapped floodplain. The FEMA flood map is generally accurate. Stormwater improvements are necessary in areas described to alleviate short-term flooding. Rapid development in communities east of West Caldwell is negatively impacting stormwater management capabilities and capacity as the downstream community.

Inside of the floodplain, flood prone locations include the Distler Avenue and Essex Place Intersection. Outside of the floodplain, flood prone locations include:

- Dodd Road from Bloomfield Avenue to Ravine Avenue
- Central Avenue from Elmwood Terrace to Westover Avenue
- Ellis Road from Passaic Avenue to Memorial Road
- Walden Place near the intersection of Walden Pl and Dalewood Road
- Westview Road from Westview Place to cul-de-sac
- Holiday Drive from Liddy Place to Evergreen Road

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of West Caldwell.

Table 22-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
85	$110,754	$31,778,000	54	$2,804,637	5	2

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)
Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

No structures in the Township have been declared substantially damaged.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 22-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
None identified		

Source: Essex 2025; FEMA 2020

22.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in the Township of West Caldwell, including major residential/commercial/industrial development and major infrastructure development.

Table 22-4. Recent and Expected Future Development

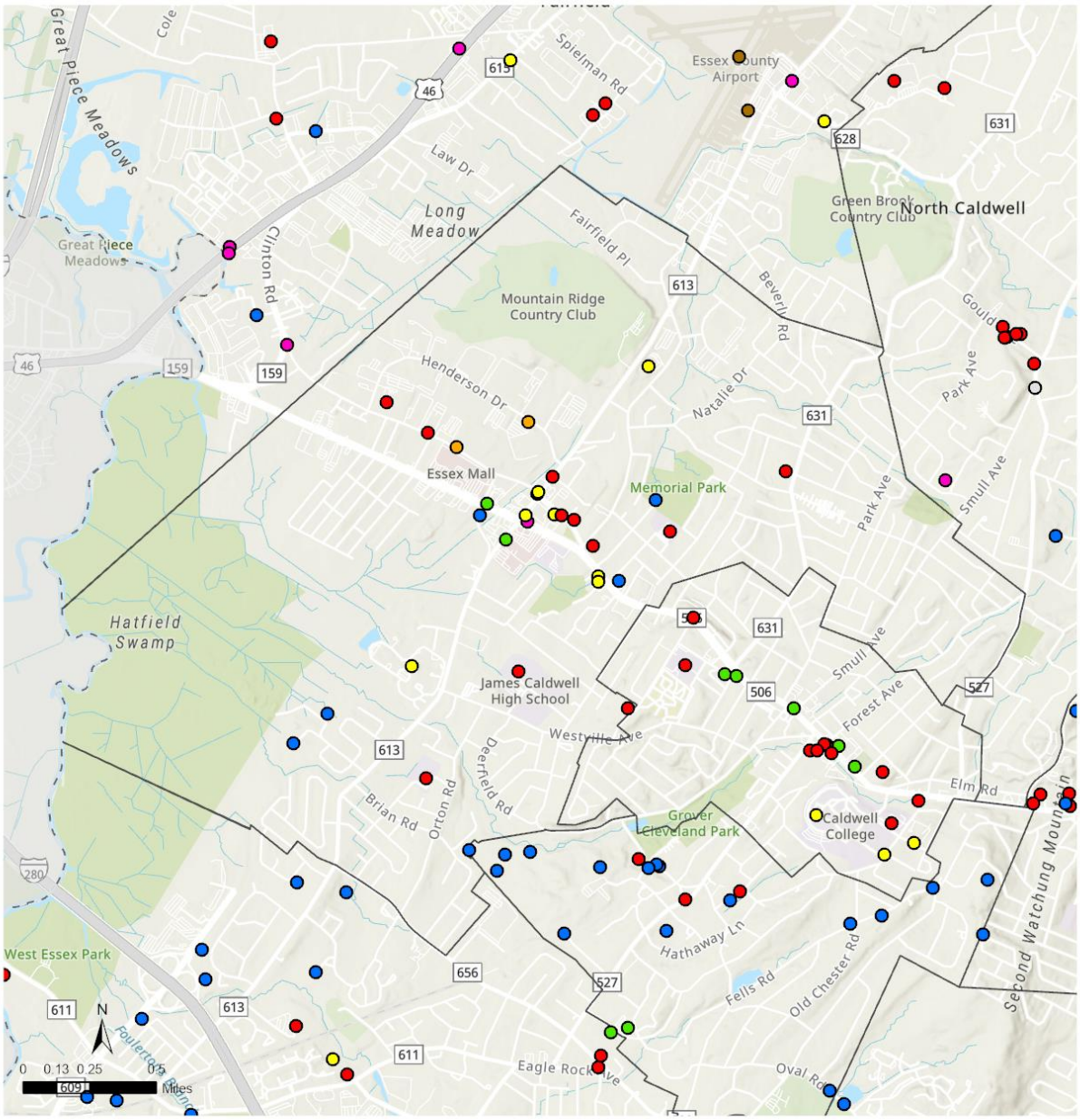
Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Burger King	Commercial	1	940 Bloomfield Avenue		2021
Veterinary Specialists of North America	Commercial	1	879-895 Bloomfield Avenue		2022
Amazon	Commercial	1	10 Patton Drive		2022
Henderson Solar	Commercial	1	5 Henderson Drive		2022
Accordia	Residential	1	780 Passaic Avenue		Pending Zoning Board of Adjustment Approval

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
West Caldwell Commons, LLC	Commercial	1	875 Bloomfield Avenue		Pending Zoning Board of Adjustment Approval
1120 Bloomfield Avenue Developers LLC	Residential	5	1120 Bloomfield Avenue		Pending Planning Board Approval

22.2.3 Hazard Area Location and Extent

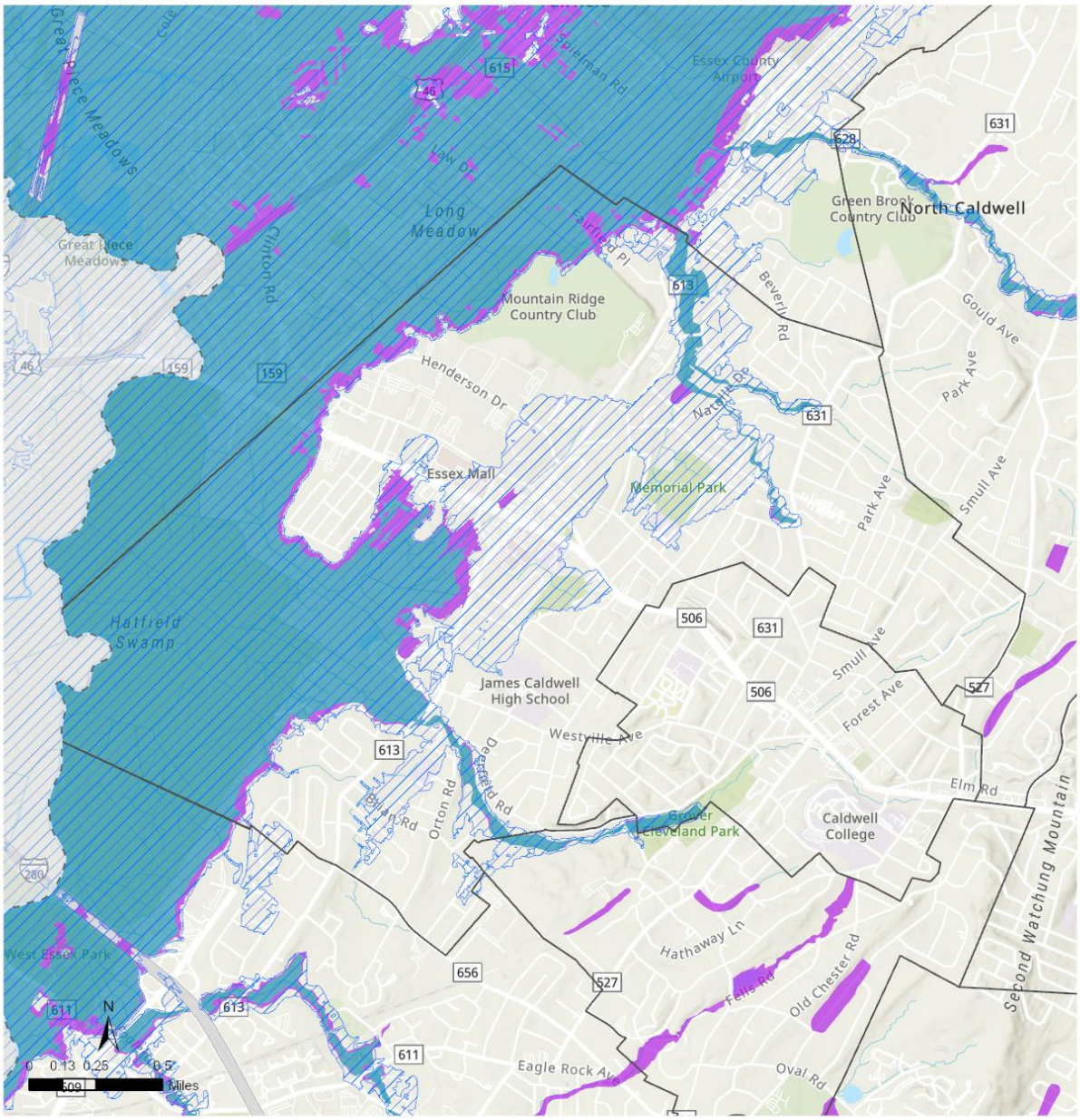
Hazard area location and extent maps were generated for the Township of West Caldwell that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 22-1. Township of West Caldwell Community Lifelines



Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 22-2. Township of West Caldwell Flood-Related Hazards

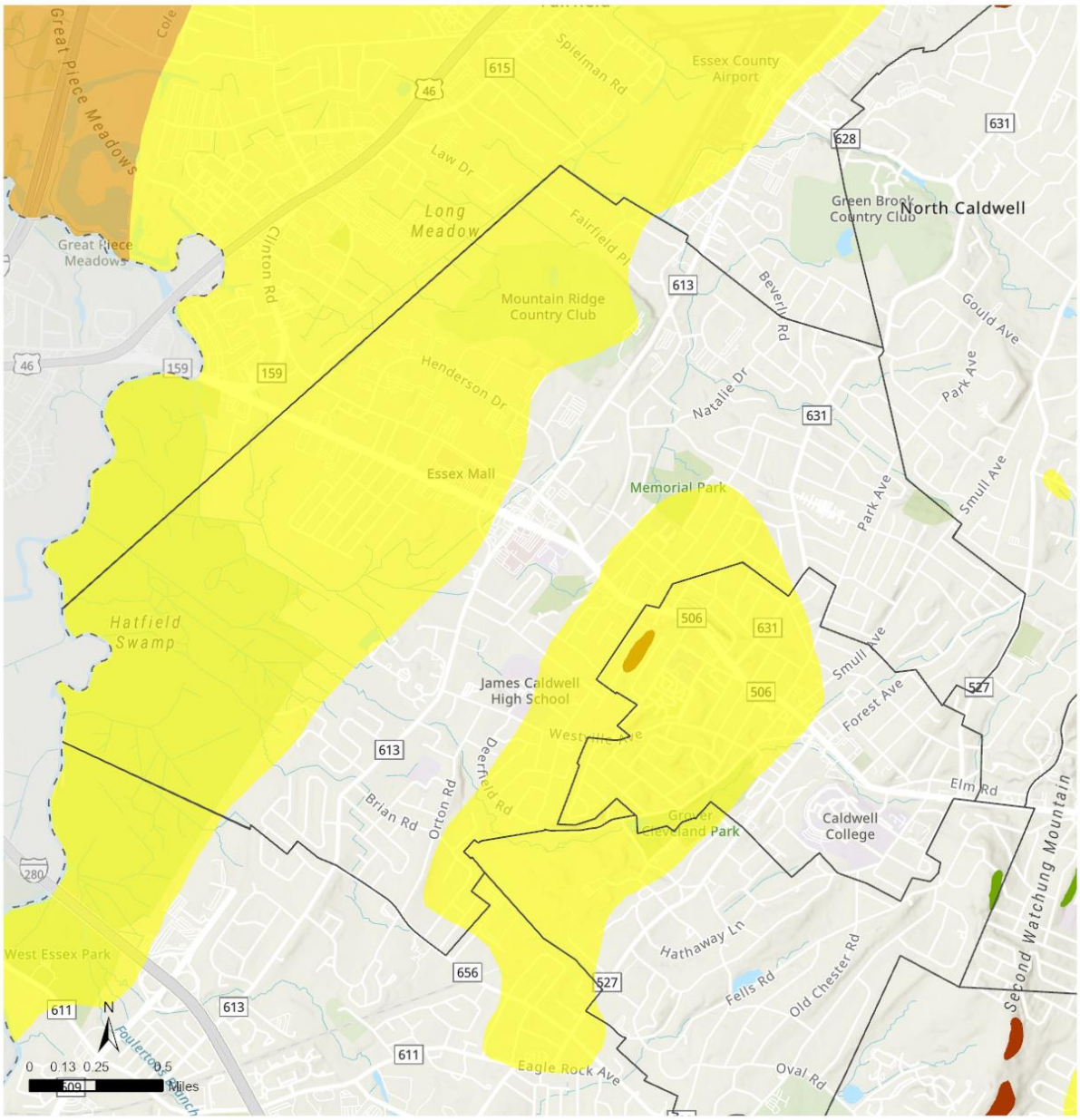


West Caldwell Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality

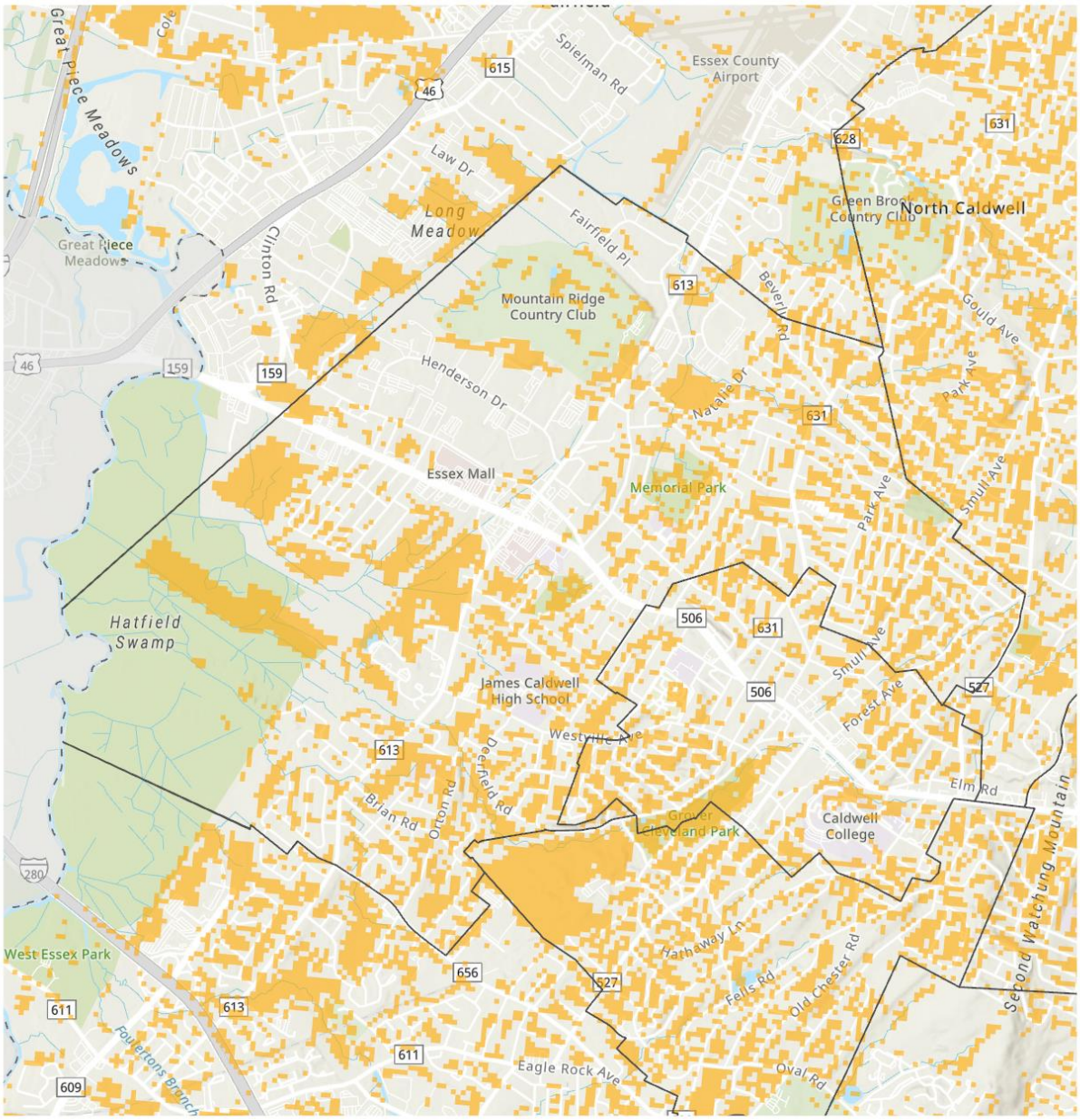
Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 22-3. Township of West Caldwell Geological Hazards



Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

Figure 22-4. Township of West Caldwell Wildfire Hazard



West Caldwell Township: Wildfire Hazard Potential

N

0 0.13 0.25 0.5 Miles

Moderate to High

Essex County

Municipality

Sources: NJ Office of GIS, Northeast-Midwest State Foresters Alliance
Base Map Credits: New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA

22.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In the Township of West Caldwell, climate change is likely to have the following impacts:

- Heavy rainfall events which will contribute to increased flood risk.

22.2.5 Risk Assessment Summary

- The Gardens section of Township (Parkview Avenue, Johnson Avenue) has stormwater runoff issues due to an increasing amount of high intensity short duration rainfall.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 5 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- Power failure events result in the shutdown of traffic lights in the Township. This results in traffic, public safety, and commerce interruptions.
- The Kirkpatrick Lane wastewater pumping stations have limited capacity. While capacity increases are being planned, some of the issue comes from infiltration of stormwater into the system and illegal hookups of sump pumps.

22.3 Jurisdictional Capability Assessment

The Township of West Caldwell performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

22.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in the Township of West Caldwell.

Table 22-5. Planning Capabilities

	Capability in Place? (Yes/No)	*Name and Date*	*Department/Agency Responsible*
Master Plan	Yes	Master Plan	Planning Board
Impact on Risk Reduction: The Master Plan provides guidance for long-term development in the Township.			
Capital Improvement Plan	Yes	Annual Capital Improvement Plan	Administration
Impact on Risk Reduction: Part of the annual budget and provides funding for various improvements throughout the Township.			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan for the Township of West Caldwell (March 2005)	Engineer
Impact on Risk Reduction: The Municipal Stormwater Management Plan for the Township of West Caldwell documents the strategy for the Township to address stormwater-related impacts. The plan addresses groundwater recharge, stormwater quantity and quality, and design and performance standards for new major development. The plan also contains a mitigation strategy that identifies measures to lessen the impact of existing development. The overall goals of the plan are to: • Reduce flood damage, including damage to life and property; • Minimize, to the extent practical, any increase in stormwater runoff from any new development; • Reduce soil erosion from any development or construction project; • Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures; • Maintain groundwater recharge; • Prevent, to the greatest extent feasible, an increase in non—point pollution; • Maintain the integrity of stream channels for their biological functions, as well as for drainage; • Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and • Protect public safety through the proper design and operation of stormwater basins.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan (December 2023)	Engineer
Impact on Risk Reduction: The Township's Stormwater Pollution Prevention Plan describes how the Township implements each permit requirement for Tier A MS4 NJPDES permits and provides a place for recordkeeping and documenting when permit requirements are met. It also describes how the Township is meeting the minimum standards of the Municipal MS4 Stormwater Program.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	No	-	-
Impact on Risk Reduction:			
Habitat Conservation Plan	No	-	-

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction:			
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	No	-	-
Impact on Risk Reduction:			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	No	-	-
Impact on Risk Reduction:			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	Yes	West Caldwell Redevelopment Plan	
Impact on Risk Reduction: The West Caldwell Redevelopment Plan focuses on the "Area in Need of Rehabilitation" which was prepared in accordance with the New Jersey Local Redevelopment and Housing Law N.J.S.A. 40A:12A et seq. It should be noted this redevelopment plan applies only to a limited area, which is the subject of proposed redevelopment.			

The table below summarizes the emergency response and recovery plans that guide the Township of West Caldwell to prepare for, respond to, and recover from hazard events.

Table 22-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan (2023)	OEM
Impact on Risk Reduction: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. West Caldwell's most recent emergency operations plan was approved on July 7, 2023.			
Continuity of Operations Plan / Continuity of Government Plan	No	-	-
Impact on Risk Reduction:			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Impact on Risk Reduction:			
Public Health Plan	No	-	-
Impact on Risk Reduction:			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in the Township of West Caldwell.

Table 22-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 13 (Building and Housing), last amended August 13, 2024	Code Enforcement Department
Impact on Risk Reduction: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2021, NJAC 5:24-3.14. The Township enforces the State building codes and acknowledges that the UCC contains certain provisions that apply to the design and construction of buildings and structures in flood hazard areas.			
Zoning or Land Use Regulations	Yes	Chapter 18A (Land Use Procedures) Chapter 20 (Zoning)	Code Enforcement Department
Impact on Risk Reduction: The purpose of Chapter 18A is to promote, encourage and maintain the purposes of the Municipal Land Use Law (N.J.S.A. 40:55D-2). Any application for development in the Township must include property features including proposed and existing; location, size, profile, on-site and within 200 feet of site of (a) ponds, streams, swales, culverts; (b) other watercourses; (c) wooded areas; (d) rock formations; (e) flood hazard areas; (f) wetlands; and (g) other. It must also include flood hazard areas and submit an application for a development permit in the Special Flood Hazard Area. Development cannot take place within a flood hazard area without obtaining a "Development Permit for Construction in a Flood Hazard Area" from the Planning Board. Chapter 20 (Zoning) is held to be the minimum requirements adopted for the promotion of the public health, safety and general welfare consistent with the Municipal Land Use Law (N.J.S.A. 40:55D-1, et seq.). Within the Township, no land can be used and no building can be erected, raised, moved, extended, enlarged, altered, demolished, or used for any purpose other than that permitted herein for the zone district in which it is located, and all construction shall be in conformity with the regulations provided in the zone district in which such construction is located. The ordinance states, for density modifications, that all land within the flood hazard area must remain undeveloped in perpetuity, and may either be retained by the applicant or dedicated to the Township as public lands. Hospitals, nursing homes, schools, or			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
places of worship cannot be built within any flood hazard areas. Multi-family residence are not permitted within any flood hazard areas.			
Subdivision Regulations	Yes	Chapter 19 (Subdivision of Land)	Code Enforcement Department
Impact on Risk Reduction: Chapter 19 is to be construed jointly with the Land Use Procedures Ordinance, codified as Chapter 18A of the Revised General Ordinances of the Township of West Caldwell and, unless the context clearly indicates otherwise. This chapter requires every developer to submit an environmental impact statement that includes information on natural resources and hydrologic conditions. Additionally, the ordinance prevents lots being platted for residential use in flood hazard areas.			
Site Plan Regulations	Yes	Chapter 21, Section 5 (Site Plans and Construction Documents); Chapter 18A, Section 9 (Subdivision and Site Plan Review and Approval); Chapter 21A, Section 9 (Requirements for a Site Development Stormwater Plan)	Code Enforcement Department
Impact on Risk Reduction: Chapter 21, Section 5 (Floodplain Management Regulations, Site Plans and Construction Documents) requires site plans and construction documents show delineated flood hazard areas, floodway boundaries, base flood elevations, and ground elevations. Chapter 18A, Section 9 (Subdivision and Site Plan Review Approval) requires site plans be submitted and approved by the Township. An applicant's site development project's stormwater plan must be reviewed as a part of the review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the municipality's review engineer to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in Sections 21A-1 through 21A-13.			
Stormwater Regulations	Yes	Chapter 21A (Stormwater Management and Control)	Planning Board
Impact on Risk Reduction: Township has identified minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development. Stormwater management measures must be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).			
Floodplain Regulations	Yes	Chapter 21 (Floodplain Management Regulations); amended January 20, 2024	Construction Official
Impact on Risk Reduction: The purposes and objectives of this chapter is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas, designed to: • Protect human life and health. • Prevent unnecessary disruption of commerce, access, and public service during times of flooding. • Manage the alteration of natural floodplains, stream channels and shorelines; • Manage filling, grading, dredging and other development which may increase flood damage or erosion potential. • Prevent or regulate the construction of flood barriers which will divert floodwater or increase flood hazards. • Contribute to improved construction techniques in the floodplain. • Minimize damage to public and private facilities and utilities.			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
• Help maintain a stable tax base by providing for the sound use and development of flood hazard areas. • Minimize the need for rescue and relief efforts associated with flooding. • Ensure that property owners, occupants, and potential owners are aware of property located in flood hazard areas. • Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events. • Meet the requirements of the National Flood Insurance Program for community participation set forth in Title 44 Code of Federal Regulations, Section 59.22. The Township enforces the State building codes and acknowledges that the UCC contains certain provisions that apply to the design and construction of buildings and structures in flood hazard areas. Therefore, the Floodplain Management Regulations are intended to be administered and enforced in conjunction with the UCC. The Township established Local Design Flood Elevations (LDFE) using the best available flood hazard data sources, and the Flood Hazard Area Control Act minimum Statewide elevation requirements for lowest floors in A, Coastal A, and V zones, ASCE 24 requirements for critical facilities as specified by the building code, plus additional freeboard (at least one foot).			
Environmental Protection Regulations	No	-	-
Impact on Risk Reduction:			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

22.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of West Caldwell's departments, boards, and committees that contribute to risk reduction.

Table 22-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	Planning Board - follows the provisions of the Municipal Land Use Law and performs reviews of development applications; primarily deals with commercial development. Zoning Board of Adjustment – follows the provisions of the Municipal Land Use Law; primarily deals with residential variances
Planning Department	The West Caldwell Division of Planning and Zoning provides zoning inspections and enforcement, master plan review and preparation and the processing of all site plan, subdivision and variance applications heard by our Planning Board and Board of Adjustment.
Public Works / Highway Department	The Department of Public Works is in charge of and responsible for capital improvements planning, programs and the construction, operation and maintenance of water and wastewater service lines, connections, values, pits, meters, tanks, pump stations, stormwater drains, roads and other public improvements, the service and maintenance of township vehicles, and the care and maintenance of township buildings and grounds, parks and pools, water for refrigeration

Department / Board / Committee	Description and Role in Risk Reduction
	and air conditioning equipment, as well as any duties directed by the Mayor and Council.
Construction / Building / Code Enforcement Department	The West Caldwell Code Enforcement Department is responsible for enforcing building codes, conducting inspections, and reviewing/approving permit applications.
Engineering Department	Engineering services for the Township are provided by a contractor. The Engineer is in charge of and responsible for all municipal engineering for the township and its boards and commissions and the performance of such other duties as shall be designated from time to time by resolution of the Township Council.
Parks and Recreation Department	The Department of Parks and Recreation administers programs and activities to township residents.
Open Space Board / Committee	No
Environmental Board / Commission	The Environmental Commission of the Township of West Caldwell has the power to conduct research into the use and possible use of the open land areas of the Township and coordinate the activities for similar purposes and may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which, in its judgment, it deems necessary for its purposes. The Commission keeps an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, in order to obtain information on the proper use of such areas and may recommend to the Planning Board or to the Mayor and Council plans and programs for inclusion in a Municipal Master Plan and the development and use of such areas.
Emergency Management / Public Safety Department	The Office of Emergency Management is responsible for coordinating efforts to protect lives and property during times of emergencies. This has been accomplished by creating the "Township of West Caldwell Emergency Operations Plan." The Emergency Management Coordinator is responsible for the planning, activating, coordinating and conducting of emergency management operations within the Township and is responsible for the preparation and maintenance of the Emergency Management Plan.
Fire Department	The West Caldwell Volunteer Fire Department operates from one station headquartered at 6 Fairfield Avenue. Staffed by an average of 60 members (volunteers), the department utilizes two 1,500 gallon-per-minute pumper engines, one 100-foot aerial ladder truck, one 1,000 gallon per minute mini-pumper and one utility/power/support vehicle. In addition to handling all fire emergencies, the fire department responds to hazardous material incidents and a myriad of other calls for public assistance including support of other public service agencies.
Additional departments, boards, and committees	No

The table below summarizes the Township of West Caldwell's staff with skills and expertise that contribute to risk reduction.

Table 22-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	The Township Planner is appointed by contract for a one-year period. This is the same person as the Engineer
Engineer	The Township Engineer is appointed by contract for a one-year period. The Engineer is responsible for all municipal engineering for the township and its boards and commissions and the performance of such other duties as shall be designated from time to time by resolution of the Township Council.
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	No
Staff with benefit / cost analysis expertise	No
Staff trained in conducting substantial damage determinations	No
Staff trained in GIS	No
Staff that provide support to socially vulnerable populations	No
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of West Caldwell.

Table 22-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Planning Board, Zoning Board of Adjustment, and Construction.
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Wetlands and Floodplains
How does your jurisdiction inventory land available for new development?	No inventory of land available for new development.
What percentage of your jurisdiction is available for new development?	No calculation of what percentage is available for new development.

22.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of West Caldwell.

Table 22-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	Eligible
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has applied for and received HMGP funding that included the purchase and installation of generators in 2013.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	Eligible
Capital improvements funding	Yes	Eligible

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
Open space acquisition programs	Yes	Eligible
Impact fees for developers of new homes	No	-
User fees for water, sewer, gas, or electric	Yes	Eligible
Stormwater utility fees	No	-
Authority to levy taxes for specific purposes	Yes	Eligible
Ability to incur debt through bonds	Yes	Eligible
Other financial resources available for hazard mitigation	No	-

22.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of West Caldwell.

Table 22-12. Development and Permitting Capabilities

Outreach Capability	Description and Role in Risk Reduction
Public warning system	Smart 911, Rave
Public Information Officer	No
Website	The Township maintains a website (https://www.westcaldwell.com/) that is used to inform residents and provide announcements and upcoming events. The Township uses the site to provide hazard-related information when applicable.
Social media	The Township utilizes Facebook and Twitter/X as another form of outreach to residents. They post weather watches and warnings, preparedness tips, public safety notices, and other important information.
Public safety campaigns	No
Newsletters	No
Hazard education programs for schools	No
Outreach to socially vulnerable populations	No
Other outreach capabilities	TV-36, Municipal Website, Nixle, Swift 911, Facebook, Special Notices TV-36, Smart 911, Rave, and special notices with Water Bills

22.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of West Caldwell.

Table 22-13. Floodplain Administration Capabilities

Floodplain Administration	Comments
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Planning and Zoning Board do major development reviews. The stormwater system is being mapped in GIS as part of

Floodplain Administration	Comments
	Tier A efforts. Annual DPW inspections on stormwater infrastructure.
What local department is responsible for floodplain management?	Township Construction Office and engineering.
Are any staff certified floodplain managers (CFMs)?	None
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	Yes
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
How many properties have been mitigated (elevation or acquisition)?	N/A
Summarize the jurisdiction's Substantial Damage determination procedures.	None
Summarize the jurisdiction's Substantial Improvement procedures.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

22.3.6 Community Classifications

Table 22-14 summarizes the Township of West Caldwell's participation in community classification programs.

Table 22-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	No	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-
NWS StormReady® Program	No	-
NFPA Firewise USA®	No	-
Sustainable Jersey Municipal Certification	Yes – registered	March 3, 2011
Other Programs	Yes – Fire ISO Protection Class (Class 4)	October 23, 2017
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	No	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

22.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of West Caldwell has in place and will use to prepare for changes in risk due to climate change.

Table 22-15. Adaptive Capacity for Climate Change

Adaptive Capacities	*Comments*
What climate change associated risks have been identified by the jurisdiction?	Increased flood, drought, and wildfire risk.
What information does the jurisdiction use to understand potential climate change impacts?	Review of prior incidents of flood, drought, wildfire.
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	Need for ordinances under review.
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	Under review by Engineering, Environmental Commission, and Construction Official. Also want to review by Zoning board and Planning board
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	The impact of future climate risks is under review and will be used to determine future funding needs.
How does the jurisdiction educate the public on potential climate change impacts?	Planning Board, Zoning Board, and Environmental Commission meeting agendas and minutes are available to disclose subjects covered.

22.3.8 Capability Assessment Summary

The Township of West Caldwell's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of West Caldwell determined the following hazard capability effectiveness ratings.

Table 22-16. Township of West Caldwell Hazard Capability Effectiveness Rating

Hazard	*Capability Effectiveness Rating*
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate

Hazard	Capability Effectiveness Rating
Geological Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

22.3.9 Opportunities to Improve Capabilities and Integration

- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- The Township lacks a Substantial Damage Response Plan.
- The Township will be required to develop a Watershed Improvement Plan by December 2027.

22.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of West Caldwell were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of West Caldwell reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township changed the hazard ranking for disease outbreak from low to medium, noting that there are large populations that are vulnerable to disease outbreak located in nursing homes and assisted living facilities.
- The Township agreed with the remainder of the calculated hazard rankings.

The Township of West Caldwell agreed upon the following hazard rankings.

Table 22-17. Township of West Caldwell Hazard Rankings

Hazard	Hazard Ranking
Disease Outbreak	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Low
Severe Weather	High

Hazard	*Hazard Ranking*
Severe Winter Weather	Medium
Wildfire	High

22.5 Jurisdictional Mitigation Strategy

22.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 22-18. Status of Previous Mitigation Actions

Project Number	*Project Name and Description*	*Responsible Party*	*Status (No Progress, In Progress, Complete, Ongoing Capability)* *Provide a brief explanation of implementation process.*	*Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?* *Yes/No* *If no, explain why not including in 2025 HMP.*	*If yes, provide an update on the problem and solution.*
2020-Township of West Caldwell-001	**Purchase and replace emergency stand-by generator:** Purchase a 175 KW (or more) diesel GENERAC Automatic Standby Generator with a tank capacity of 380 gallons, providing a 24-hour run time via a 600A 3PH 4W 240/120/3/60 Automatic Transfer Switch.	Township	Complete. Installation of standby generator has been completed at Firehouse.	No, complete.	-
2020-Township of West Caldwell-002	**Implement identified actions of the infiltration study for the sanitary sewer system, focusing on old pipes:** West Caldwell has hired a consultant to perform an infiltration study of the sanitary sewer along Forest Avenue. The study will be completed within the next 6-12 months. West Caldwell will implement the best identified alternative as a result of the study within 12-24 months after the results are completed.	Township Engineering, FPA	Complete. Problems identified and sewer pipes were relined.	No, complete.	-
2020-Township of West Caldwell-003	**Kirkpatrick Lane wastewater pumping stations:** Continue renovations for capacity increase.	Township Engineering	In Progress. Planning phase continues.	Yes	Reduce stormwater inputs. Infiltration of stormwater and illegal draining of sump pumps into sanitary system.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-Township of West Caldwell-004	**Assist privately owned critical facilities install generators:** Assist West Essex First Aid Squad and West Caldwell BOE in the identification and purchase of generators.	Township, West Essex First Aid Squad and West Caldwell BOE	No Progress. The municipality has not worked with private facility owners.	No. No longer a priority as these facilities are privately owned.	-
2020-Township of West Caldwell-005	**Develop Debris Management Plan:** West Caldwell will work to pursue outside funding to contract with a consultant to develop a Debris Management Plan for the Township of West Caldwell.	Township	No Progress. Funding to support this action is limited.	Yes	Waiting for funding
2020-Township of West Caldwell-006	**Battery backup for traffic lights:** West Caldwell Police/OEM, in conjunction with Essex County, will pursue funding for the implementation of battery backups for traffic lights throughout West Caldwell.	West Caldwell Police/OEM, Essex County	In Progress. Funding to support this action is limited.	Yes	Waiting for additional funding
2020-Township of West Caldwell-007	**Increase stormwater system capacity in the Gardens section of the township:** West Caldwell will install additional catch basins and upgrade stormwater pipes to increase stormwater capacity. West Caldwell Engineering is currently determining the cost and	Engineering	In Progress. Work has been broken into phases. Work is continuing.	Yes	Work has been broken into phases.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	expected scope of work, to be completed within 6 months.				
2020-Township of West Caldwell-008	**Mitigate flood-prone properties, including RL/SRL properties:** The Township will conduct public outreach to the RL and SRL properties to identify if there is interest in mitigation (elevation or acquisition). If there is no interest in mitigation, the Township will provide a list of options homeowners can use to protect their homes from future flood damage.	Floodplain administrator, homeowners	In Progress. NJOEM has reached out to all RL property owners and is gathering information on interested parties.	Yes	Working with property owners to see if Township can mitigate problem areas.

22.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of West Caldwell identified the following mitigation efforts completed since the last HMP:

- None identified

22.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of West Caldwell identified the following issues that require mitigation.

- The Gardens section of Township (Parkview Avenue, Johnson Avenue) has stormwater runoff issues due to an increasing amount of high intensity short duration rainfall.
- Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 5 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.
- The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
- The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The Township does not have a WIP at this time.
- Power failure events result in the shutdown of traffic lights in the Township. This results in traffic, public safety, and commerce interruptions.
- The Kirkpatrick Lane wastewater pumping stations have limited capacity. While capacity increases are being planned, some of the issue comes from infiltration of stormwater into the system and illegal hookups of sump pumps.

22.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of West Caldwell's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action

categories (discussed in Volume I, Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 22-19. Township of West Caldwell 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-West Caldwell-01	Increase Stormwater System Capacity in Gardens Section of Township					X		X	X	
2025-West Caldwell-02	Disaster Debris Management Plan	X	X	X	X	X	X	X	X	X
2025-West Caldwell-03	Repetitive Loss Mitigation					X		X		
2025-West Caldwell-04	Substantial Damage Response Plan			X	X	X	X	X	X	X
2025-West Caldwell-05	Watershed Improvement Plan	X	X		X	X				
2025-West Caldwell-06	Battery Backup for Traffic Lights			X	X	X	X	X	X	X
2025-West Caldwell-07	Kirkpatrick Lane I&I					X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 22-20. Township of West Caldwell 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-West Caldwell-01	Increase Stormwater System Capacity in Gardens Section of Township	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-West Caldwell-02	Disaster Debris Management Plan	0	1	1	1	1	1	1	0	1	1	1	0	1	1	11	High
2025-West Caldwell-03	Repetitive Loss Mitigation	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High
2025-West Caldwell-04	Substantial Damage Response Plan	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2025-West Caldwell-05	Watershed Improvement Plan	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2025-West Caldwell-06	Battery Backup for Traffic Lights	1	0	1	1	0	0	0	0	1	1	1	0	1	1	8	Medium
2025-West Caldwell-07	Kirkpatrick Lane I&I	0	1	1	1	1	0	1	0	1	1	1	0	1	1	10	Medium

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-West Caldwell-01: Increase Stormwater System Capacity in Gardens Section of Township

Lead Agency:	Engineer
Supporting Agencies:	Public Works
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	The Gardens section of Township (Parkview Avenue, Johnson Avenue) has stormwater runoff issues due to an increasing amount of high intensity short duration rainfall.
Description of the Solution:	West Caldwell will install additional catch-basins and upgrade stormwater pipes to increase stormwater capacity in the Gardens section of the Township. Engineering has developed a scope of work. Work will be completed in phases.
Estimated Cost:	High
Potential Funding Sources:	HMGP, BRIC, municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2
Benefits:	Increased stormwater capacity, reduced flooding
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	• Transportation routes are more likely to remain open. • Evacuation routes will remain intact. • Access to health and medical facilities will be maintained, both for healthcare workers and the population who requires treatment for injuries and illness.
Impact on Capabilities:	Identifying the portions of the stormwater system that are at greatest risk of damage or failure can allow for resource staging to take place where the need is greatest ahead of a flood event.
Climate Change Considerations:	Climate change is likely to result in more frequent and severe rainfall events. This action upsizes stormwater components to meet changing stormwater needs as the result of climate change.
Mitigation Category:	
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / -
	Remove roadways / Roadways cannot be removed
	Raingardens / Raingardens are unlikely to be able to absorb enough stormwater to prevent flooding during severe rainfall events.

2025-West Caldwell-02: Disaster Debris Management Plan

Lead Agency:	Public Works	
Supporting Agencies:	OEM	
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.	
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.	
Estimated Cost:	Staff time	
Potential Funding Sources:	Municipal budget, State grants	
Implementation Timeline:	Within 5 years	
Goals Met:	5	
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	N/A	
Impact on Capabilities:	The action will result in increased post disaster capabilities.	
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.	
Mitigation Category:	Local Plans and Regulations	
CRS Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Rely on federal cleanup	These services may or may not be available
	Rely on state cleanup	These services may or may not be available

2025-West Caldwell-03: Repetitive Loss Mitigation

Lead Agency:	Floodplain Administrator	
Supporting Agencies:	NJOEM	
Hazard(s) of Concern:	Flood, Severe Weather	
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 5 repetitive loss properties and 2 severe repetitive loss properties, but other properties may be impacted by flooding as well.	
Description of the Solution:	NJOEM conducted outreach to all RL/SRL property owners in the state in summer 2024 and asked property owners if they would be interested in elevation or acquisition. NJOEM is collecting contact information and will be contacting municipalities that had property owners interested in mitigation. After preferred mitigation measures are identified, the Township will work with NJOEM to collect required property-owner information, and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating of residential homes in the flood prone areas that experience frequent flooding (high risk areas).	
Estimated Cost:	High	
Potential Funding Sources:	BRIC, FMA, HMGP, match from property owners	
Implementation Timeline:	3 years	
Goals Met:	2	
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.	
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.	
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.	
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.	
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.	
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, and riverine flooding events. Removing structures from the floodplain will reduce the response and recovery costs as a result of these events and decrease the loss of human life as a result of these events. Elevating structures will reduce the recovery costs as a result of these events.	
Mitigation Category:	Property Protection	
Priority:	High	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Levee around floodplain	Costly, not enough room
	Deployable flood barriers	Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-West Caldwell-04: Substantial Damage Response Plan

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Public Works, OEM, Construction Department
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resources to address substantial damages to structures owned by socially vulnerable populations.
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations, Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / -

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-West Caldwell-05: Watershed Improvement Plan

Lead Agency:	Engineer
Supporting Agencies:	NJ DEP
Hazard(s) of Concern:	Flood, Drought, Extreme Temperature, Disease Outbreak
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures), Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be reduction in standing water that contributes to disease outbreak, additional green infrastructure will reduce extreme heat/urban heat island impact, and better groundwater infiltration will reduce drought risk.
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection, Structural Projects, Climate Resiliency
Priority:	High
Alternatives:	**Action** / **Evaluation** No Action / - Pursue on regional basis / Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.

	Remove MS4 permit to bypass WIP requirement	Not allowable

2025-West Caldwell-06: Battery Backup for Traffic Lights

Lead Agency:	West Caldwell Police/OEM	
Supporting Agencies:	Essex County	
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire	
Description of the Problem:	Power failure events result in the shutdown of traffic lights in the Township. This results in traffic, public safety, and commerce interruptions.	
Description of the Solution:	The Township will work with the County to install battery backup and solar panels at critical traffic signals in the Township.	
Estimated Cost:	$5,000 per battery backup	
Potential Funding Sources:	HMGP, BRIC, municipal budget, county budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 5, 6	
Benefits:	Continuity of service for traffic signals, reduction in necessary response by police	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action maintains the functionality of critical transportation corridors in the Township.	
Impact on Capabilities:	This action will result in a decreased demand for police personnel to direct traffic when traffic lights are not functioning.	
Climate Change Considerations:	Climate change is likely to result in an increase in the severity and frequency of severe weather events that result in power outages. This action will help decrease impacts from these climate influenced events.	
Mitigation Category:	Emergency Services	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Install hookups for portable generators	High
	Install small wind turbines	Weather dependent, high cost, limited space

2025-West Caldwell-07: Kirkpatrick Lane I&I

Lead Agency:	Engineer	
Supporting Agencies:	Public Works	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	The Kirkpatrick Lane wastewater pumping stations have limited capacity. While capacity increases are being planned, some of the issue comes from infiltration of stormwater into the system and illegal hookups of sump pumps.	
Description of the Solution:	The Township will identify the location of illegal sump pumps and remove hookups through enforcement of existing regulations. The Township will identify locations of I&I (manhole covers, etc.) and work to seal the system off and redirect stormwater.	
Estimated Cost:	High	
Potential Funding Sources:	HMGP, municipal budget	
Implementation Timeline:	Within 5 years	
Goals Met:	2, 6	
Benefits:	Reduction of I&I, preservation of wastewater system capacity	
Impact on Socially Vulnerable Populations:	N/A	
Impact on Future Development:	N/A	
Impact on Critical Facilities/Lifelines:	This action maintains the functionality of the sanitary sewer system.	
Impact on Capabilities:	N/A	
Climate Change Considerations:	Climate change is likely to result in an increase in the severity and frequency of heavy rainfall events that lead to stormwater infiltration.	
Mitigation Category:	Prevention, Structural Projects	
Priority:	Medium	
Alternatives:	**Action**	**Evaluation**
	No Action	-
	Greatly expand capacity of sewer system	High
	Convert sewer system to private septic systems	Not feasible

22.6 Jurisdictional Hazard Mitigation Team

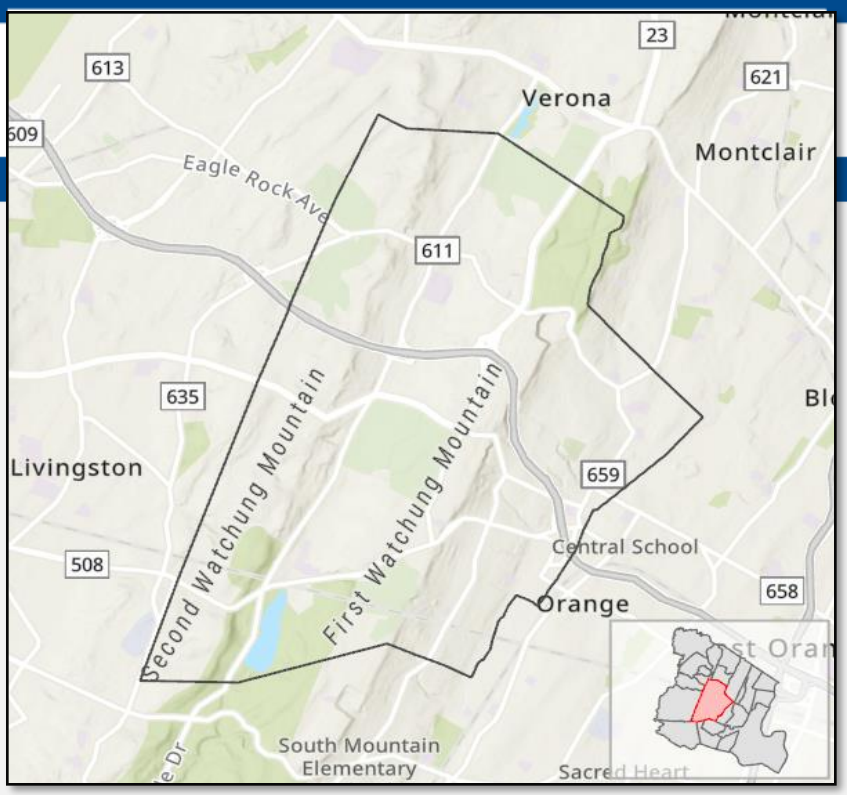
Table 22-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Lawrence Peter, Emergency Management Coordinator	Name and Title:	John Medina, Deputy Emergency Management Coordinator/Construction Official
Address:	30 Clinton Road, West Caldwell, NJ 07006-6704	Address:	30 Clinton Road, West Caldwell, NJ 07006-6704
Phone Number:	973-747-9946	Phone Number:	973-226-2302
Email:	lpeter@westcaldwell.com	Email:	jmedina@westcaldwell.com
NFIP Floodplain Administrator			
Name and Title:	John Medina, Deputy Emergency Management Coordinator/Construction Official		
Address:	30 Clinton Road, West Caldwell, NJ 07006-6704		
Phone Number:	973-226-2302		
Email:	jmedina@westcaldwell.com		

Table 22-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Lawrence Peter, Emergency Management Coordinator	Provided information on capabilities, previous events, hazard rankings, adaptive capacity, and statuses of previous mitigation actions.

Township of West Orange



POPULATION STATISTICS

48,276
TOTAL POPULATION (2023 ACS)

0.04%
Change in population since 2010 Census

17,440
TOTAL HOUSEHOLDS

AT RISK POPULATION

8,967
Population Over 65

2,567
Population Under 5

4,276
Living With Disability

354
Households Without Vehicle

4,880
People Renting Homes

POVERTY AND LANGUAGE

43,284
Households Below Poverty Level

4,747
Population With English as 2nd Language

POPULATION AND BUSINESSES

43,284
Daytime Population

1,624
Total Businesses

24,863
Total Employees

FLOOD VULNERABILITY

1,047
Number of People in 1% SFHA

213
Number of Buildings in 1% SFHA

5
Community Lifelines in 1% SFHA

23 Township of West Orange

23.1 Jurisdictional Profile

The Township of West Orange is in central Essex County, covering a total land area of 12.05 square miles. The Township is set off by two large parks: the South Mountain Reservation along its southwestern borders with Maplewood and Millburn, and the Eagle Rock Reservation along its northeastern borders with Montclair and Verona. The Township straddles the transition between the low-lying Newark Bay basin and the high terrain of the Watchung Mountains. The West Branch of the Rahway River originates at Crystal Lake and passes through the township in South Mountain Reservation (Township of West Orange 2025).

West Orange, originally part of the Native American Hackensack clan's territory, has a rich history dating back over 10,000 years. The area was first settled by Europeans in the 1600s when Puritans led by Robert Treat moved from Connecticut and purchased land from the Hackensack Indians. Initially part of Newark, the area became the Township of Orange in 1806 and was later divided into several municipalities, including West Orange in 1863. Today, West Orange operates under the Mayor-Council form of municipal government (Township of West Orange 2025).

For information on population statistics, refer to Volume I, Section 3.3 (Population and Demographics).

The Township of West Orange has focused on addressing flooding. Department of Public Works inspects and cleans inlets in advance when severe rainfall events and snowstorms are forecast. The Township has applied for a grant to dredge Vincent's Pond to mitigate flooding concerns brought up by residents within the neighborhood. The Township also is planning to conduct a Township wide drainage study that will determine the capacity of the existing storm pipe network to identify areas that flood and that might be in need of upsizing if feasible to develop a mitigation plan.

23.2 Jurisdictional Risk Assessment

The following sections assess the Township of West Orange's risk to the hazards of concern identified for the 2025 HMP update.

23.2.1 Hazard Event History

Essex County's hazard event history is documented in each hazard profile in Volume I. While the Township of West Orange's history of federally declared disasters and significant hazard events are consistent with the County, the table below provides details regarding jurisdiction-specific losses and damages the Township experienced during hazard events since the last hazard mitigation plan update.

Table 23-1. Hazard Event History Since 2020

Date(s) of Event	*Hazard Type*	*Event Summary*	*Local Impacts (disaster declaration, damages, losses)*
January 20, 2020 - May 11, 2023	Covid-19 Pandemic	The coronavirus pandemic resulted in over 260,000 identified cases and 3,580	Over 17,000 cases reported with approximately 290 deaths.

Date(s) of Event	Hazard Type	Event Summary	Local Impacts (disaster declaration, damages, losses)
	(DR-4488)	deaths in Essex County over the course of the public health emergency.	Total costs: $185,935.00
August 4, 2020	Tropical Storm Isaias (DR-4574)	The center of Isaias passed about 65 miles west of New York City. The highest sustained wind speeds across northeastern New Jersey ranged from 35 to 50 mph, with gusts 60 to 70 mph, resulting in widespread wind damage and power outages. Rainfall amounts of 1/2 to 4 inches were observed across northeastern NJ, resulting in some localized flooding issues.	Wind damages. Over 5,400 CY of Vegetative Debris, plus prep and mitigation costs. Total costs: $370,117.00
September 1 - 3, 2021	Remnants of Hurricane Ida (DR-4614)	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding and extensive river flooding.	Major Flooding and wind event. Damages included Sanitary sewer repairs, Peckman River embankment repairs, Cliff collapse damaging apartment house requiring meals and shelter, emergency road paving, township building repairs, recreation facility repairs. Total costs: $832,187.00
December 20, 2023	Heavy Rainfall Event	heavy rainfall that washout lots of debris through brook between Beverly Road and Glenn Road that broke sanitary sewer main across the brook.	NJ Flood Warning for 4 to 5 inches of rainfall.

Source: FEMA 2024; NOAA NCEI 2025

23.2.1 Flood Risk

According to the State Hazard Mitigation Plan, flooding is one of the most impactful hazard events in the State of New Jersey. Overall, the Township's mapped floodplain is accurate and the Township has not experienced flooding outside of the mapped floodplain. In the last five years, the Township has not declared any structures substantially damaged.

The following table summarizes the National Flood Insurance Program (NFIP) statistics for Township of West Orange.

Table 23-2. NFIP Summary

Total Policies	Total Premiums	Total Insurance in Force	Total Claims	Total Payment	Repetitive Loss Properties	Severe Repetitive Loss Properties
185	$241,319	$54,275,000	268	$2,190,597	13	0

Source: (FEMA 2025); (FEMA 2024a); (FEMA 2024b)

Notes: Total policies and total insurance in force data current as of 11/30/2024.
Total claims, total payment, and total premium data current as of 12/2/2024.

Community lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. Following a disaster event, intervention is required to stabilize community lifelines (FEMA 2023a). The table below identifies community lifelines located in the 1-percent floodplain.

Table 23-3. Flood Exposure of Community Lifeline Facilities

Name	Type	1% Flood
Orange Water Pumping Station-Well 6	Water Systems	X
Solomon Schechter Day School	Safety and Security	X
Washington Elementary School	Safety and Security	X
Safari Mini Golf	Safety and Security	X
Orange Reservoir Dam	Water Systems	X

Source: NJ Office of GIS 2023; Essex County 2019; FEMA 2020

23.2.2 Growth and Development Trends

Development can result in an increase of hazard risk. The table below summarizes recent development since 2020 and expected future development (in the next five years) in Township of West Orange, including major residential/commercial/industrial development and major infrastructure development.

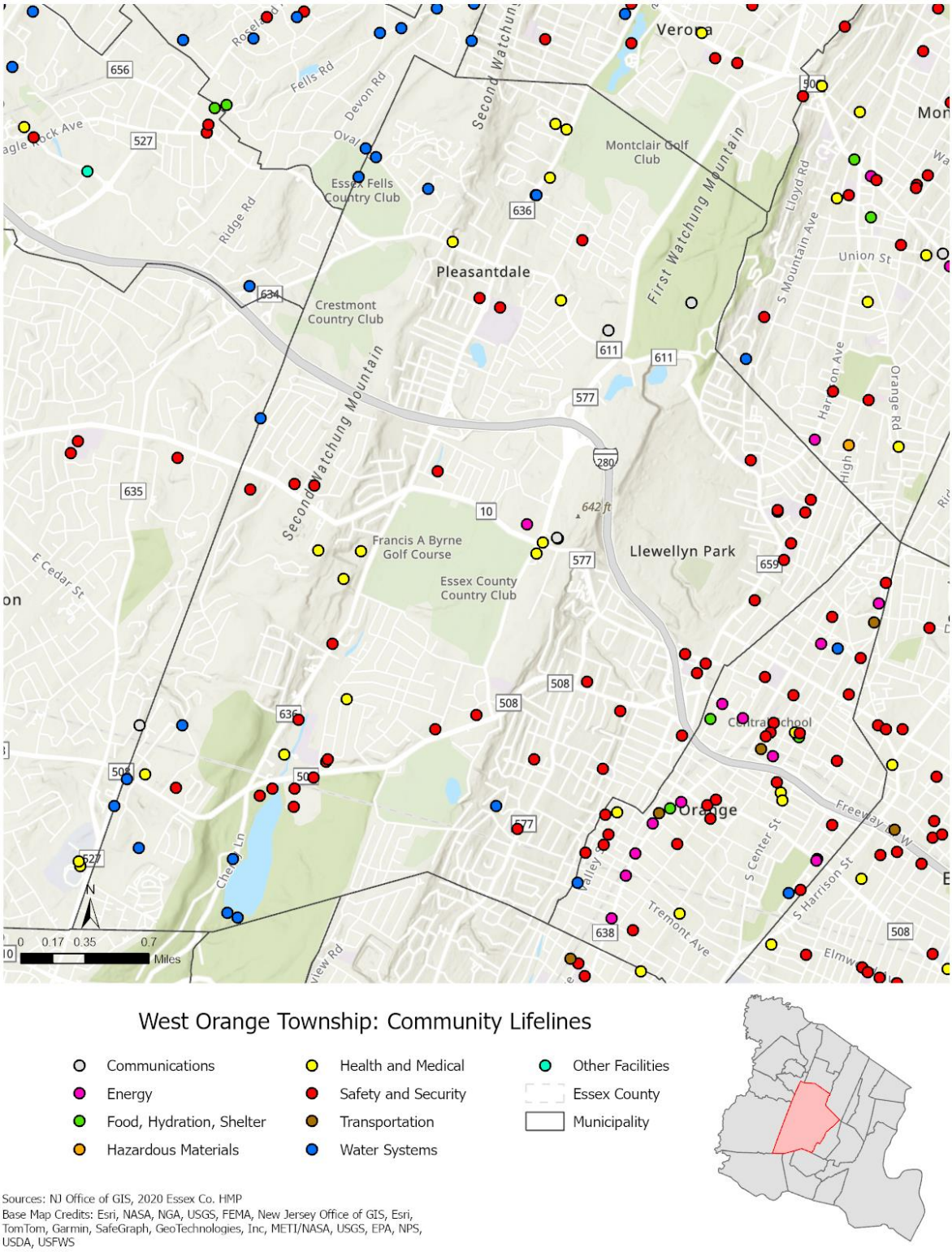
Table 23-4. Recent and Expected Future Development

Property or Development Name	Type (Res., Com., Ind., infrastructure)	# of Units or Structures	Address or Parcel ID	Hazard Zone(s)	Status of Development or Year Complete
Tompkins Street Apartments	Residential	17 units	Block 6, Lot 36.01		Approved by Planning Board in 2021
West Essex Highlands, Inc.	Residential	496 units	Block 179, Lot 32		Presently before Planning Board
CSH Development, LLC	Assisted Living Facility	85 units	Block 152.22, Lot 1412.01		Currently under Construction
955 Pleasant Valley Way, LLC	Self-Storage Facility	1 structure	Block 172.02, Lots 8.01 & 8.03		Currently under Construction
Redwood, LLC	Residential	142 units	Block 151, Lot 33		Approved by Planning Board in 2023

23.2.3 Hazard Area Location and Extent

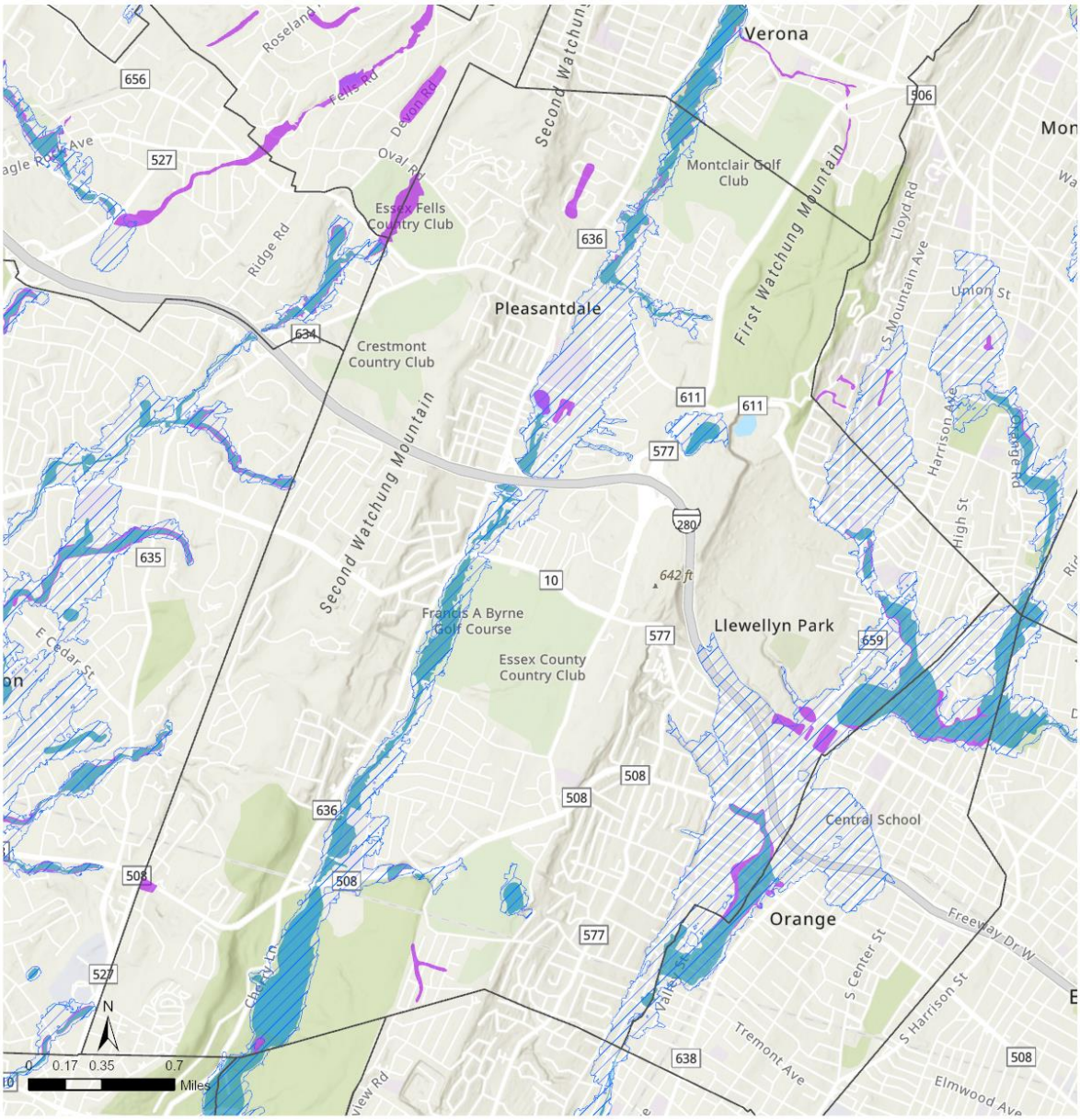
Hazard area location and extent maps were generated for the Township of West Orange that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time the preparation of this plan and are considered adequate for planning purposes.

Figure 23-1. Township of West Orange Community Lifelines



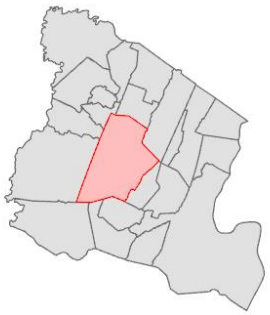
Sources: NJ Office of GIS, 2020 Essex Co. HMP
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 23-2. Township of West Orange Flood-Hazard Areas



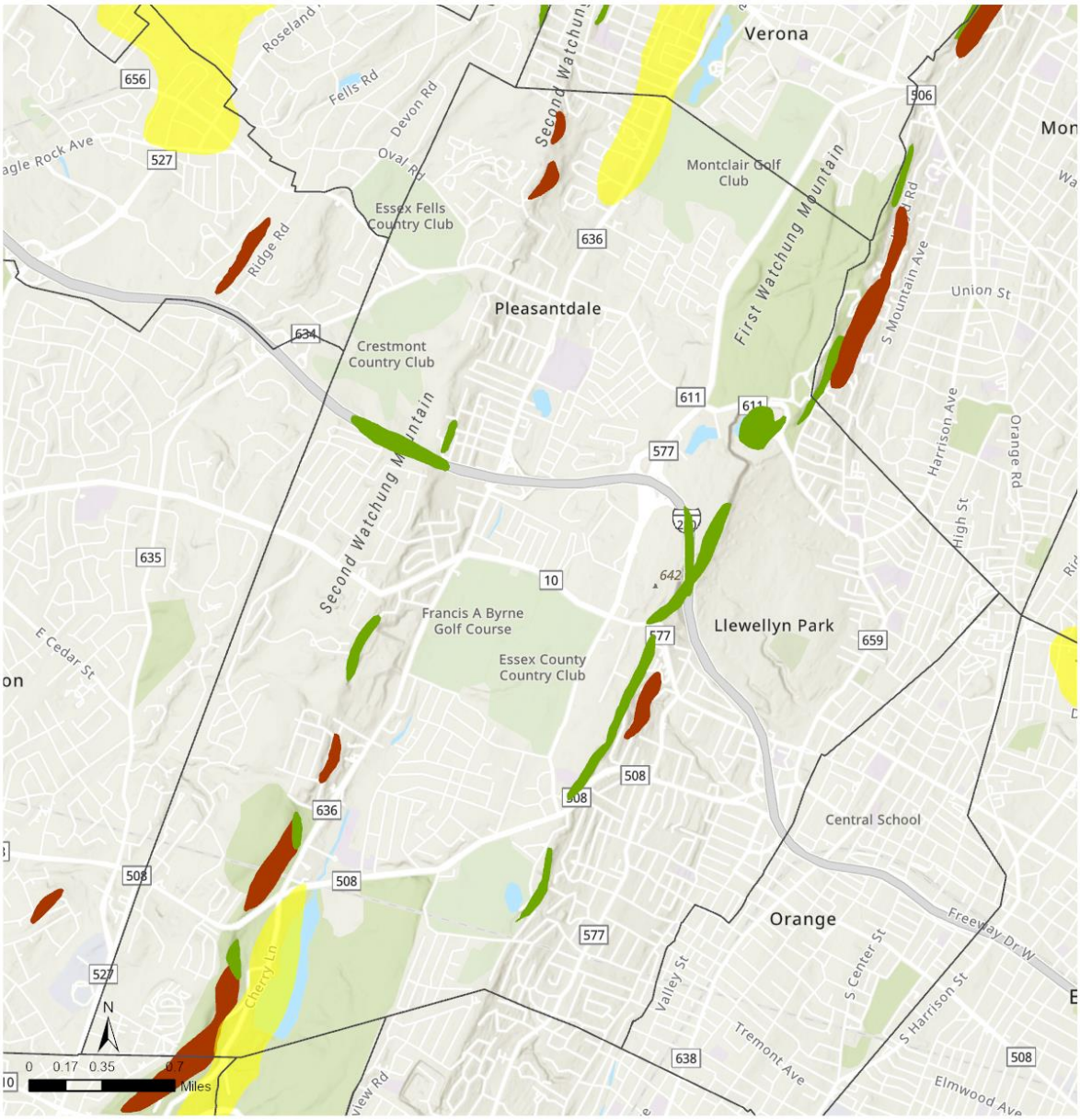
West Orange Township: Flood-Related Hazards

- FEMA Coastal 1%-Annual-Chance Flood plus 5 feet (Tidal Climate Adjusted Elevation)
- FEMA 1%-Annual-Chance Flood plus 3 feet (Inland Design Flood Elevation)
- FEMA 1%-Annual-Chance Flood
- FEMA 0.2%-Annual-Chance Flood
- Essex County
- Municipality



Sources: NJ Office of GIS, NJDEP, FEMA, Rutgers University
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

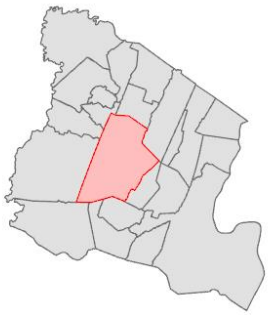
Figure 23-3. Township of West Orange Geological Hazards



West Orange Township: Geologic Hazards

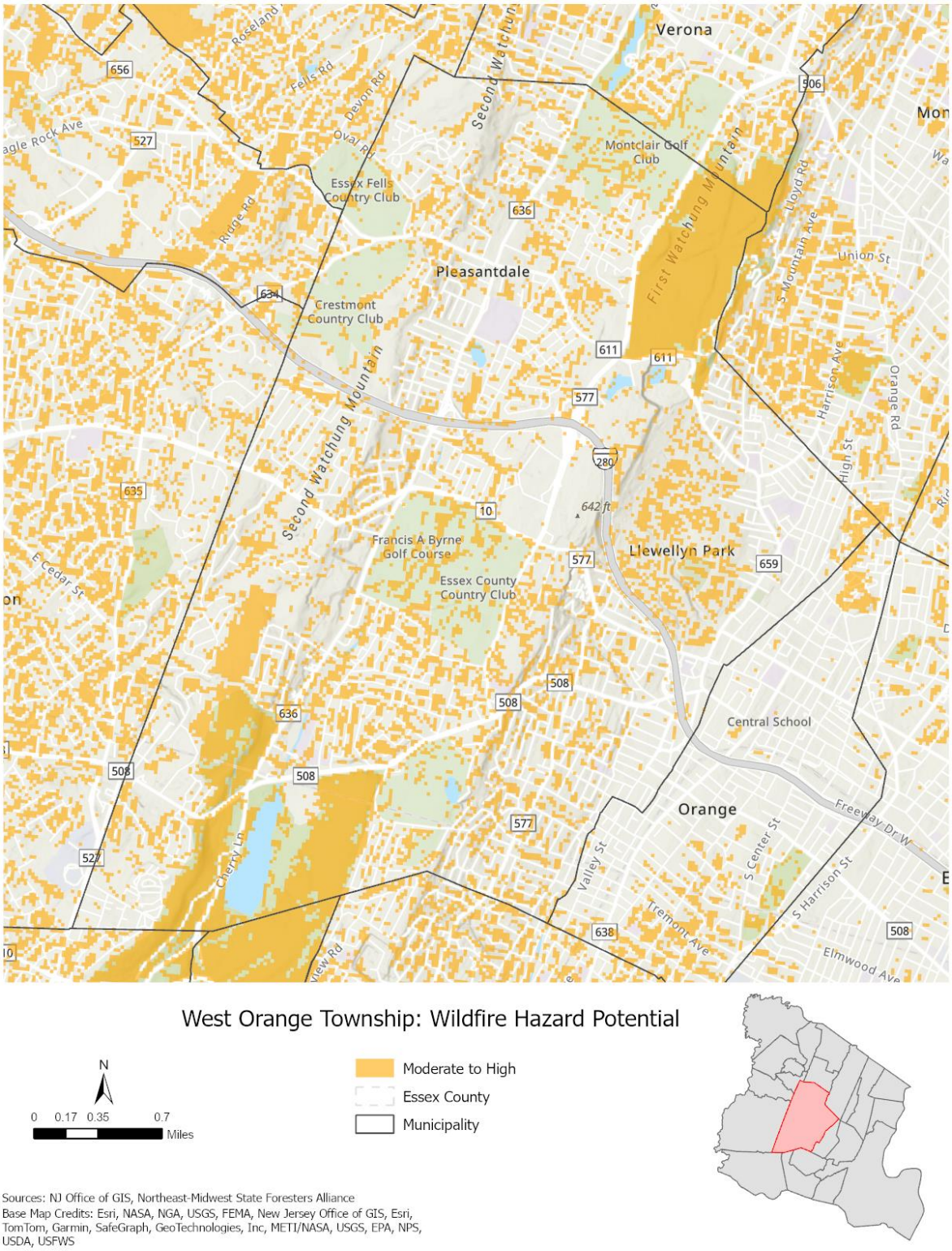
NEHRP Seismic Site (Soils) Class
- D (Stiff Soil)
- E (Soft Clay Soil)

Landslide Susceptibility
- Class A - Strongly Cemented Rock
- Class B - Weakly Cemented Rock
- Essex County
- Municipality



Sources: NJ Office of GIS, NJDEP, NJGWS
Base Map Credits: Esri, NASA, NGA, USGS, FEMA, New Jersey Office of GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure 23-4. Township of West Orange Wildfire Hazards



23.2.4 Climate Change Risk

The impact of climate change on hazard frequency and severity is documented in each hazard profile in Volume I. In Township of West Orange, climate change is likely to have the following impacts:

- Increase in precipitation is leading to impacts on the Township's stormwater systems which is resulting in more frequent flood events.
- Warmer temperatures can lead to more frequent and severe heat waves, which can have significant impacts on the vulnerable populations in the Township.
- New Jersey's Inland Flood Protection Rule has expanded the overall flood vulnerability in the Township and will require new construction and redevelopment to elevate higher than what is currently outlined in the Township's flood damage prevention ordinance.

23.2.5 Risk Assessment Summary

- King Road and Short Hills pump stations lack backup power and cannot function properly during power outages.
- Frequent flooding events in the Township damages structures and there are 13 repetitive loss properties.

23.3 Jurisdictional Capability Assessment

The Township of West Orange performed an assessment of existing local capabilities that reduce hazard risk and enhance its ability to implement mitigation strategies. These capabilities are supplemented by the capabilities at the county, regional, state, and federal levels described in Volume I, Section 16 (Capability Assessment).

The jurisdictional capability assessment includes the following capabilities:

- Planning and regulatory capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Floodplain administration capabilities
- Community classifications in mitigation related programs
- Adaptive capacity

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local operations. As part of the jurisdictional capability assessment, current capabilities were reviewed to identify current strengths and opportunities for integration of hazard mitigation concepts.

23.3.1 Planning and Regulatory Capabilities and Integration

The table below summarizes the planning documents that contribute to risk reduction in Township of West Orange.

Table 23-5. Planning Capabilities

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Master Plan	Yes	Reexamination Report and Plan Element amendments, 2019 Master Plan Update	Planning Board
Impact on Risk Reduction: The 2019 update builds upon prior planning efforts such as the 2010 Reexamination Report and plan element amendments adopted at that time and more recently. It supports efforts to increase sustainability and walkability in West Orange while addressing legal requirements for planning set forth by State law. One of the principles of the update is to protect natural features and environmental resources including, but not limited to, floodplains, wetlands, woodlands, steep slopes, ridgelines, and areas valuable as scenic, historical, cultural, or recreational resources. The update includes several strategies to achieve the goals and principles of the plan including storm resiliency with respect to energy supply, floodprone areas, and environmental infrastructure.			
Capital Improvement Plan	Yes	Annual	Finance Department
Impact on Risk Reduction: Part of the annual budget and provides funding for various improvements throughout the Township.			
Stormwater Management Plan	Yes	Municipal Stormwater Management Plan (March 2005)	Department of Public Works & Engineering
Impact on Risk Reduction: The Township's Municipal Stormwater Management Plan documents the strategy for the Township to address stormwater management in new development and redevelopment projects that involve greater than one acre of disturbance. The plan includes recommendations for the Township that will serve to extend strict stormwater management design and performance standards to non-residential and residential development.			
Stormwater Pollution Prevention Plan	Yes	Stormwater Pollution Prevention Plan (March 2005)	Department of Public Works & Engineering
Impact on Risk Reduction: The Township's Stormwater Pollution Prevention Plan describes how the Township implements each permit requirement for Tier A MS4 NJPDES permits and provides a place for recordkeeping and documenting when permit requirements are met. It also describes how the Township is meeting the minimum standards of the Municipal MS4 Stormwater Program.			
Floodplain Management Plan or Watershed Plan	No	-	-
Impact on Risk Reduction:			
Open Space Plan	Yes	Open Space and Recreation Plan Update (2010); 2019 Update	Open Space, Recreation & Environmental Committee
Impact on Risk Reduction: This is the second update to the Township's 2002 Open Space and Recreation Plan. Following the last update in 2005, the Township continues to protect and improve its natural, historical, and recreational resources and amenities for its residents. The Township recognizes the need to preserve and protect openness within its borders, the need to allow greenery to flourish among even the oldest, most heavily populated sections and neighborhoods. The 2010 update proposes the implementation of a comprehensive open space program that addresses the natural, recreational, and historic land preservation needs expressed by Township residents. It identifies priority lands where preservation activities are to be focused. The plan identifies natural features, including special flood hazard areas, and includes action plans to help the Township implement the plan.			
Habitat Conservation Plan	No	-	-
Impact on Risk Reduction:			

	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Shoreline Management Plan	No	-	-
Impact on Risk Reduction:			
Community Forest Management Plan	Yes	Community Forestry Management Plan (February 2016)	Township Board, Department of Public Works
Impact on Risk Reduction: The preparation and consistent implementation of a Community Forestry Management Plan helps ensure that trees within the public-right-of-way not only contribute to the environment and economic vitality of the area, but also reduces potential hazards to public safety. The objective of this plan will enable the Township Council, The Township Administrator, the Director of Public Works, and the Superintendent of Public Works to set attainable goals within the present budgetary constraints in meeting present and future tree maintenance needs. This management plan will evaluate West Orange's Shade Tree assets and liabilities and chart a course setting short and long-term objectives.			
Community Wildfire Protection Plan	No	-	-
Impact on Risk Reduction:			
Climate Change / Sustainability Plan	No	-	-
Impact on Risk Reduction:			
Transportation Plan	Yes	Reexamination Report and Plan Element amendments, 2019 Master Plan Update	Planning Board
Impact on Risk Reduction: Included as the Circulation Plan Element of the Township's master plan. The updated plan recommends certain improvements to roads and other transportation infrastructure, particularly regarding pedestrian circulation and bicycle facilities planning.			
Economic Development Plan	No	-	-
Impact on Risk Reduction:			
Redevelopment Plans	No	-	-
Impact on Risk Reduction:			

The table below summarizes the emergency response and recovery plans that guide the Township of West Orange to prepare for, respond to, and recover from hazard events.

Table 23-6. Emergency Response and Recovery Planning Capabilities

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Emergency Operations Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The EOP guides emergency response for both natural and non-natural events. The EOP is updated every two years.			

Plan Name	Capability in Place? (Yes/No)	Name and Date	Department/Agency Responsible
Continuity of Operations Plan / Continuity of Government Plan	Yes	Emergency Operations Plan	Office of Emergency Management
Impact on Risk Reduction: The COOP guides the Municipal workforce in the event of loss of service or loss of access to a facility.			
Evacuation Plan	No	-	-
Impact on Risk Reduction:			
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-
Impact on Risk Reduction:			
Public Health Plan	Yes	Emergency Operations Plan	West Orange Health Department
Impact on Risk Reduction: To provide guidance to first responders during any emergency or disaster situation to ensure completion of required emergency actions			
Disaster Debris Management Plan	No	-	-
Impact on Risk Reduction:			
Substantial Damage Management Plan	No	-	-
Impact on Risk Reduction:			
Strategic Recovery Planning Report	No	-	-
Impact on Risk Reduction:			
Post-Disaster Recovery Plan	No	-	-
Impact on Risk Reduction:			

The table below summarizes the codes, ordinances, and regulations that contribute to risk reduction in Township of West Orange.

Table 23-7. Codes, Ordinances, and Regulations Capabilities

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
Building Code	Yes	Chapter 13 (Building)	Building & Construction Code Enforcement
Impact on Risk Reduction:			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
This code establishes a State Uniform Construction Code Enforcing Agency, a Construction Fee Schedule, a Construction Board of Appeals, and fire limits pursuant to N.J.S.A. 52:27D-119 et seq. and N.J.A.C. 5:23 for the Township. The code provides minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. The permit application process requires applicants identify whether the property is in a floodplain, what the base flood elevation is, and whether it is in a wetland. It also contains provisions that apply to the design and construction of buildings and structures in the flood hazard areas.			
Zoning or Land Use Regulations	Yes	Chapter 25 (Land Use Regulations)	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: The purpose of the Township's Land Use Regulations is to promote and protect the public health, safety, morals, and general welfare. This includes securing safety from fire, flood, panic and other natural and manmade disasters; providing adequate light, air, and open space; and promoting the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land. This chapter complies with the Township's Master Plan. Any proposal for development must obtain approvals and permits, including regulations for air quality, floodplains, natural features and habitats, soil conservation and protection, steep slopes, stormwater, stream corridors, sewage, and wetlands, and address all applicable environmental requirements of the development application procedures.			
Subdivision Regulations	Yes	Chapter 32 (Land Subdivision)	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: The purpose of the Township's Land Subdivision ordinance is to provide rules, regulations, and standards to guide land subdivision in the Township in order to promote its public health, safety, convenience and general welfare. As part of the application process, applicants must include all existing streets, water courses, floodplains, wetlands, and other environmental sensitive areas within 300 feet of the site in the application and site plan.			
Site Plan Regulations	Yes	Chapter 25 (Land Use Regulations)	Planning Board and Zoning Board of Adjustment
Impact on Risk Reduction: For minor site plans, an application must include the following information on a map: the number of natural and man-made features so that the subject property can be located in the field. For major site plans, the application and maps must include soil survey data indicating soil type, general constraints ,and depth to bedrock; finished floor elevation of all building floors with direct access to the outside; environmental impact studies; and storm drainage details. As part of the application process, applicants must include all existing streets, water courses, floodplains, wetlands, and other environmental sensitive areas within 300 feet of the site in the application and site plan. All site plans and construction documents for any development are subject to the requirements of the Township's floodplain management regulations (Chapter 24).			
Stormwater Regulations	Yes	Chapter 25 (Land Use Regulations), Section 29 (Stormwater Control)	Department of Public Works & Engineering
Impact on Risk Reduction: The purpose of the Township's stormwater regulations is to establish minimum stormwater management requirements and controls for major development. This applies to non-residential major developments and aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards of N.J.A.C. 5:21. The overall scope and purpose of stormwater control in the Township is achieve flood control, groundwater recharge, and pollutant reduction through the use of stormwater management measures.			
Floodplain Regulations	Yes	Chapter 24 (Floodplain Management Regulations), last amended July 11, 2023	Construction Official
Impact on Risk Reduction: The purpose and objectives of this regulation is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of			

Plan Name	Capability in Place? (Yes/No)	Code Citation (code chapter, date)	Department/Agency Responsible
comprehensive regulations for management of flood hazard areas in the Township. The Township established a local design flood elevation (LDFE) using best available data and the Flood Hazard Area Control Act minimum Statewide elevation requirements for lowest floors in A, Coastal A, and V zones, ASCE 24 requirements for critical facilities as specified by the building code, plus additional freeboard. For construction in the flood hazard areas, all new construction and substantial improvement of habitable buildings have their lowest floor, including basement and utilities, be elevated to or above the LDFE (at least one foot above the LDFE).			
Environmental Protection Regulations	Yes	Chapter 21 (Environmental Regulations), Section 1 (Air Pollution) and Section 15 (Private Storm Drain Inlet Retrofitting); Chapter 31 (Tree Protection Ordinance)	Department of Public Works & Engineering
Impact on Risk Reduction: Chapter 21, Section 1 is the air pollution code for the Township. The purpose of this code is to minimize air pollution and prohibit excessive emission, establish standards for the installation, maintenance, and operation of equipment and appurtenances relating to combustion which is a source of air pollution. Chapter 21, Section 15 is the private storm drain inlet retrofitting code for the Township. The Township requires the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Township of West Orange so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply. Chapter 31 - Tree Protection Ordinance (2008) – the purpose this chapter to protect and foster the existence and health of trees growing within the Township's borders, to preserve the maximum possible number of trees in the development of a site or lot, to protect specimen trees, to encourage innovative design and grading to promote the protection of existing trees, and to prevent indiscriminate, uncontrolled and excessive removal and cutting of trees, as well as land use activities inconsistent with accepted arboricultural practices, which contribute to the destruction of or permanent injury to trees upon lots and tracts within the Township			
Climate Change Regulations	No	-	-
Impact on Risk Reduction:			

23.3.2 Administrative and Technical Capabilities

The table below summarizes the Township of West Orange's departments, boards, and committees that contribute to risk reduction.

Table 23-8. Departments, Boards, and Committees that Contribute to Risk Reduction

Department / Board / Committee	Description and Role in Risk Reduction
Land Use Boards (Planning Board and Zoning Board of Adjustment)	The Township's Planning Board is authorized to exercise power with regard to drafting and adopting the Master Plan for the Township; reviewing subdivision and site plan applications for permitted uses; reviewing conditional use applications; drafting recommendations as to the zoning ordinance or amendments; Redevelopment Plan; "C" Variances under certain circumstances in connection with site plans and subdivisions; and Housing Plan (Council on Affordable Housing). The Planning Board consists of nine members and two alternates and meets on the first Wednesday of each month.

Department / Board / Committee	Description and Role in Risk Reduction
Planning Department	The Department of Planning and Development is comprised of the Planning, Building/Construction Code, and Zoning Enforcement/Property Maintenance/Housing Divisions. These three divisions work collectively to ensure the safe and appropriate growth of the Township by guiding its physical, economic and social development. The Department of Planning & Development functions include: Process, review and research development applications to the Planning Board and Zoning Board of Adjustment; evaluate master plan and municipal land use regulations; prepare redevelopment needs analysis and redevelopment plans; council on affordable housing; new ordinances for development; Open Space & Recreation Committee and plan; West Orange Housing & Rehabilitation Program; Downtown West Orange Alliance; Community Development Block Grants; rent leveling board; West Orange Arts Council; Historic Preservation Commission; Section 8; enforcement of the zoning ordinance land use regulations; enforcement of the housing code; construction, fire and habitability inspections; and permit issuance.
Public Works / Highway Department	The Department of Public Works is responsible for the maintenance of Township's infrastructure, including: parks, municipal roads, public buildings and grounds, sanitary sewer lines, storm sewer lines, trees, and vehicles and equipment. The Department of Engineering is responsible for the planning, design and construction oversight of capital improvements projects to municipal roadways inclusive of storm and sanitary sewers, and other facilities within the municipal right-of-way, recreation facilities, coordination.
Construction / Building / Code Enforcement Department	The Building & Construction Department is responsible for administering and enforcing the Uniform Construction Code, State of New Jersey N.J.A.C.5:23 and Township Ordinances for all new and existing construction within the Township. These responsibilities include the issuing of all construction permits for Building, Electrical, Plumbing and Fire applications and performing the required inspections for code compliance and then issuing the proper certificate once the project has been completed.
Engineering Department	The Department of Engineering responsibilities include designing / administering township public works projects; supervising sub-contracted projects; granting certain permits; performing inspections; providing street and tax maps; and providing technical support to maintain the Township's infrastructure. Services provided by the Dept. include property deed transcripts; grading plans / drainage plans review; providing permits and inspections for sidewalk and curb, municipal road opening permits, sanitary sewer and storm connection permits, and on-street temporary dumpster parking permits; providing flood zone information based on FEMA maps; street lighting improvements; and performing traffic studies.
Parks and Recreation Department	The Township's Recreation Department provides a variety of recreation programs to its residents. The Department is responsible for administering and operating parks, playgrounds and playfields and facilities for indoor and outdoor sports, athletic and recreational

Department / Board / Committee	Description and Role in Risk Reduction
	programs and activities; sponsoring and administering cultural and recreational programs and activities in cooperation with other public and private agencies and organizations, and provide specialized programs; and working with the Department of Public Works for the maintenance and repair of public buildings and grounds used, controlled or managed for recreational purposes. Also, working with the Dept. of Engineering for the planning and design of recreational facilities.
Open Space Board / Committee	The Open Space and Recreation Committee was established in 2011 and responsibilities include the study the costs, benefits and manner of acquiring, maintaining and protecting open space within the Township's borders, report to and make recommendations to the Mayor and Council regarding its findings on at least an annual basis; preparation, maintenance, and updates of an inventory of undeveloped land within the Township, whether publicly or privately owned, and shall make such inventory available to the Township's Mayor and Council; assist the Mayor and Township Council in the identification of and application for State, Federal and private grants, low-interest loans and matching funds, and may make recommendations to the Mayor and Township Council for obtaining funding for the acquisition of land for the purpose of fulfilling the goals of the Township's Open Space Program; and the research and study the use and potential use of open space in the Township, shall review existing municipal policies regarding open space and recreation, shall seek public input, discussion and cooperation with Township elected officials, professional staff, and any consultant(s) hired by the Township to inform, advise and assist with open space and recreation matters, and shall foster the goals of the Township's Open Space Program.
Environmental Board / Commission	The Township's Environmental Commission (Green Team) and represents a range of community stakeholders (e.g., council member, business owner, county department employee, local Board of Education member, etc.). It meets monthly and is responsible for a variety of green initiatives and programming--such as the annual arbor day event—with a goal of promoting a "greener" municipality. The work of the Environmental Commission includes the following: conduct research into the potential use of municipal open space, conduct research into "green" alternatives and resources, work in accordance with the "Sustainable Element" in the Township's Master Plan, collaborate with area stakeholders (e.g., the schools) to share valuable information/programs, and provide reports on all aspects of creating a "greener" community.
Emergency Management / Public Safety Department	West Orange Office of Emergency Management is responsible for coordinating the Township's response and planning activities during major events within the Township or surrounding area. OEM brings together the public safety and administrative departments in the Township to ensure that cohesive multi-level planning is undertaken before a disaster strikes. Once an emergency or disaster is predicted or occurs OEM coordinates between different departments in the Township as well as with the County and State to ensure that the Township's response is efficient and effective. OEM ensures that all of the Township's Emergency Operations Plans (EOP) for dealing with a

Department / Board / Committee	Description and Role in Risk Reduction
	multitude of different emergencies is updated and maintained. These plans are kept current through each individual department or neighborhood plan by reviewing annually and meeting on a quarterly basis.
Fire Department	The West Orange Fire Department has been serving the Township since 1894. The West Orange Fire Department is a full-service, career department with five stations spread throughout the Township. The Dept. offers effective fire protection, emergency medical and life safety services.
Additional departments, boards, and committees	The Shade Tree Division maintains all municipal road shade trees and shade trees on municipally owned properties. Services provided include advisory services in urban forestry by Township forester; clearing and grubbing; root grinding; tree planting; tree removal; tree stumping; and tree trimming and pruning. The Sewer Division maintains and repairs more than 200 miles of storm sewers and sanitary sewers, more than 2,000 inlets and manholes, and 10 sanitary sewage pump stations. The Streets Division maintains all municipal streets and parking lots, including pavements, traffic signs, and markings. Services provided include drainage improvements; leaf removal; pothole repair, patching, and crack sealing; sign installation and repair; snow and ice removal; street resurfacing; street sweeping; traffic sign installation and repair; and traffic striping.

The table below summarizes the Township of West Orange's staff with skills and expertise that contribute to risk reduction.

Table 23-9. Technical/Staffing Capabilities

Staff	Description and Role in Risk Reduction
Planner	No
Engineer	The Township Engineer is responsible for assisting the Township with the planning, design / administration of Township public infrastructure; supervising sub-contracted projects; granting certain permits; performing inspections; providing street and tax maps; and providing technical support to maintain the township's infrastructure.
Stormwater Officer	No
Resilience / Sustainability Officer	No
Grant Writer	Millenium Strategies
Staff with benefit / cost analysis expertise	Finance Department
Staff trained in conducting substantial damage determinations	Engineering/Public Works Department
Staff trained in GIS	No
Staff that provide support to socially vulnerable populations	Social Services Department
Additional staff with skills and expertise that contribute to risk reduction	No

The table below summarizes development and permitting capabilities of the Township of West Orange.

Table 23-10. Development and Permitting Capabilities

Development and Permitting Procedure	Comment
What department or outside agency is responsible for issuing development permits?	Building Dept., Engineering Dept. and DPW
What hazard areas are tracked in development permits? (ex: floodplain, wildfire, etc.)	Flooding, wildfire, site remediation, freezing rain, snow, icing conditions, wind and hurricanes.
How does your jurisdiction inventory land available for new development?	N/A
What percentage of your jurisdiction is available for new development?	N/A. It is mostly redevelopment.

23.3.3 Fiscal Capabilities

The table below summarizes development and permitting capabilities of the Township of West Orange.

Table 23-11. Fiscal Capabilities

Financial Resource	Accessible (Yes/No)	Comment and History of Use for Hazard Mitigation
FEMA Pre-Disaster Mitigation Funding (BRIC, FMA, PDM)	Yes	-
FEMA Post-Disaster Mitigation Funding (HMGP)	Yes	The Township has applied for and received HMGP funding that included the purchase and installation of generators in 2013.
Community Development Block Grants (CDBG, CDBG-DR)	Yes	The Township has received CDBG funding for a variety of projects including road reconstruction and storm recovery.
Capital improvements funding	Yes	Part of the Township's annual budget and includes line items for projects, including mitigation projects and street improvements.
Open space acquisition programs	Yes	Through NJDEP's Green Acres Program and the Township's Trust Fund the Township has acquired land for open space purposes.
Impact fees for developers of new homes	Yes	Fees are established by resolution.
User fees for water, sewer, gas, or electric	Yes	Fees are established by resolution.
Stormwater utility fees	No	West Orange does not have a stormwater utility. Therefore, No fees.
Authority to levy taxes for specific purposes	Yes	-
Ability to incur debt through bonds	Yes	-
Other financial resources available for hazard mitigation	No	-

23.3.4 Education and Outreach Capabilities

The table below summarizes the education and outreach capabilities of the Township of West Orange.

Table 23-12. Education and Outreach Capabilities

Outreach Capability	*Description and Role in Risk Reduction*
Public warning system	The Township uses Notify Me to notify residents of emergency alerts and notifications.
Public Information Officer	Joseph Fagan Phone: (973) 325-4133; jfagan@westorange.org
Website	The Township maintains a website (https://www.westorange.org/) that is used to inform residents and provide announcements and upcoming events. The Township uses the site to provide hazard-related information when applicable.
Social media	The Township utilizes social media (Facebook, Twitter/X, Instagram, and You Tube) as another form of outreach to residents. They post weather watches and warnings, preparedness tips, public safety notices, and other important information.
Public safety campaigns	The Townships Community Service Unit provides Information, Discussion and demonstration on how residents can assist with Public Safety
Newsletters	The West Orange Recreation Department provides the community with a monthly Newsletter
Hazard education programs for schools	School Resource Officers and LEAD Instructors provide various forms of Hazard Education in all schools
Outreach to socially vulnerable populations	The Township Social Services Department has a local outreach program that includes hosting events, facility visits and participant call-in checks
Other outreach capabilities	Not at this time

23.3.5 Floodplain Administration Capabilities

The table below summarizes the floodplain administration capabilities of the Township of West Orange.

Table 23-13. Floodplain Administration Capabilities

Floodplain Administration	*Comments*
Provide an explanation of the jurisdiction's NFIP administration services (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	We review the floodplain permit applications, and inspect as required.
What local department is responsible for floodplain management?	Building and engineering
Are any staff certified floodplain managers (CFMs)?	Yes. The Municipal Engineer.
Does the jurisdiction maintain a list of properties that have been damaged by flooding?	In the near future
Does the jurisdiction maintain a list of property owners interested in flood mitigation?	No
How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	Unknown
How many properties have been mitigated (elevation or acquisition)?	1
Summarize the jurisdiction's Substantial Damage determination procedures.	The Township is currently working on procedures to determine substantial damages
Summarize the jurisdiction's Substantial Improvement procedures.	The Township is currently working on procedures to determine substantial improvements

Floodplain Administration	Comments
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	No visits to date
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	No
Does the jurisdiction's administration of the floodplain exceed NFIP requirements? (freeboard, mapping, etc.)	No

23.3.6 Community Classifications

Table 23-14 summarizes the Township of South Orange's participation in community classification programs.

Table 23-14. Community Classifications

Program	Participation Status / Classification	Date Classified
FEMA Community Rating System (CRS)	Not participating	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not participating	-
NWS StormReady® Program	Not participating	-
NFPA Firewise USA®	Not participating	-
Sustainable Jersey Municipal Certification	Yes (Bronze)	October 27, 2023
Other Programs	Fire ISO Protection Class 3	2018
Does your jurisdiction plan to join or improve classification status in any programs? Please describe.	Not at this time	

Source(s): (FEMA 2024a); (NWS n.d.); (NFPA 2024); (Sustainable Jersey 2024)

23.3.7 Adaptive Capacity

Adaptive capacity is the ability of human and natural systems to prepare for, adjust to, respond to, and recover from experienced or anticipated climate impacts (U.S. Global Change Research Program 2018). The table below summarizes the capabilities that the Township of West Orange has in place and will use to prepare for changes in risk due to climate change.

Table 23-15. Adaptive Capacity for Climate Change

Adaptive Capacities	Comments
What climate change associated risks have been identified by the jurisdiction?	Flooding, Extreme Temperatures
What information does the jurisdiction use to understand potential climate change impacts?	Hazard Mitigation Plan
What plans, strategies, or ordinances does the jurisdiction have in place that address future risks from climate change?	None identified
What staff in the jurisdiction have expertise that will allow them to adapt and address future climate risks?	None at this time

Adaptive Capacities	Comments
How is the jurisdiction accounting for the future funding and resources necessary to respond to and address future climate risks?	None at this time
How does the jurisdiction educate the public on potential climate change impacts?	No outreach is currently underway

23.3.8 Capability Assessment Summary

The Township of West Orange's capabilities were reviewed to determine their overall effectiveness in reducing hazard risks. Hazard capability effectiveness was rated for each hazard of concern using the following classifications:

- *Strong*: Various capabilities to reduce risk are actively used.
- *Moderate*: Capabilities may exist, but additional capabilities or improvements are needed to reduce risk.
- *Weak*: Capabilities to reduce risk do not exist or could use substantial improvement.

The Township of West Orange determined the following hazard capability effectiveness ratings.

Table 23-16. Township of West Orange Hazard Capability Effectiveness Rating

Hazard	Capability Effectiveness Rating
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic (Landslide)	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

23.3.9 Opportunities to Improve Capabilities and Integration

The following have been identified as opportunities to improve capabilities and integration in the Township of West Orange:

- By December 2027, Watershed Improvement Plans are required through the MS4 permits in New Jersey. At the time of this plan update, the Township does not have a Watershed Improvement Plan in place and identified this as a mitigation action for the 2025 HMP.
- The Township does not have a Substantial Damage Response Plan. Because the Township is in the National Flood Insurance Program (NFIP), they are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. By having a Substantial Damage Response Plan, it

will provide an outline to the Township for making Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.

- The Township does not have a disaster debris management plan at this time. However, the effects of previous natural disasters have shown just how important it is to have one. By developing and implementing a debris management plan and procedures, the Township will be able to remove debris quickly and effectively after a disaster, helping the community get back to normal faster and strengthening its ability to bounce back in the future.
- The Township's current natural hazard outreach program needs improvements to focus on natural disasters and preparedness.

23.4 Jurisdictional Hazard Ranking

The risk assessment and capability assessment for the Township of West Orange were used to develop preliminary hazard rankings for each of the identified hazards of concern. Preliminary hazard rankings considered the probability of occurrence for each hazard; its potential impacts on people, property, and the economy; potential changes in frequency and/or impacts from future climate conditions; and the Township's reduction of risk through current capabilities.

The Township of West Orange reviewed the preliminary hazard rankings and then considered any additional local factors. During the review of the preliminary rankings, the Township discussed the following local factors that led to modifying the hazard rankings:

- The Township agreed with the calculated hazard rankings.

Table 23-17. Township of West Orange Hazard Rankings

Hazard	*Hazard Ranking*
Disease Outbreak	Low
Drought	Medium
Earthquake	Low
Extreme Temp	Medium
Flood	Medium
Geologic (Landslide)	Low
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	High

23.5 Jurisdictional Mitigation Strategy

23.5.1 Status of Previous Mitigation Strategies

The following table provides the status of the mitigation actions identified in the previous HMP. Actions that are in progress will be carried forward and included in the proposed actions for the 2025 HMP. Actions

that resulted in the establishment of new ongoing capabilities are indicated as such and previously presented in the 'Capability Assessment' earlier in this annex.

Table 23-18. Status of Previous Mitigation Actions

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
2020-W ORANGE-001	**Backup power for continuity of operations of critical facilities:** Complete the generator projects in the following locations: a. Town Hall (In Progress) b. Fire Station #2. (In Progress) c. Fire Station #3 (In Progress) d. High School (Partially complete) e. Wastewater sewage pump stations (No progress) f. Police Dept (No progress) g. Roosevelt Middle School (No progress) h. Alex Caprio Animal Control Shelter. (No progress) i. Public library (Future – moving)	Township OEM	a. Completed b. Completed c. Completed d. Contact Board of Ed. e. Completed at Cherry Lane, Grande, Dogwood & Vitro Pump Stations f. Completed (on-site) g. Contact Board of Ed. h. No Generator i. No Generator	Yes – include generator actions for the facilities that still need generators (King Rd. and Short Hills Pump Stations)	Yes. No Generator backup power at King Rd and Short Hills Pump Stations.
2020-W ORANGE-002	**Mitigation of vulnerable structures via retrofit or acquisition/relocation to protect structures from future damage, with repetitive loss properties as a priority:** Phase 1: Identify properties that flood and determine most cost-	Municipal OEM, FPA	No Progress	Include in the 2025 HMP – there are 13 RL properties	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	effective mitigation option (in progress). Phase 2: Work with property owners to implement selected action with available funding from FEMA and local match for properties in the following areas: • East Branch of Rahway River • West Branch of Rahway River • North Branch Wigwam Brook • Peckman River.				
2020-W ORANGE-003	**Develop and implement an enhanced all-hazards public outreach, education, and mitigation information program on natural hazard risks and actions residents can take for preparedness and mitigation, including flood insurance:** Provide general natural hazard risk, preparedness, mitigation, and NFIP information on the website, in newsletters, and mailings, through social media channels, and email blasts. Post flyers at Town Hall. Distribute	Township Administrator, Public Information Officer	Ongoing Capability	Yes.	Anytime there is information available from the State, utility companies, etc. it is advertised in the Township's website, social media, etc.

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)? Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	information at civic meetings. Administer public surveys. Post available natural hazard risk mapping. Enhance public outreach to residents in NFIP floodplain areas to inform them of annual grant opportunities. Provide public education on eliminating inflow from sump pump and roof leader discharges.				
2020-W ORANGE-004	**Inventory of impacted properties and structural improvements to the sanitary sewer system:** Make structural improvements to the sewer system Township-wide, including identifying properties susceptible to sewage backups during flooding events and providing a menu of BMPs to implement.	Dept. of Public Works and Engineering	In Progress. One property at 9 Nelson Ct with frequent backups at every heavy rainstorm event is being installed a small pump station. Report of concerns are received from residents when there is a sewer backup in their homes.	No. Improvements are on private property.	-
2020-W ORANGE-005	**Master Plan and HMP Integration:** Include discussion of Essex County HMP in next update.	Planning Board	No Progress. Updated every 10 years. It was last updated in 2019.	No – the plan is updated every 10 years and the Township will integrate the HMP accordingly during the next update	-
2020-W ORANGE-006	**Orange Water Pumping Station-Well 6:** Determine the	Orange	No Progress – owned/operated by Orange City Township	No	-

Project Number	Project Name and Description	Responsible Party	Status (No Progress, In Progress, Complete, Ongoing Capability) Provide a brief explanation of implementation process.	Should the action be included in the 2025 HMP (i.e., there is still a need, this is still a priority)?	
				Yes/No If no, explain why not including in 2025 HMP.	If yes, provide an update on the problem and solution.
	extent of flooding expected at the well and plan mitigation.				
2020-W ORANGE-007	**Orange Reservoir Dam:** Update the EOP to include a review of EAPs from the City of Orange.	Orange	No Progress – owned/operated by Orange City Township	No	-
2020-W ORANGE-008	**Solomon Schechter Day School:** Discuss with Solomon Schechter Day School that it is located in the floodplain.	Floodplain Manager	No Progress	No	-

23.5.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Township of West Orange identified the following mitigation efforts completed since the last HMP:

- West Orange is a bronze-certified Sustainable Jersey community, certified on October 27, 2023.
- The Township of West Orange adopted a Sustainable Checklist Ordinance and incorporated the Sustainable Checklist into the Re-Examination of the Master Plan. The Sustainable Checklist must be completed before any Zoning or Planning Board applications submitted to the Planning/Zoning Department to be deemed complete. It focuses on incorporating green energy and water conservation measures into development, including rooftop gardens or other roofing materials to reduce urban heat island effects and implementing sustainable stormwater systems.

23.5.1 Identified Mitigation Needs

Following review of the risk assessment, capability assessment, and previous mitigation strategies, the Township of West Orange identified the following issues that require mitigation.

- King Road and Short Hills pump stations lack backup power and cannot function properly during power outages.
- The Township's current natural hazard outreach program needs improvements to focus on natural disasters and preparedness.
- The Township does not have a disaster debris management plan in place.
- Frequent flooding events in the Township damages structures and there are 13 repetitive loss properties.
- As an NFIP community, the Township does not have a substantial damage response plan in place.
- By December 2027, the Township will be required to have a watershed improvement plan in place as part of NJDEP's MS4 permit process.

23.5.2 Proposed Hazard Mitigation Strategies for the 2025 HMP

Proposed mitigation actions were developed for each of the above identified mitigation needs following a review of a comprehensive range of available mitigation options. The Township of West Orange's proposed hazard mitigation strategy for the 2025 HMP represents a diversity of mitigation action categories (discussed in Section 17). In addition, the proposed hazard mitigation strategy addresses each of the hazards of concern for the 2025 HMP as displayed in the table below.

Table 23-19. Township of West Orange 2025 Mitigation Actions by Hazard Addressed

Project Number	Project Name	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazards	Severe Weather	Severe Winter Weather	Wildfire
2025-Township of West Orange-01	Backup Power for Pump Stations - King Road and Short Hills	X	X	X	X	X	X	X	X	X
2025-Township of West Orange-02	Natural Hazard Outreach Program	X	X	X	X	X	X	X	X	X
2025-Township of West Orange-03	Disaster Debris Management Plan		X	X	X	X	X	X	X	X
2025-Township of West Orange-04	Mitigate flood-prone properties, including RL/SRL properties					X		X		
2025-Township of West Orange-05	Substantial Damage Response Plan		X	X	X	X	X	X	X	X
2025-Township of West Orange-06	Watershed Improvement Plan	X	X		X	X		X		

The prioritization criteria provided in Volume 1, Section 17 (Mitigation Strategy) identify 14 prioritization/evaluation criteria to complete the prioritization of mitigation initiatives. For each mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 23-20. Township of West Orange 2025 Mitigation Action Prioritization

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2025-Township of West Orange-01	Backup Power for Pump Stations - King Road and Short Hills	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	Medium
2025-Township of West Orange-02	Natural Hazard Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	0	0	12	High
2025-Township of West Orange-03	Disaster Debris Management Plan	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High
2025-Township of West Orange-04	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-Township of West Orange-05	Substantial Damage Response Plan	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	Medium
2025-Township of West Orange-06	Watershed Improvement Plan	1	1	1	1	0	0	1	1	1	1	1	1	0	1	11	High

Note: Volume 1, Section 17 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

2025-Township of West Orange-01: Backup Power for Pump Stations - King Road and Short Hills

Lead Agency:	Township Engineer and DPW
Supporting Agencies:	Township Council
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	The Sewer Division maintains and repairs more than 200 miles of storm sewers and sanitary sewers, more than 2,000 inlets and manholes, and 10 sanitary sewage pump stations. The pump stations are essential to the community. Two of the pump stations, King Road and Short Hills, do not have backup power. During power outages, these pump stations cannot operate properly and impact the Township's continuity of operations.
Description of the Solution:	The Township DPW will work with the Township Engineer to determine the appropriate size generators to install at each pump station. Once identified, the Township will purchase and install a generator at each pump station (King Road and Short Hills).
Estimated Cost:	$100,000+
Potential Funding Sources:	HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Annual Budget
Implementation Timeline:	Within 5 years
Goals Met:	1, 2, 6, 7
Benefits:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Socially Vulnerable Populations:	Protection of critical facilities provides an opportunity for first responders, utility workers, and emergency managers to stage and deploy resources to vulnerable and hazard prone areas.
Impact on Future Development:	This action results in protection of a critical facility that could support future development.
Impact on Critical Facilities/Lifelines:	This action protects public health and safety and ensures continued operation of a critical facility and its essential functions during a power outage.
Impact on Capabilities:	This action ensures continuity of operations to maintain capabilities.
Climate Change Considerations:	Climate change is likely to increase severe weather events such as flooding, wind, and extreme temperatures that result in power failures. This action accounts for a likely increase in power failure events.
Mitigation Category:	Structure and Infrastructure Projects
CRS Category:	Emergency Services
Priority:	Medium

Alternatives:

Action	Evaluation
No Action	Current problem continues
Microgrid	Costly and difficult to implement.
Solar panels and battery backup	Solar power is unlikely to be able to provide battery power for extended power failure events.

2025-Township of West Orange-02: Natural Hazard Outreach Program

Lead Agency:	Township OEM
Supporting Agencies:	Township Council
Hazard(s) of Concern:	Disease Outbreak, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	The Township does not have a clear public outreach and education program to help residents understand the risks of natural hazards and how to prepare for them. This lack of information makes the community more vulnerable to natural disasters, as residents might not know how to respond properly. Creating a strong outreach and education program will provide residents with the knowledge and resources they need to safeguard themselves and their homes, which will improve the overall safety and resilience of the community.
Description of the Solution:	Develop and implement a comprehensive public outreach and education program about natural hazard risks. This program will inform residents about how to prepare for and mitigate these risks. The Township will share information on specific hazards, preparedness steps, mitigation measures, and responses during hazard events.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	1 year
Goals Met:	1, 2, 3, 4, 5, 6, 7
Benefits:	Creating a strong outreach and education program will provide residents with the knowledge and resources they need to safeguard themselves and their homes, which will improve the overall safety and resilience of the community.
Impact on Socially Vulnerable Populations:	This action will include different methods to reach all residents, including socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	The action will increase the Township's outreach capabilities
Climate Change Considerations:	Due to changing climates and increase in frequency of natural disasters, this action will provide information to residents of current and future hazards.
Mitigation Category:	Education and Awareness Project
CRS Category:	Emergency Services, Public Education and Awareness
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Encourage residents to educate themselves	Residents may not be aware of where to access information
Ask non-profits to conduct outreach	Non-profits may be unable or unwilling to provide outreach

2025-Township of West Orange-03: Disaster Debris Management Plan

Lead Agency:	Township OEM and DPW
Supporting Agencies:	Township Council
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, and Wildfire
Description of the Problem:	Major disaster events can result in large amounts of debris that overwhelm normal trash collection operations. Depending on the amount generated, temporary staging areas for debris collection may be needed. The municipality does not have a disaster debris management plan in place. During a disaster that results in debris, a plan with outlined responsibilities is needed to adequately address post-disaster cleanup operations.
Description of the Solution:	The municipality will develop a disaster debris management plan. This plan will establish procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner. The plan will identify responsibilities for execution of the plan. The plan will align with permitted temporary collection areas.
Estimated Cost:	Staff Time
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years
Goals Met:	2, 3, 5, 6
Benefits:	The action will result in increased quicker and more efficient cleanup after disaster events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities/Lifelines:	N/A
Impact on Capabilities:	The action will result in increased post disaster capabilities.
Climate Change Considerations:	Climate change may result in an increase in the frequency and severity of weather-related disaster events. This action will increase the capabilities to respond to these events.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services
Priority:	High

Alternatives:

Action	Evaluation
No Action	Current problem continues
Rely on federal cleanup	These services may or may not be available
Rely on state cleanup	These services may or may not be available

2025-Township of West Orange-04: Mitigate flood-prone properties, including RL/SRL properties

Lead Agency:	Floodplain Administrator
Supporting Agencies:	Property Owners
Hazard(s) of Concern:	Flood, Severe Weather
Description of the Problem:	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 13 repetitive loss properties, but other properties may be impacted by flooding as well.
Description of the Solution:	There are residential homes in the Township that flood as a result of stormwater flooding. Because they are not in the floodplain, there are limited funding resources available to mitigate the homes. The Township will complete a study of the stormwater system in the areas where homes flood to identify improvements to mitigate flood risk to the homes and areas. Complete feasibility studies in floodprone areas in the Township to identify mitigation efforts to reduce flood risk. Majority of risk is related to stormwater systems and those systems will need improvements to reduce flood risk.
Estimated Cost:	High
Potential Funding Sources:	FEMA BRIC, FMA and HMGP; Local match from property owners
Implementation Timeline:	3 years
Goals Met:	1, 2, 4, 7
Benefits:	Eliminates flood damage to homes and residences, which creating an open space for the municipality and increasing flood storage.
Impact on Socially Vulnerable Populations:	Removing homes from the floodplain immediately removes the risk to life and property. Socially vulnerable populations may be able to have houses elevated or acquired when it would otherwise be unaffordable.
Impact on Future Development:	Increased outreach to homeowners within a flood prone area will limit construction in areas that are prone to hazard events. Homes may be acquired, which will remove those structures from the floodplain and prevent future development on those sites.
Impact on Critical Facilities/Lifelines:	Removing structures from the floodplain decreases the demand on utilities and emergency services including health and medical, law enforcement, and search and rescue.
Impact on Capabilities:	Removing the risk from the immediate floodplain via acquisition of properties will free up resources for search and rescue and other emergency operations as needed.
Climate Change Considerations:	Climate change is likely to increase the frequency and severity of severe rainfall, flash flooding, riverine flooding, and coastal flooding from sea level rise and storm surge events. Removing structures from the floodplain will reduce the response and re
Mitigation Category:	Structure and Infrastructure Project
CRS Category:	Property Protection, Emergency Services
Priority:	High
Alternatives:	**Action** / **Evaluation**
	No Action / Current problem continues
	Levee around floodplain / Costly, not enough room
	Deployable flood barriers / Requires deployment. Residents may not have adequate time to deploy, especially those who are elderly or disabled.

2025-Township of West Orange-05: Substantial Damage Response Plan

Lead Agency:	Engineer, Building/Construction, DPW
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire
Description of the Problem:	Officials in NFIP-participating communities are responsible for regulating all development in SFHAs by issuing permits and enforcing local floodplain requirements, including Substantial Damage, for the repairs of damaged buildings. After any disaster event, they must: • Determine where the damage occurred within the community and if the damaged structures are in an SFHA. • Determine what to use for "market value" and cost to repair; uniformly applying regulations will protect against liability and promote equitable administration. • Determine if repairing plus improving the damaged structure equals or exceeds 50% of the structure's pre-damage value. • Require permits for floodplain development. The municipality does not have a Substantial Damage Management Plan in place, nor do they have a formal process in place when conducting substantial damage determinations. The municipality is in need of a formal process and plan to provide a framework for conducting such inspections and determinations.
Description of the Solution:	The municipality will develop a Substantial Damage Management Plan, following the six step planning process in 2021 Developing a Substantial Damage Management Plan (https://crsresources.org/files/500/developing_subst_damge_mgmt_plan.pdf). This plan will outline responsibilities for Substantial Damage determinations, determining market value, and permit approval processes following a disaster event.
Estimated Cost:	Low
Potential Funding Sources:	Municipal budget
Implementation Timeline:	Within 5 years to develop the plan; ongoing to maintain and update the plan
Goals Met:	2, 5
Benefits:	This plan will provide a process in making Substantial Damage Determinations and allow the municipality to make these determinations and meet NFIP requirements more quickly.
Impact on Socially Vulnerable Populations:	Substantially damaged structures are required to be rebuilt to be compliance with current codes. Socially vulnerable populations may not have the financial means to make these improvements. This action may allow for the identification of potential resourc
Impact on Future Development:	A Substantial Damage Management Plan would include all existing, current, and future development in the municipality.
Impact on Critical Facilities/Lifelines:	A Substantial Damage Management Plan would include all critical facilities and lifelines in the municipality.
Impact on Capabilities:	This action improves disaster recovery capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. This action provides additional planning for disaster recovery.
Mitigation Category:	Local Plans and Regulations
CRS Category:	Emergency Services, Public Education and Awareness, Climate Resiliency, Community Capacity Building
Priority:	Medium
Alternatives:	**Action** / **Evaluation** No Action / Current problem continues

	Rely on state or federal resources following disaster events	Resources may not be available during major widespread events
	Establish MOUs with outside agencies to conduct Substantial Damage Determinations	A plan outlining responsibilities is still necessary to prevent missing important requirements

2025-Township of West Orange-06: Watershed Improvement Plan

Lead Agency:	Borough Engineer, DPW, and Council
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Disease Outbreak, Drought, Extreme Temperature, Flood, and Severe Weather
Description of the Problem:	The New Jersey Department of Environmental Protection (NJDEP) MS4 permits require that stormwater permittees develop or take part in the development of a regional Watershed Improvement Plan (WIP) to identify water quality and quantity problems affecting their subwatersheds and determine what improvements can be made to reduce their contribution. The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.
Description of the Solution:	The municipality will develop a Watershed Improvement Plan. The plan will be organized in three phases. Phase 1 is to complete a stormwater inventory by mapping required features. Phase 2 will evaluate the information found in the first phase to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In the final phase, the municipality will identify which of the potential quality and quantity improvement projects it will choose to implement, and on what schedule. Cost-effective projects identified in the WIP will be implemented.
Estimated Cost:	Medium for planning, High for implementation of identified projects
Potential Funding Sources:	MS4 Technical Assistance Program for Municipalities (NJ DEP), BRIC, HMGP, FMA (for activities benefiting NFIP-insured structures) , Municipal budget
Implementation Timeline:	Completion required by December 2027
Goals Met:	1, 2, 5, 7
Benefits:	Improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Loads (TMDLs), and to address stormwater flooding to protect human health and safety, and the environment. Secondary benefits will be redu
Impact on Socially Vulnerable Populations:	TBD by identified projects
Impact on Future Development:	The WIP will take into account stormwater infrastructure needs in areas identified for development and redevelopment.
Impact on Critical Facilities/Lifelines:	Stormwater improvements will reduce flooding of transportation lifelines.
Impact on Capabilities:	This action will improve stormwater capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of heavy rainfall events that will overwhelm the current stormwater system. This action will increase the capacity of the stormwater system.
Mitigation Category:	Natural Resource Protection
CRS Category:	Structural Projects, Climate Resiliency
Priority:	High

Alternatives:	**Action**	**Evaluation**
	No Action	Current problem continues
	Pursue on regional basis	Coordinated effort may be difficult in the timeframe available. Cost likely to remain consistent.
	Remove MS4 permit to bypass WIP requirement	Not allowable

23.6 Jurisdictional Hazard Mitigation Team

Table 23-21. Jurisdictional Points of Contact

Primary Point of Contact		*Alternate Point of Contact*	
Name and Title:	Zayibeth Carballo, Municipal Engineer	Name and Title:	Lou Reynolds, Public Works Director
Address:	25 Lakeside Avenue, West Orange, NJ 07052	Address:	25 Lakeside Avenue, West Orange, NJ 07052
Phone Number:	(973) 325-4160	Phone Number:	(973) 325-4067
Email:	zcarballo@westorange.org	Email:	lreynolds@westorange.org
NFIP Floodplain Administrator			
Name and Title:	Zayibeth Carballo, Municipal Engineer		
Address:	25 Lakeside Avenue, West Orange, NJ 07052		
Phone Number:	(973) 325-4160		
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Table 23-22. Annex Contributors

Name and Title	*Contributions to Annex and Planning Process*
Zayibeth Carballo, Municipal Engineer	Attended meetings, provided input for the Township's annex, identified mitigation strategies, reviewed the draft annex
Lou Reynolds, Public Works Director	Attended meetings, provided input for the Township's annex, identified mitigation strategies, reviewed the draft annex
Nick Allegrino, OEM Coordinator	Attended meetings, provided input for the Township's annex, identified mitigation strategies, reviewed the draft annex
Edwin Diaz, Sergeant/Deputy Coordinator	Attended meetings, provided input for the Township's annex