

1 – ABERDEEN TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Captain Craig Hausmann	Administrative Division Commander	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2, Coordination, Input and Review
Ron Osadacz	Deputy OEM Coordinator	Coordination, Input and Review
Brendan Parker	Deputy OEM Coordinator	Coordination, Input and Review
Bryan Russell	Deputy OEM Coordinator	Coordination, Input and Review
Roger Peter	Operations Division Commander	Coordination, Input and Review
Duane Patterson	Director of Public Works	Coordination, Input and Review
Matthew Lloyd	Chief of Police	Coordination, Input and Review

COMMUNITY PROFILE

Overview

The Township of Aberdeen is a suburban community with a land area of 5.4 square miles. Aberdeen is located, along with eight other municipalities, on the Raritan Bayshore. Aberdeen is a predominantly dense residential community with commercial uses along New Jersey Routes 34 and 35. The Aberdeen-Matawan Train Station is at the southern border of the Township and is serviced by the North Jersey Coast Rail Line. Commuters may also utilize the ferry in nearby terminals at South Amboy and Perth Amboy. A 9-mile section of the 24-mile-long Henry Hudson Trail, which was built on the former Central Railroad of New Jersey right-of-way, connects Aberdeen to Atlantic Highlands, traversing five other municipalities across the Bayshore. Freneau Woods Park of the Monmouth County Park System is a 313-acre park located in the south-eastern portion of the Township that is detached from main Aberdeen. The Township has a Safe Routes to School Bronze Rating.

Land Use, Development, & Growth

Aberdeen is a predominantly residential community. Since 2015, the Township experienced negligible change in its land use. Some marginal land use composition changes include a 17 –acre increase in the Township’s barren land, an 11 –acre increase in its urban/developed land, and a 24 –acre decrease in forested land. From 2015 to 2020, urban/developed land accounted for nearly 67 percent of the total land in the Township, while wetlands and forested land made up approximately 17 percent and 16 percent respectively of its total area.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	33.2	33.2	>0%
Barren Land	43.3	60.1	39%
Forest	447.1	422.7	-5%
Urban	2392.4	2403.2	>0%
Water	94.1	94.0	>0%
Wetlands	603.5	600.3	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Overall, in the past five years, approximately 476,000 new square footage was added through 741 new building permits. Most notably, there have been four recent major development projects in the Township. The first was Ryan Homes at the Anchor at Glassworks. These are brand-new townhomes. A new residential care home facility called Dove’s Haven was also built with 36 units on five acres. Hidden Village Apartment Complex was also recently constructed within the Township. This added over 100 apartment units. Additionally, 12 homes were put on Meinzer Street within the Township. Out of these developments, Dove’s Haven may fall within the New Jersey Flood Hazard Area as determined by FEMA BFE +3, method 3 from the NJ Flood Hazard Area Control Act.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

There are development plans for a new waterfront construction for Monmouth University and the NWSE Cooperative. The development site is approximately 26 acres and part of the site is located within special flood hazard areas subject to inundation by the 1% annual chance flood.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Aberdeen Township has an estimated total population of 19,234, a nearly 5% increase (estimated 4.7% growth) since the 2013-2017 ACS survey period. This growth has notably impacted the built environment of Aberdeen, with increased building permits and residential development noted above. The Township’s population is estimated to be 4.7% under age 5, and 15.2% over age 65. With over 15% of Aberdeen’s population over age 65, and the new development of residential care home facility units, hazard mitigation may take an aging population into consideration.

There are two block groups identified as potentially vulnerable due to indicators of overburden (OBC) in Aberdeen; both meeting criteria of vulnerable *Minority* populations. There are no areas of the Township meeting designation criteria for CDRZ or CEJST identification of vulnerable populations.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	19,234
Population Change since 2017	4.69%
Percent of Population Age < 5	4.7%
Percent of Population > 65	15.2%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
Coastal Erosion	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

The Township ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Coastal erosion has been elevated from medium to high concern in the latest HMP update. This change is attributed to several recent storms and flooding events that have significantly impacted the Township. The absence of a sea wall in the area has exacerbated these issues. Flooding has been ranked as a high concern, particularly near the shore. During high tide and storms, the entire roadway near the shore is prone to flooding. The lack of a sea wall further contributes to severe flooding on the roadway. Dam failure is not a concern as there are no dams within the Township. Similarly, landslides are not a major issue due to the relatively flat topography of the Township.

Significant Hazard Events Since Last Plan Update

In the past five years, all significant hazard events reported in Aberdeen Township have been related to flooding. The most affected areas include Beach Drive by the sea wall and Cliffwood Beach Waterfront Park. The roadway near Veterans Memorial Park also experiences perpetual flooding, partly due to the high level of impervious surfaces. Additionally, high tide events cause severe flooding near Lakeshore Drive, Greenwood Avenue, and Lakeview Way, as there is no sea wall in these areas.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to exacerbate existing risks and introduce new hazards for the Township of Aberdeen. Rising sea levels and increased frequency of severe weather events, such as hurricanes and nor'easters, will likely lead to more frequent and severe flooding, particularly in coastal areas. The absence of a sea wall in certain parts of the Township will further amplify the impact of storm surges and high tides, resulting in significant damage to infrastructure and property. Additionally, higher temperatures and changing precipitation patterns may increase the likelihood of extreme weather events, such as heatwaves and heavy rainfall, which can strain the Township's resources and emergency response capabilities.

Moreover, coastal erosion, already a high concern, may accelerate due to rising sea levels and increased wave action, threatening the stability of the shoreline and nearby properties. The Township's wetlands and forested areas, which play a crucial role in mitigating flood risks, may also be adversely affected by changing climate conditions, reducing their effectiveness as natural buffers.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Aberdeen Township	
Initial FIRM Date	3/18/85
Effective FIRM Date	6/20/2018
Number of Policies In-Force:	72
Total Losses:	71
Total Payments:	\$2,551,726.38
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	6
RL – Total Paid:	\$76,802.16
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	13
SRL – Total Paid:	\$719,269.13

Source: FEMA Policy and Loss Data, Community Status Update, August 2024

Vulnerability of the Built Environment

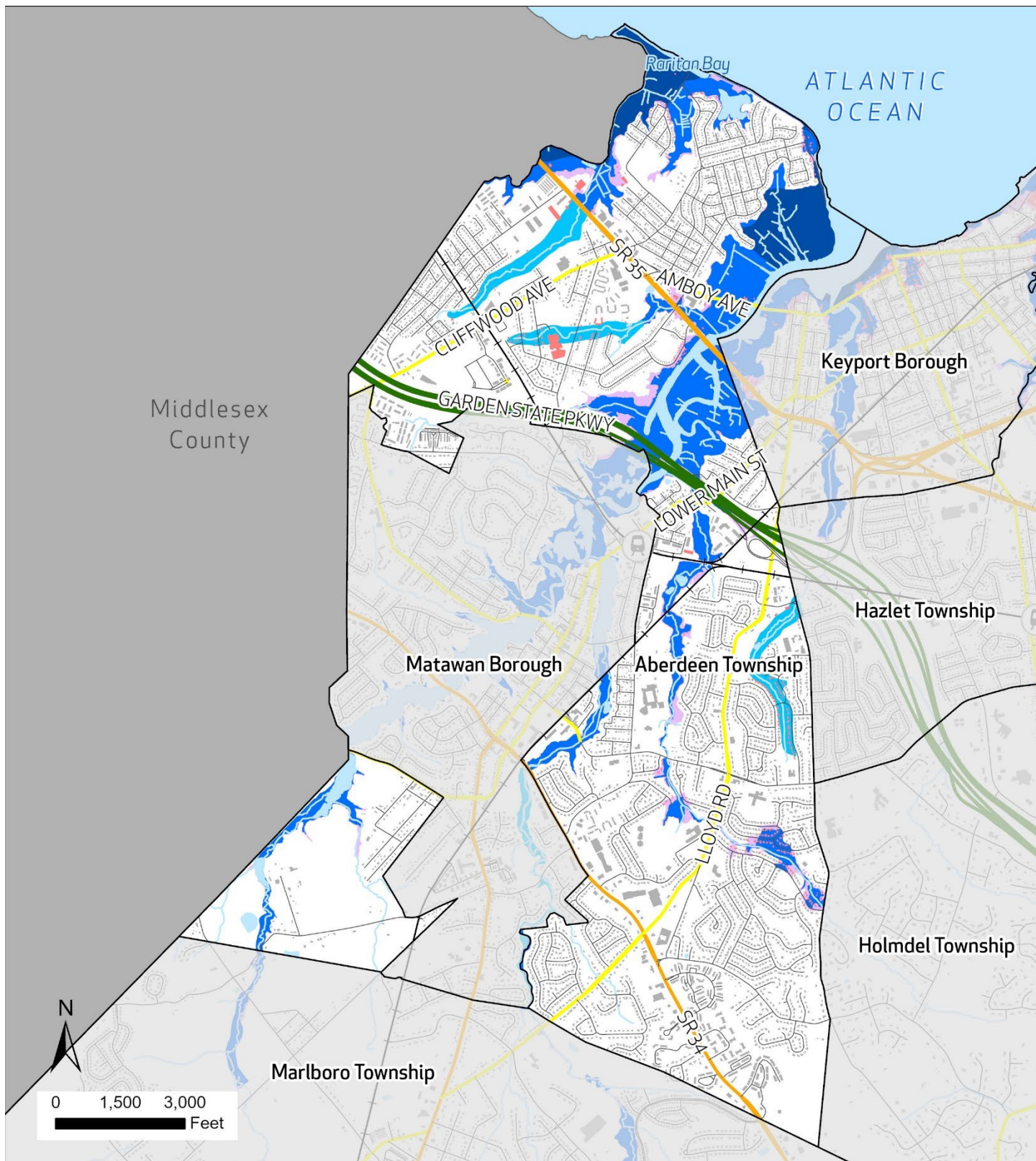
The Special Flood Hazard Area (SFHA) in Aberdeen Township is primarily located adjacent to the streams that pass through the borough such as Mohingson, Whale, and Wilkinson Creeks, as well as the areas adjacent to the Raritan Bay, especially where the aforementioned creeks flow into the bay. Approximately 17.5 percent of the total area of Aberdeen lies within the 1% annual chance flood zone as defined by FEMA. An additional 2.4 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 63.1 percent of Aberdeen is considered developed. Of the developed parcels of the town, 7.2 percent fall within the 1% annual chance flood zone and 1.9 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	7.2%	1.9%	1.8%
Exposed Land Area	17.5%	2.4%	10.0%

During the planning process, Aberdeen identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Aberdeen identified 23 total facilities. Of these facilities, none were located in the floodplain or in areas that may be affected by sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number Affected 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk

Aberdeen Township

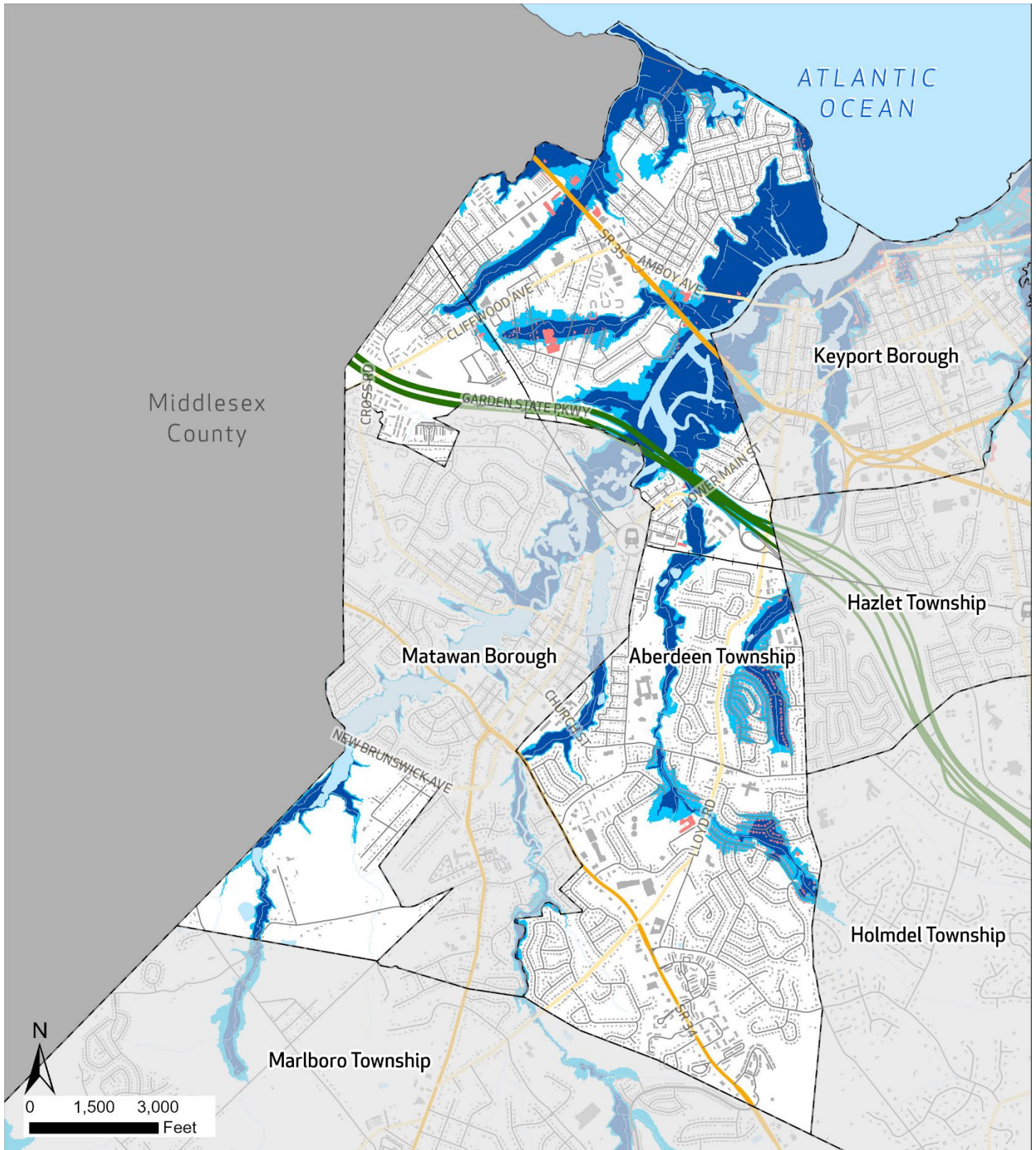
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Rail Lines
- NJTransit Rail Station
- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Aberdeen Township

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Garden State Parkway
- Railroad



NJ Transit Rail Station



Municipal Boundaries



Water

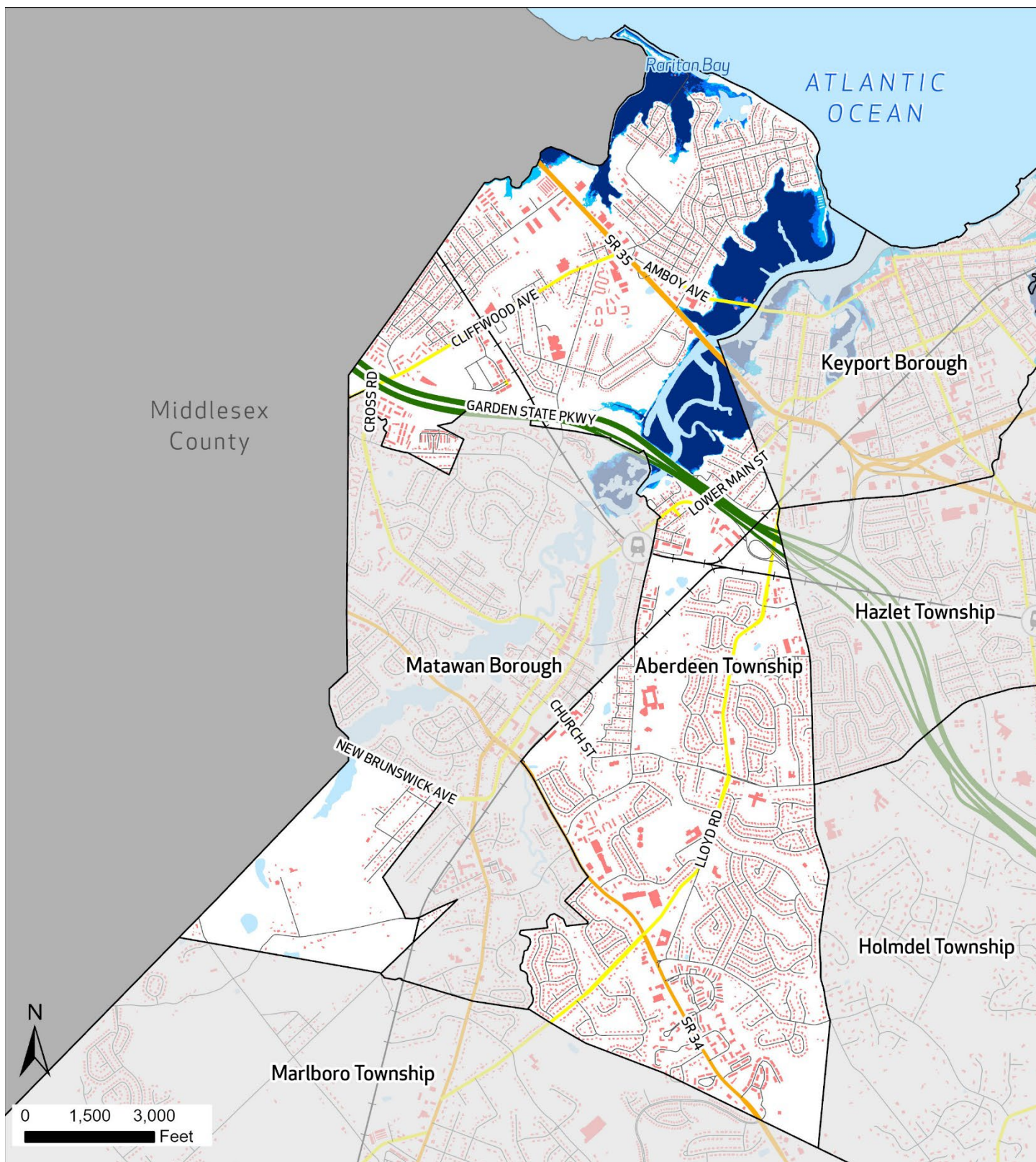


Building Footprints



Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



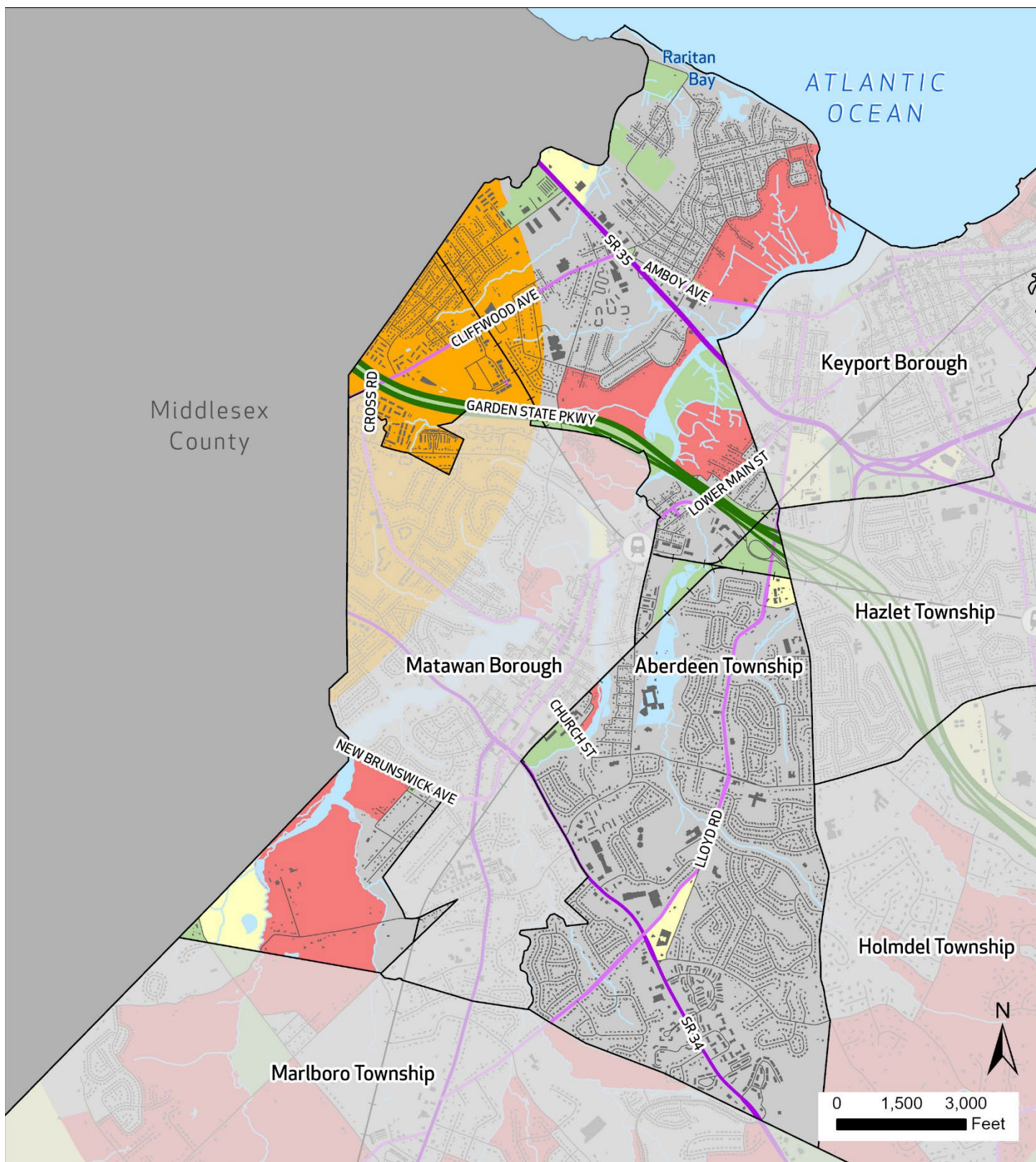
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Aberdeen Township

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads

- NJ NJTransit Rail Station
- Rail Lines
- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Aberdeen Township

- | | | |
|--|--|--|
| Interface | Garden State Parkway | <div style="position: absolute; left: -5px; top: 50%; transform: translateY(-50%);">+</div> Rail Lines |
| Intermix | Interstate Highways | NJ NJ Transit Rail Station |
| High or Medium Density Housing | State Routes | Municipal Boundaries |
| Low or Very Low Density Housing | County Routes | Building Footprint |
| No Housing | Local Roads | Water |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Aberdeen Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2025	Identify potential hazards, assess risk of those hazards, strategize mitigation
Capital Improvement Plan	X		2024	Identify and outline long-term projects and funding strategies to reduce the potential damage caused by natural disasters.
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	Identify and outline how the Township will respond to and manage potential hazardous events.
Floodplain Development Ordinance	X		2025	Will regulate development within flood-prone areas, controlling land use, construction practices, and alterations to natural floodplains.
Floodplain Management Plan	X		2025	Manage development within flood-prone areas, aiming to reduce the potential damage from flooding by controlling where structures are build.
Stormwater Management Ordinance	X		2025	Establish regulations to control stormwater runoff and reduce risk of flooding.
Stormwater Management Plan	X		2025	Will outline strategies to manage stormwater runoff within the Township.
Watershed Management Plan	x		2025	Will identify natural hazards and use proactive mitigation measures.
Sheltering Plan	x		2024	Will safely evacuate and shelter residents during a hazardous event.
Evacuation Plan	X		2024	Provide guidance for the development and operation of a viable evacuation program during any emergency or disaster.
Substantial Damage/Improved Structures Response	X		2025	Respond to incidents where cost of repairing or improving building after damage reaches or exceeds 50% of the building's market value.
Repetitive Loss Plan	X		2025	Will strategize to reduce the risk of flood damage to properties that have experienced repeated flooding.
Disaster Debris Management Plan	X		2024	Will outline procedures to efficiently and responsibly manage debris generated by a natural disaster.
Tracking elevation certificates and/or Letter of Map Change	X		2025	Will monitor and update elevation certificates.
Post-Disaster Recovery Plan	X		2024	Will outline the steps taken to rebuild and restore normal operations after a disaster has occurred.
Current/recent redevelopment plans or studies				
Community Wildfire Protection Plan		X		
Climate Adaptation Plan				
Other Plans that discuss hazard mitigation	X			See Additional Capability Assessment Information.
Other ordinance and regulation that mitigate the impacts of natural hazards				

Administrative and Technical Capabilities

Aberdeen Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		DPW Director Duane Patterson
Grant Writer	X		Millennium Strategies
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		HMH BLS, MAFAS, JFK/Hackensack
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		JCP&L, NJNG, American Red Cross, Matawan-Aberdeen Regional School District
Organizations that work with socially vulnerable or underserved populations	X		American Red Cross

Education and Outreach Capabilities

Aberdeen Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		MCSO, Social Media, Nixle, Code Red
StormReady	X		MCSO
Firewise USA	X		MCSO
Severe Weather Awareness Week	X		MCSO
Community Rating System (CRS)	X		FEMA NFIP

Financial Capabilities

Within the last five years, Aberdeen Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	X		
Other FEMA resources	X		
NJ Infrastructure Bank	X		
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities	X		
Other ongoing efforts to build additional financial capabilities	X		

Additional Capability Assessment Information:

- Aberdeen Township is a Forerunner community. Forerunner helps manage flood risk and increase and providing timely information to residents. Forerunner give residents access to relevant property-level flood risk details to inform key decisions and minimize the number of assistance requests, and make CRS participation easier.
- Aberdeen participated in the 2022 Raritan/Sandy Hook Bay Coastal Resilience Design Study undertaken by the Monmouth County Division of Planning. The study, funded by the Department of Defense, focused on evaluating existing conditions at the Whale Creek wetlands inland of Veteran's Memorial Park and identifying potential improvements Potential improvements for the Whale Creek wetlands include restoring the native tidal marsh community, establishing a maritime scrub-shrub community, and addressing the current hydraulic constriction.
- Aberdeen is one of four New Jersey municipalities currently being studied by A. R. Siders (University of Delaware) to understand how development in floodplains is regulated.
- Community Rating System (CRS) Classification:** 8
- Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township of Aberdeen is a Bayshore Community that actively seeks to establish proactive policies with the goal of increasing Aberdeen Township's resilience to natural catastrophe damage and adapting to future climate issues. The Township is currently working on a Beach Restoration Program to counteract shoreline erosion within the Township. Aberdeen Township has produced a Stormwater Management Plan, a Watershed Protection and Restoration Plan, and a Capital Improvement Plan, all of which promote a thriving community and help the town achieve its resiliency goals. Moving forward, Aberdeen Township will prioritize home, roadway, and critical infrastructure elevation, ongoing upgrades to water, sewer, and stormwater conveyance systems, and collaboration with state and local agencies on the best ways to achieve resiliency in this vulnerable coastal community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 1-1	Improve Drainage /Elevate Flood-prone Roadways	Develop specific mitigation solutions for flood-prone roadways, specifically State Highway 35 at Long Neck Creek, under leadership of NJDOT; Lakeshore Drive at Greenwood Avenue, by Township; and Amboy Avenue under the leadership of Monmouth County. Route	Flood, Nor'easter, Hurricane and Tropical Storm	N/A	NJDOT/Township Engineer/Township Manager/Monmouth County Highway Dept.	N/A	\$550,000	N/A	Completed	Municipal Budget
Action 1-2	Elevate Pumping Stations Above Current BFE or Waterproof Stations	Raise structures, or vulnerable components thereof, to either be above current BFEs, or otherwise waterproofed, to provide resiliency in future events and minimize wastewater overflows	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Township Manager, Director of Public Works, Township Engineer	N/A	N/A	N/A	Completed	Municipal Budget
Action 1-3	Repair Recreation Facilities and Sidewalks Near Seawall	Develop specific mitigation solutions for both dunes and sidewalk that would help mitigate future damages and provide a greater level of resiliency.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Township Manager, Director of Public Works, Township Engineer	N/A	\$950,000	N/A	Completed	Municipal Budget

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 1-4	Improve Communications and Create a Community Shelter for Extreme Temperatures	Develop specific mitigation solutions that help residents prepare for and mitigate loss of communications and seasonal severe temperature events by providing a community shelter. This project is intended to protect public health and safety and reduce the	Extreme Temperatures, Flood, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	N/A	Township Manager, Director of Public Works, Township Engineer	N/A	\$50,000	N/A	Completed	Municipal Budget
Action 1-5	Install Surveillance Cameras along the Sea Wall	The Township is currently installing surveillance cameras along a portion of the sea wall to monitor natural and human-based hazards. There is a need for more cameras along the second half of the sea wall.	Flood, Terrorism, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Township	Homeland Security grants, Municipal budget	\$37,000.00	1 year	Completed	Municipal Budget

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 1-6	Create a Hazard Mitigation Outreach Program	Create a mitigation outreach program that helps residents prepare for and mitigate disasters. Increase awareness of natural hazard risks and safety. Educate the public about hazard mitigation techniques and promote disaster-resistant development.	All Hazards	Medium	OEM Officer	Municipal budget	\$25,000	5 + years	Ongoing	Targeted outreach will help increase community-wide preparedness and resilience. This action addresses all hazards and with targeted outreach will address socially vulnerable populations. Climate change makes this hazard increasingly important.
Action 1-7	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on	Elevate, acquire, or floodproof 16 Residential Structures.	Flood, Nor'easter, Hurricane and Tropical Storm,	High	Township Manager, Construction Code Official, Director of Public	FEMA HMA	\$1M	5 + years	Ongoing	Flood risk can increase with climate change. By acquiring repetitive loss and severe repetitive loss properties disruption can be minimized within the Township.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties		Storm Surge		Works, Township Engineer					
Action 1-8	Prepare an Engineering Study for Nuisance Flooded Roads	The intersection of Greenwood Ave., Lakeshore Dr., and Ocean Blvd. experiences flooding during high tides, full moon, heavy rain and/or coastal storm events. An engineering study to prevent the flooding of roadways is needed.	Flood	Medium	Township	Municipal budget, FEMA HMA	\$100,000	1 year	Ongoing	These roads are the most frequently flooded in the event of a severe storm. Developing an engineering study will minimize disruption to the Township. Climate change makes this hazard increasingly important.
Action 1-9	Prepare an Engineering Study for Beach Erosion	An engineering study is needed for the constant beach erosion along the beach to the east of Cliffwood Beach Waterfront Park.	Flood, Wave Action, Coastal Erosion, Hurricane and Tropical Storm	Low	Township	Municipal budget, FEMA HMA	TBD	1 year	Ongoing	Coastal erosion is a high-risk hazard for Aberdeen Township.
Action 1-10	Conduct Creek Restoration at Whale Creek and Beach Stabilization at Cliffwood Beach	Restore salt marshes to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves while creating a maritime forest berm to help provide a buffer to Lakeshore Drive. The proposed wave attenuating devices, dune resto	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Township, County	NJCWRP, FEMA HMA, NFWF, Acres for America, NOAA, FWS, EPA	TBD	2 years	Ongoing	Floods, Nor'easter, hurricane, tropical storm, and storm surge are high risk hazards for the Township. By restoring natural buffers, risks associated with these hazards can be mitigated.
Action 1-11	Conduct Wetland Restoration at Happy Meadows	Restore marshlands to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves and build a maritime forest berm to provide a buffer to the surrounding residential area.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Township, County	NJCWRP, FEMA HMA, NFWF, Acres for America, NOAA, FWS, EPA	TBD	3 years	Ongoing	Floods, Nor'easter, hurricane, tropical storm, and storm surge are high risk hazards for the Township. By restoring natural buffers, risks associated with these hazards can be mitigated

2 – ALLENHURST BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Mike Schneider	Police Chief	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2
Donna Campagna	Borough Administrator	Development and Review Mitigation Strategy
Matthew Mariano	Zoning and Code officer	Development and Review Mitigation Strategy

COMMUNITY PROFILE

Overview

Allenhurst is a small, quiet oceanside community with a land area of 0.3 square miles. The Borough is fully developed with the majority of its land use classified as residential. The Borough's housing is predominantly single-family with a small number of multi-family units and upper story apartments located along Main Street. Allenhurst is characterized by its wide streets alongside its 19th-century housing stock. According to the Coastal Monmouth Plan (2010), Allenhurst seeks to preserve its unique character as a historic and tranquil suburban community.

Hurricane Irene (2011) and Superstorm Sandy (2012) resulted in local power outages, flooding, and damage to the Allenhurst Beach Club. The Borough took this opportunity to refocus its resilience and sustainability efforts. In June 2015, residents and tourists alike welcomed the reopening of the Beach Club. That same year, the Borough was awarded a \$200,000 grant through the Monmouth County Municipal Open Space program for improvements to Allen Avenue Park. Allenhurst was included in the U.S. Army Corp of Engineers' (USACE) Loch Arbour to Deal Beach Erosion Control Project, which was completed in late 2016.

Land Use, Development, & Growth

Allenhurst is a predominantly residential community, with urban/developed land accounting for nearly 90 percent of its total area. From 2015 to 2020, the overall land use composition of the Borough underwent negligible change; it lost 2.3 acres of water, while its barren land increased by the same acreage. Throughout this period, the share of the Borough's urban land hovered at 90 percent of the total area, covering a land area of nearly 151 –acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	5.4	7.7	43%
Forest	-	-	-
Urban	150.9	150.9	>0%
Water	10.5	8.2	-22%
Wetlands	-	-	-

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None since 2020.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In 2017, the Borough prepared its Municipal Public Access Plan, which presents the borough's vision and lays out goals and objectives for enhancing public access to its waterfront. It was adopted into the borough's Master Plan in 2020. There are a number of associated parcels for development that were identified in this plan and projects should be anticipated. For example, the Borough is planning on building twenty-three townhomes as part of the affordable housing effort behind the railroad tracks on Main Street and Hume Street. These townhomes will be constructed outside the existing flood zone and built in accordance with State and Local building codes. Additionally, there is going to be considerable development

near Main Street. The plans include a number of townhomes and some mixed-use construction. However, considerable parts of Main Street and all of Hume Street fall under the FEMA 1% and 0.2% annual chance floodplain, and potentially within the New Jersey Flood Hazard Area, as estimated by FEMA's 1% annual chance floodplain + 3 feet.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Allenhurst Borough has an estimated population of 412 residents, of which an estimated 5% is under age 5 (21 residents) and 23% is over age 65 (an estimated 95 residents). Though a small population, these groups may require special consideration in hazard mitigation planning and response, particularly the near quarter of Allenhurst which is over age 65. Notably, the borough saw an 18.6% drop in population (from an estimated 506 residents) over the 2013-2017 and 2018-2022 ACS survey periods – impacts on the built environment may be present that impact pre-hazard communication and post-disaster response.

No areas of Allenhurst Borough meet vulnerability designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	412
Population Change since 2017	-18.6%
Percent of Population Age < 5	5.1%
Percent of Population > 65	23.1%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

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Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Coastal Erosion	

High	Medium	Low
Natural Hazards		
	Wave Action	
Human-made Hazards		
	Cyber Attack	Power Failure
	Economic Disruption	
	Civil Unrest	
	Pandemic	
	Terrorism	

The Borough ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Civil unrest was changed from low in the prior HMP update to medium concern due to the Borough's proximity to the two county cities. Additionally, power failure was also moved up to medium. The infrastructure and homes in Allenhurst require more electricity than normal homes, and today at least 60% of the homes within the Borough have emergency generators due to the frequency of power failures, with more being installed every year. Dam failure is not applicable due to the lack of dams within the Borough. The low topography of the Borough also makes the threat of landslides not applicable. Flood and storm surges remain a high risk due to the frequency of storm events, and the threat is potentially worsened by the need to refurbish the sea wall. Coastal erosion remains a medium threat; however, there have been two replenishment efforts in the past five years.

Significant Hazard Events Since Last Plan Update

Considerable flooding within the Borough causes issues with the bulkhead near the ocean. It has flooded severely twice in the past 20 years, with the last significant event occurring in September 2023 (pictured below). This event resulted in knee-deep waters that reached Elberon Avenue, causing road closures but not reaching the homes. The Borough has a sea wall, approximately 20 feet in height, that protects it from severe flooding caused by high tides.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Allenhurst. As a small, oceanside community, Allenhurst is particularly vulnerable to rising sea levels and increased storm intensity. The frequency and severity of flooding events are likely to increase, exacerbating existing issues with the bulkhead near the ocean and the sea wall. The borough has already experienced severe flooding twice in the past 20 years, and with climate change, such events are expected to become more frequent and intense. This will likely lead to more road closures and potential damage to infrastructure, necessitating more robust flood management and mitigation strategies.

Additionally, the increased frequency of extreme weather events, such as hurricanes and nor'easters, will likely lead to more power failures, which have already been identified as a medium concern due to the high electricity demand of the infrastructure and homes in Allenhurst. Coastal erosion, which remains a medium threat, may also worsen with rising sea levels and more frequent storm surges. The borough's efforts to enhance resilience and sustainability, such as the installation of emergency generators and the development of a Municipal Public Access Plan, will be crucial in mitigating the increased risks and hazards posed by climate change.



RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Allenhurst Borough	
Initial FIRM Date	3/15/1979
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	44
Total Losses:	22
Total Payments:	\$710,767.16
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	7
RL – Total Paid:	\$152,088.45
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

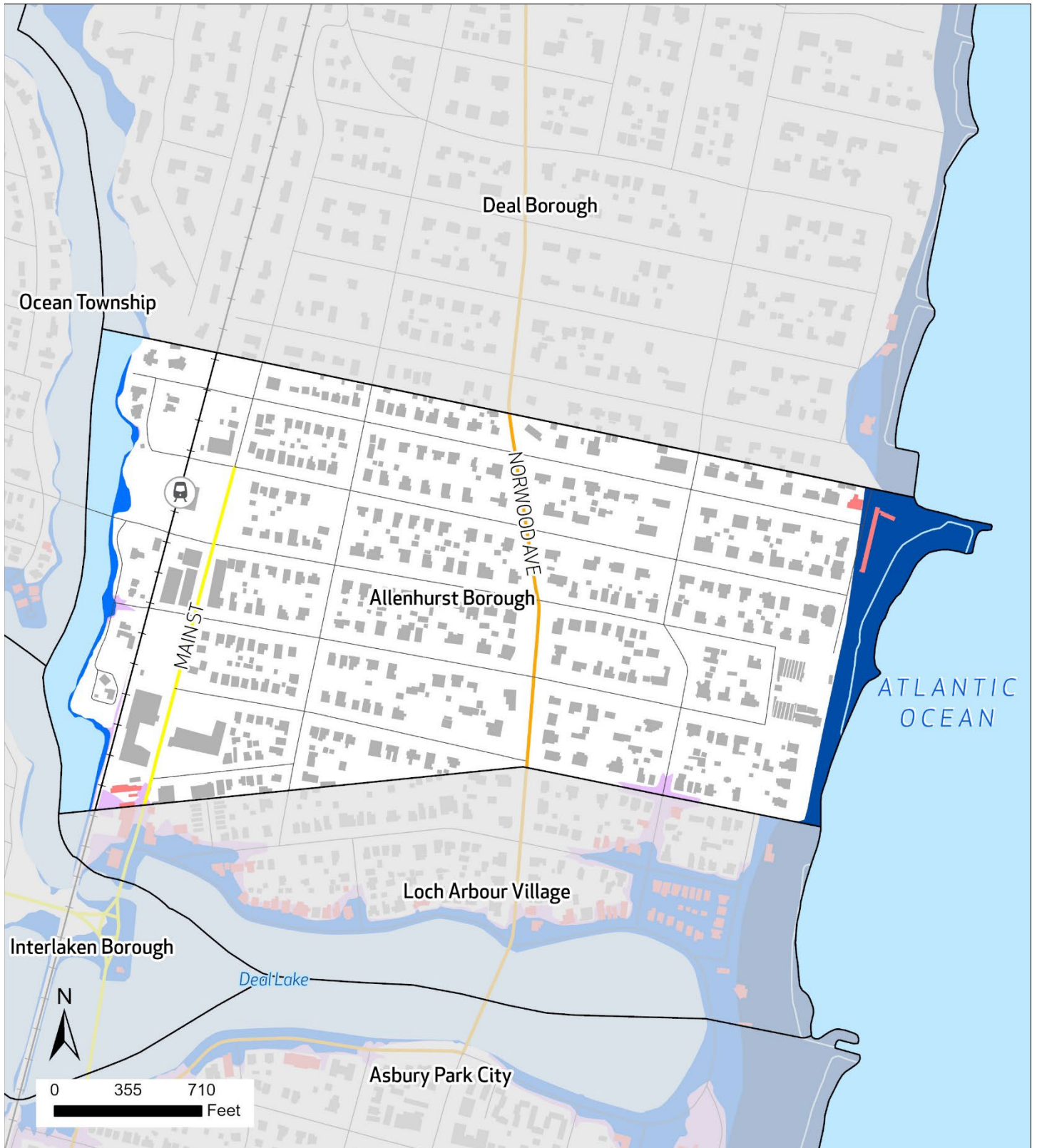
The Special Flood Hazard Area (SFHA) in Allenhurst Borough is located adjacent around the waterbodies of the borough, Deal Lake and the Atlantic Ocean. Approximately 10.2 percent of the total area of Allenhurst lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.5 percent of the area of the municipality is in the 0.2% annual chance flood zone.

Roughly 88.6 percent of Allenhurst is considered developed. Of the developed parcels of the town, 1.7 percent fall within the 1% annual chance flood zone and 2.6 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	1.7%	2.6%	0.3%
Exposed Land Area	10.2%	0.5%	2.1%

During the planning process, Allenhurst identified critical facilities which function as community lifelines. These are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Allenhurst identified five total facilities. None are located in the floodplain or in areas that are projected to be impacted by sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number Affected by 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk

Allenhurst Borough

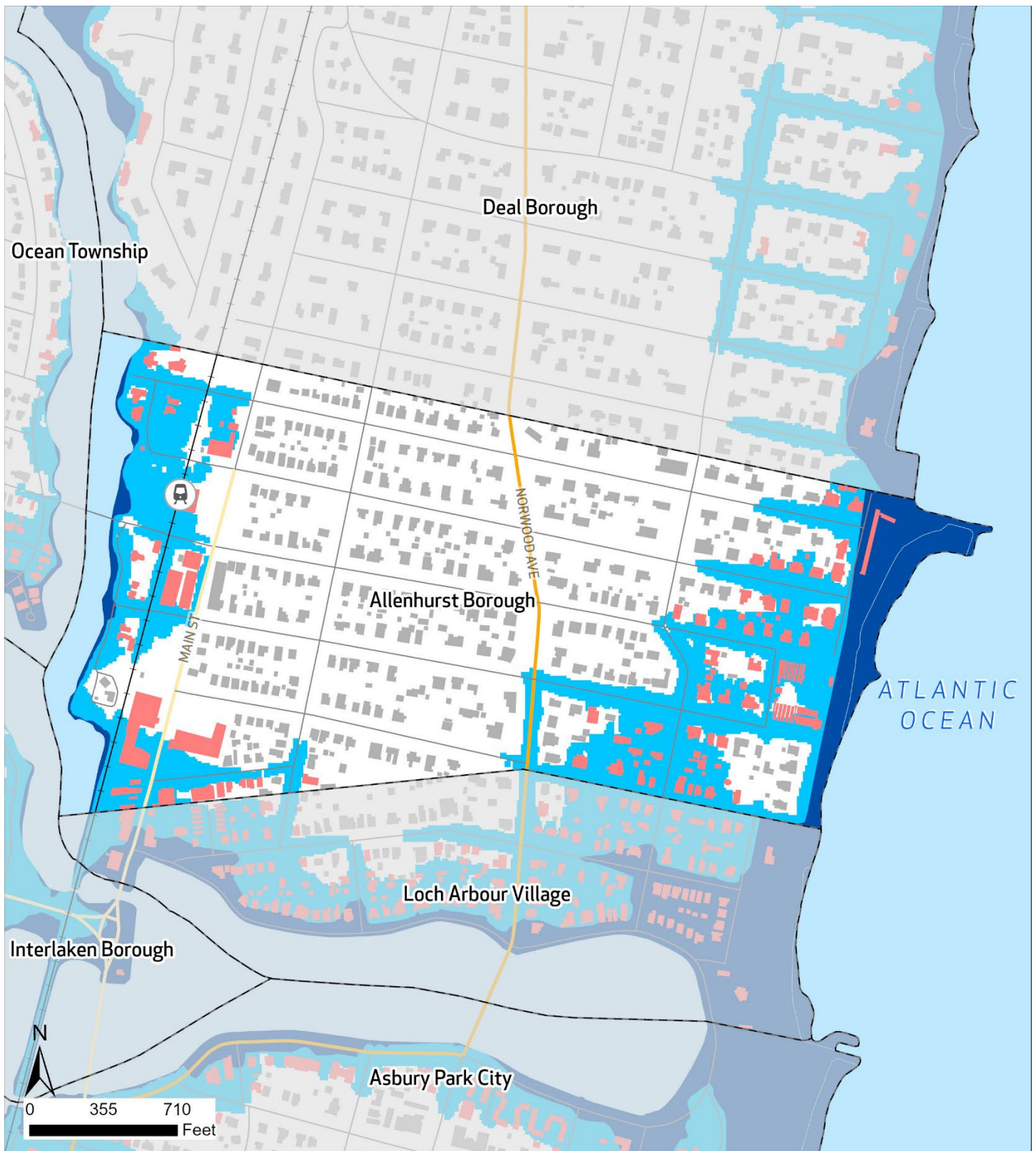
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJTransit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Alenhurst Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

Ⓜ NJ Transit Rail Station

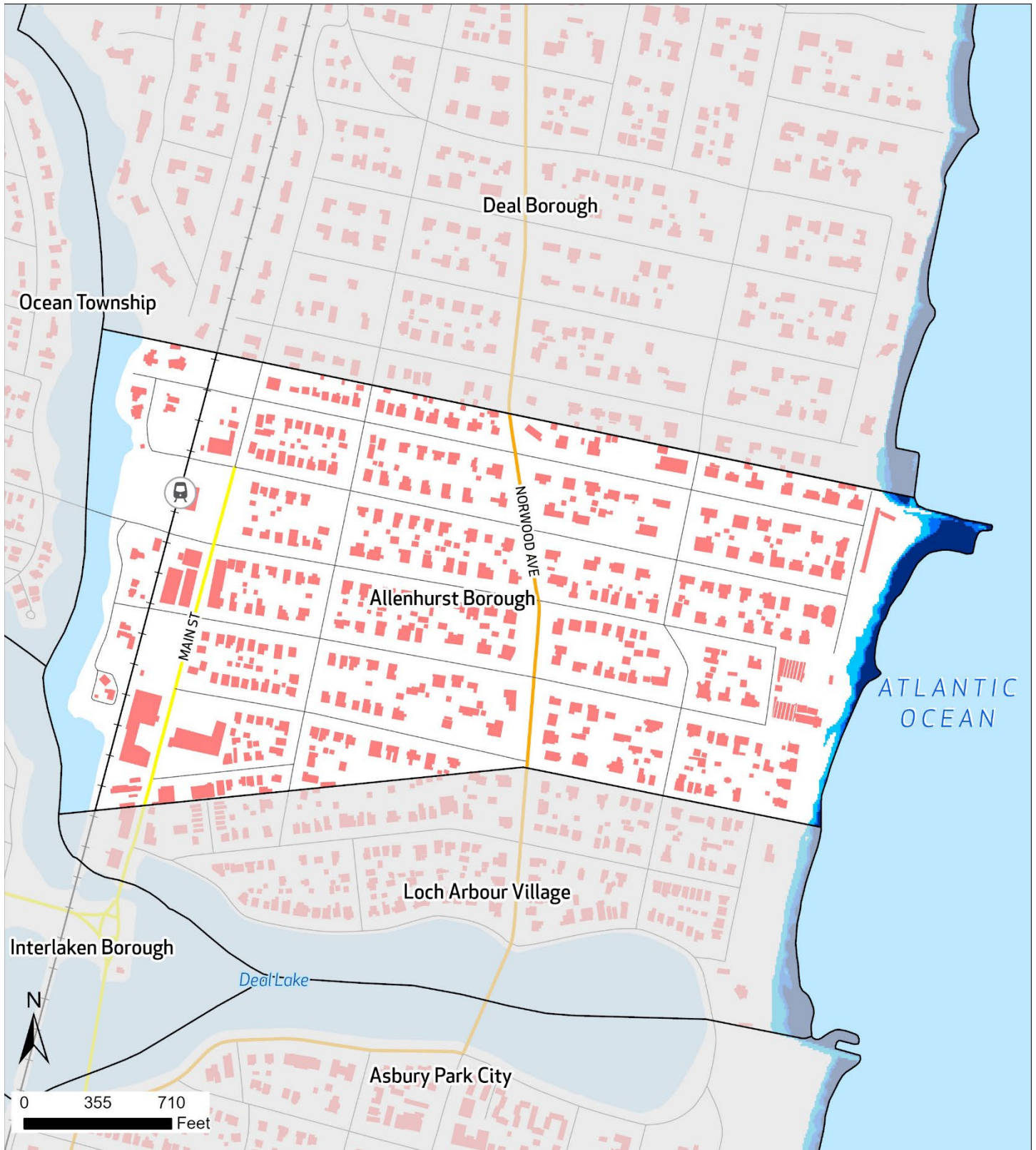
— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

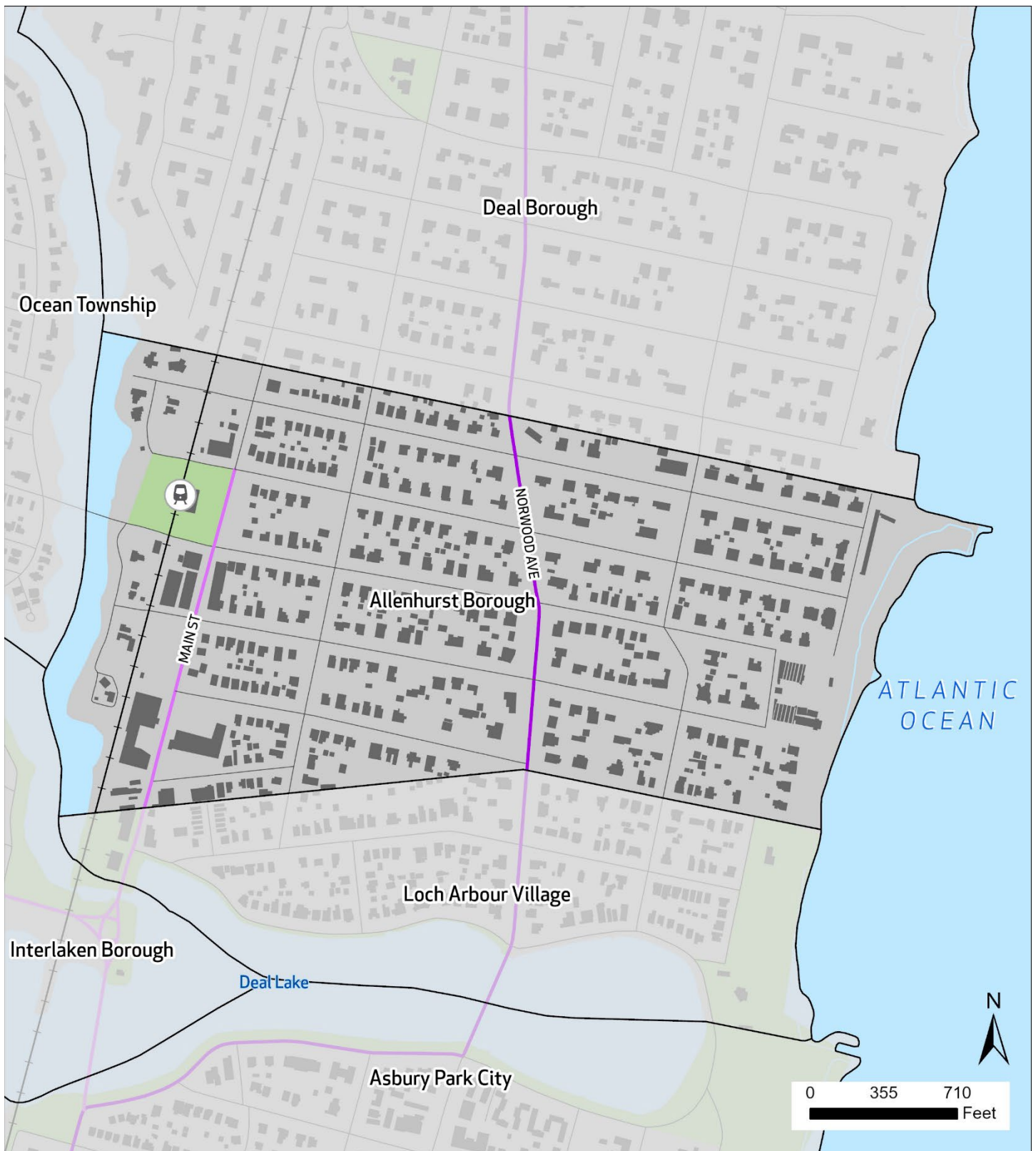
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Alenhurst Borough

- | | | |
|---------------------------------|------------------------|----------------------|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |
| | NJTransit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Alehurst Borough

- | | | |
|--------------------------------|---------------|----------------------|
| High or Medium Density Housing | State Routes | Municipal Boundaries |
| No Housing | County Routes | Building Footprint |
| Local Roads | Rail Lines | Water |
| NJTransit Rail Station | | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Allenhurst Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2023	FY 2023 – Housing Plan Element and Fairshare Plan FY 2018 – Master Plan Reexamination Report
Capital Improvement Plan	X		2021	FY 2021 – Multijurisdictional Natural Hazard Mitigation Plan (FEMA Approved 02/12/2021)
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	
Floodplain Development Ordinance	X		2022	FY 2022 – Ordinance 2022-09 – enforce state standard for freeboard
Floodplain Management Plan	X			
Stormwater Management Ordinance	X		2024	FY 2024 – Ordinance 2024-08 – Adopted state requirement, no higher standard
Stormwater Management Plan	X			
Watershed Management Plan	X			Deal Lake
Sheltering Plan		X		
Evacuation Plan	X			
Substantial Damage/Improved Structures Response	X		2022	Ordinance 2022-09 Flood Damage Prevention Ordinance
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X			Zoning/engineering office
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			Main Street Affordable Housing: This area is outside the 100- and 500-year flood plains per the FEMA flood map 06/15/2022.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			Allenhurst Design Guidelines for Historic preservation
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Allenhurst Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Zoning/engineer office
Grant Writer	X		Zoning officer
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Commissioners/ Mayor / Borough Administrator
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Allenhurst Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Blast emails, Code Red
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Allenhurst Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Update

The Borough of Allenhurst actively works to fuse scientific evidence with proactive policy and aims to improve Allenhurst's resilience to damage from natural disasters and adapt to future climate concerns. Since 2020, the Borough has completed an emergency generator, and emergency operations plan which promotes a flourishing community and further support the municipality's resiliency goals. Moving forward, Allenhurst will prioritize home, roadway and critical infrastructure improvements, continued upgrades to water, sewer and stormwater conveyance systems and coordinate with state and local agencies on the best ways to achieve resiliency within this vulnerable coastal community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
2-1	Purchase and Install Natural Gas Emergency Generators	The Borough seeks to provide temporary power via gas generators for Borough Hall and the Fire Station.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	N/A	N/A	Completed	Natural gas generator is 95% installed at Police Headquarters /Borough Hall and at the Firehouse. Cost: \$65,000.
2-2	Structurally Retrofit Critical Facilities	Structural Retrofitting of the Police Headquarters, Municipal Building, Radio Tower, and the Water Tower to make them less vulnerable to human and natural-based hazards.	All Hazards	High	Borough Administration, Council	FEMA HMA		3 years	Withdrawn	The radio and water tower will come down. There are plans to rebuild Borough Hall/Police HQ.
2-3	Structurally Retrofit Existing Communication Tower on Municipal Building to Support Emergency Response	To maintain police, fire, and medical EMS services throughout the municipality, the Borough seeks to retrofit the tower at the municipal building.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	N/A	N/A	Withdrawn	Action no longer needed. Switched over to County EMS system; the County has a digital signal, and the tower is no longer needed.
2-4	Create a Temporary Shelter and Warning Center	Create a Temporary Shelter and Warming Center.	All Hazards	Medium	Borough Administration and Council	Municipal budget		2 years	Completed	The Firehouse serves as a warming center and shelter.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
2-5	Remove Beach Structures and Convert to Open Space	The OEM Basic Plan was amended to include a "major storm annex" detailing the removal of structures from the beach. Permanent beach structures were replaced with modular systems.	Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	Municipal budget, DEP Blue Acres	\$3.5M	5 years	Ongoing	As of 2024, there are 25 permanent structures remaining and 30 portable structures that are moved off the beach after summer. Long term goal is to remove all permanent structures from the beach.
2-6	Purchase Jet/ Vacuum Debris Truck and/or coordinate with County DPW to use their Equipment	To maintain storm drainage and sanitary service throughout the municipality, the Borough seeks to provide proper maintenance of infrastructure to ensure a state of readiness during a storm event.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	OEM Director	Municipal budget	\$350k	3 years	Ongoing	The Borough currently coordinates with Ocean Township and City of Asbury Park to use their jet truck. Long term goal is to purchase their own truck.
2-7	Build a New Building Structure to protect OEM Equipment	The Borough seeks to provide a centralized building for critical OEM equipment. Currently this equipment is stored outside and subject to the daily elements which damages the effectiveness equipment in emergency events.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium / High	Borough Engineer and OEM Director	Municipal budget	\$1.5M	2 years	Ongoing	No update – still a long-term goal
2-8	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	There are currently no RL or SRL properties in the Borough; however, the Borough realizes the floodplain changes over time and the risk is always present. If in the next five years properties become RL/SRL, the Borough will coordinate with residents to mitigate properties through structure elevation, demolition to open space, or another type of mitigation.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Mayor and Council	FEMA HMA	TBD	5 + years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
2-9	Build a Staging Area for Civil Unrest Incidents	Monmouth County uses the Allenhurst Firemen's Club as a staging area for civil unrest incidents in Asbury Park. The Borough could use additional equipment to help respond the civil unrest events.	Civil Unrest	Medium	Allenhurst PD	DHS	\$150,000	2 year	New	
2-10	Lake Drive Improvements Project	Allenhurst was awarded a \$400,000 grant from the 2024 Monmouth County Municipal Open Space Grant for improvement along Lake Drive (between Allen Ave. and Corlies Ave.). The Borough would like to expand these improvements to the south towards the old water tower to prevent future development from flooding in this area.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High		HMA, Monmouth County Municipal Open Space Grant	\$400,000	2 years	New	The Borough will create a natural living shoreline to address storm hazard

3 – ALLENTOWN BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Steve Gomba	OEM Coordinator	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2, Coordination, review and input
Carmela Roberts	Engineer	Municipal Workshop #2, review and input
Laurie Roth	Administrator	Appendix review following Workshops

COMMUNITY PROFILE

Overview

The Borough of Allentown is a small, historic village located in the southwest corner of Monmouth County, bordered on three sides by Upper Freehold Township, and to the north by Robbinsville (Mercer County). The Borough has a land area of 0.6 square miles, and 56 percent of its properties are in single-family residential use. Allentown is characterized by its tree-lined Main Street, a historic mill, and the Colonial and Victorian era houses found throughout the Borough. According to the Panhandle Region Plan (2011), the Borough seeks to maintain its historic character with a viable downtown offering goods and services to residents. Allentown is served by County Routes 28, 524, 526, 539, which converge in its historic downtown. It is also proximal to two interchanges of Interstate 195, and by extension the New Jersey Turnpike.

Land Use, Development, & Growth

Allentown is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; urban or developed land accounted for nearly 81 percent of the Borough's total area, while water and wetlands together covered roughly 9 percent of its total area. Throughout this period, forested land accounted for 5 percent of the Borough's total area.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	6.1	5.9	-3%
Forest	95.3	95.6	0%
Urban	663.5	664.4	0%
Water	7.9	6.9	-13%
Wetlands	18.6	18.6	0%

Source: Land Use/Land Cover, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2021 a new wastewater treatment facility came online, and the Borough adopted a comprehensive Land Development Regulations Ordinance that consolidated its land development and zoning regulations into a single chapter. The following year, the Borough completed streetscape improvements along Main Street in the historic village. Some parts of Main Street fall under FEMA's 1% and 0.2% annual chance floodplain, and within the New Jersey State Flood Hazard Area, as estimated by FEMA BFE +3.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

There is no anticipated development in the Borough as it is already largely built out.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A

community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Allentown Borough has an estimated 1,817 residents, of which 5.8% are estimated to be under 5 years of age, and nearly 15% (14.64%) are estimated to be over age 65. As this 15% continues to age, the Borough may integrate targeted communication, emergency preparation, and evacuation planning with an older population in mind. The Borough saw a moderate population decline (-3.9%) estimated over the 2013-2017 and 2018-2022 ACS survey periods, which could have impact on residential density for the remaining populations, and may lead to future redevelopment opportunity.

No areas of Allentown Borough meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,817
Population Change since 2017	-3.9%
Percent of Population Age < 5	5.8%
Percent of Population > 65	14.6%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Dam Failure	Extreme Temperatures	Earthquake
	Extreme Wind	Lightning
	Hurricane/Tropical Storm	Flood
	Nor’easter	Wildfire
	Tornado	
	Winter Storm	
	Drought	
Human-made Hazards		
	Power Failure	Civil Unrest
	Pandemic	Cyber Attack
		Economic Disruption
		Terrorism

The Borough ranked Coastal Erosion, Landslide, Storm Surge, and Wave Action as N/A.

Hazard Ranking Explanation

The majority of changes in hazard rankings in this update have resulted in a lowered level of hazard. Storm surge and wave action have been marked as not applicable since the Borough is not near the ocean. For man-made hazards, the rankings for cyber-attacks, economic disruptions, and terrorism have all been lowered, primarily due to the lack of events and the relatively small size of the Borough. Flooding has also been downgraded, as there has been no significant flooding in the past five years. Dam failure is the only hazard that has increased in severity and remains the only natural hazard of high concern. This is mainly due to the Indian Dam being classified as a high-hazard potential dam, which will remain a high concern until the dam is upgraded.

Significant Hazard Events Since Last Plan Update

There is a significant flood risk due to the proposed development in Upper Freehold Township. Additionally, development in Mercer Corporate Park could cause potential flooding as it will add more impervious surfaces. Heavy rains continue to affect the treatment plant within the Borough, but there have been no reported damages.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Allentown. As global temperatures rise, the frequency and intensity of extreme weather events such as heavy rainfall, hurricanes, and tropical storms are likely to increase. This will exacerbate flooding risks, particularly in areas already prone to flooding, such as the Special Flood Hazard Area (SFHA) adjacent to Indian Run, Indian Lake, Doctors Creek, and Conines Millpond. The increased precipitation and storm intensity will likely lead to more frequent and severe flooding events, putting additional strain on the Borough's infrastructure, including the wastewater treatment plant and stormwater management systems.

Moreover, the Borough's aging population, with nearly 15% of residents over the age of 65, may face heightened vulnerability during extreme weather events. Older adults often have mobility needs and limited access to resources, making pre-disaster engagement and post-disaster recovery more challenging. As climate change continues to alter weather patterns, the Borough will need to prioritize resilience and adaptation measures, such as upgrading critical infrastructure, improving drainage systems, and maintaining dams and floodgates, to mitigate the increased risks and protect its residents.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Allentown Borough	
Initial FIRM	9/16/1981
Effective FIRM	9/25/2009
Number of Policies In-Force:	12
Total Losses:	3
Total Payments:	\$10,865.75
Number of RL Properties:	0
Number of Mitigated RL Properties:	0
RL – Total Losses:	\$0
RL – Total Paid:	0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	\$0
SRL – Total Paid:	0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

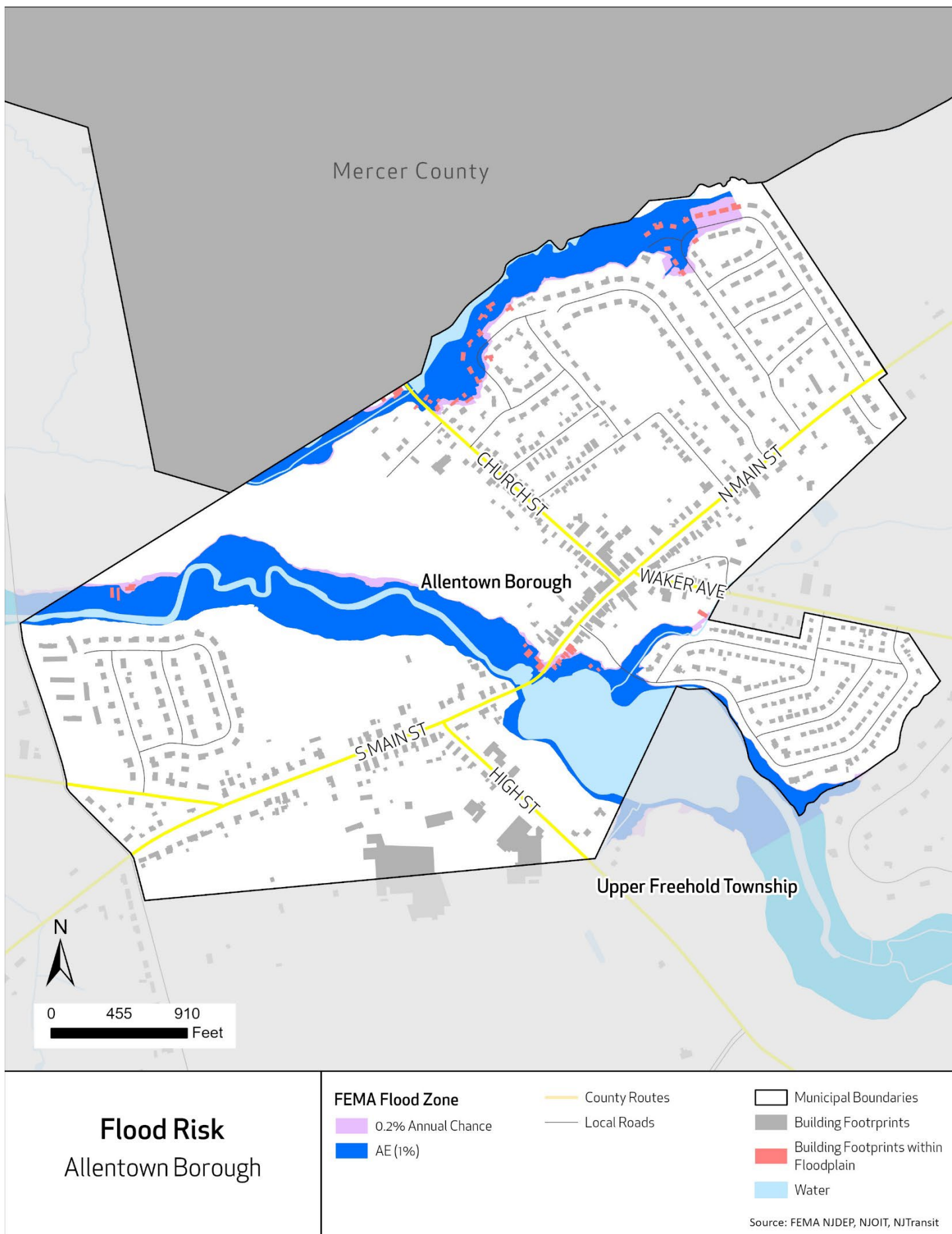
The Special Flood Hazard Area (SFHA) in Allentown Borough is primarily located adjacent to the waterbodies of the Borough, Indian Run, Indian Lake, Doctors Creek, and Conines Millpond and its smaller tributaries. Approximately 15.4 percent of the total area of Allentown lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

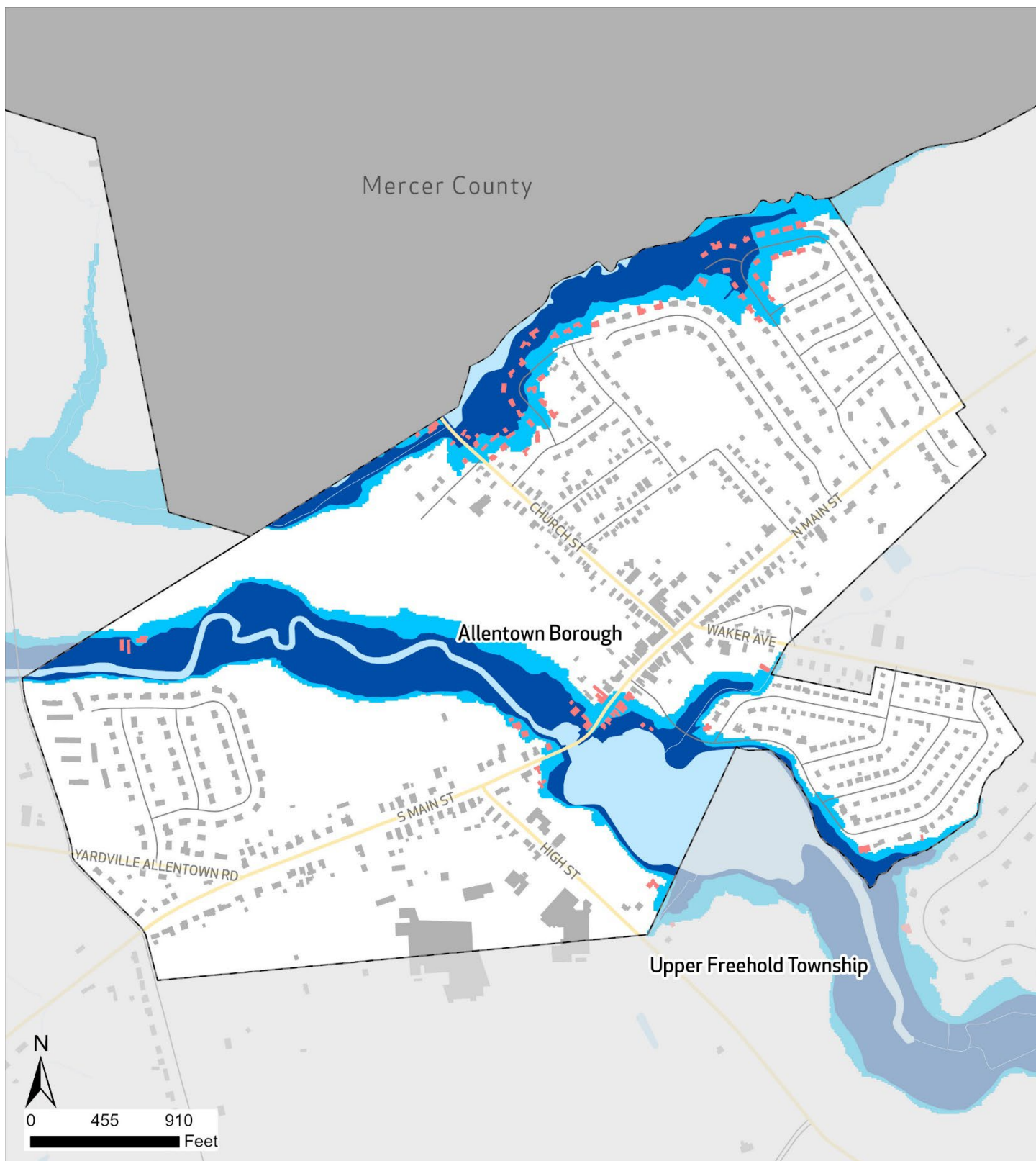
Roughly 68.3 percent of Allentown is considered developed. Of the developed parcels of the town, 11.4 percent fall within the 1% annual chance flood zone and 1.2 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	11.4%	1.2%	NA
Exposed Land Area	15.4%	1.2%	NA

During the planning process, Allentown identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Allentown identified 11 total facilities. Of these facilities, three facilities within the “Water Systems” lifeline are located within the 1% floodplain. Water Systems lifelines include facilities such as dams and water treatment plants.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	3	-	NA





NJ Inland Design Flood Elevation Allentown Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

County Routes

Local Roads

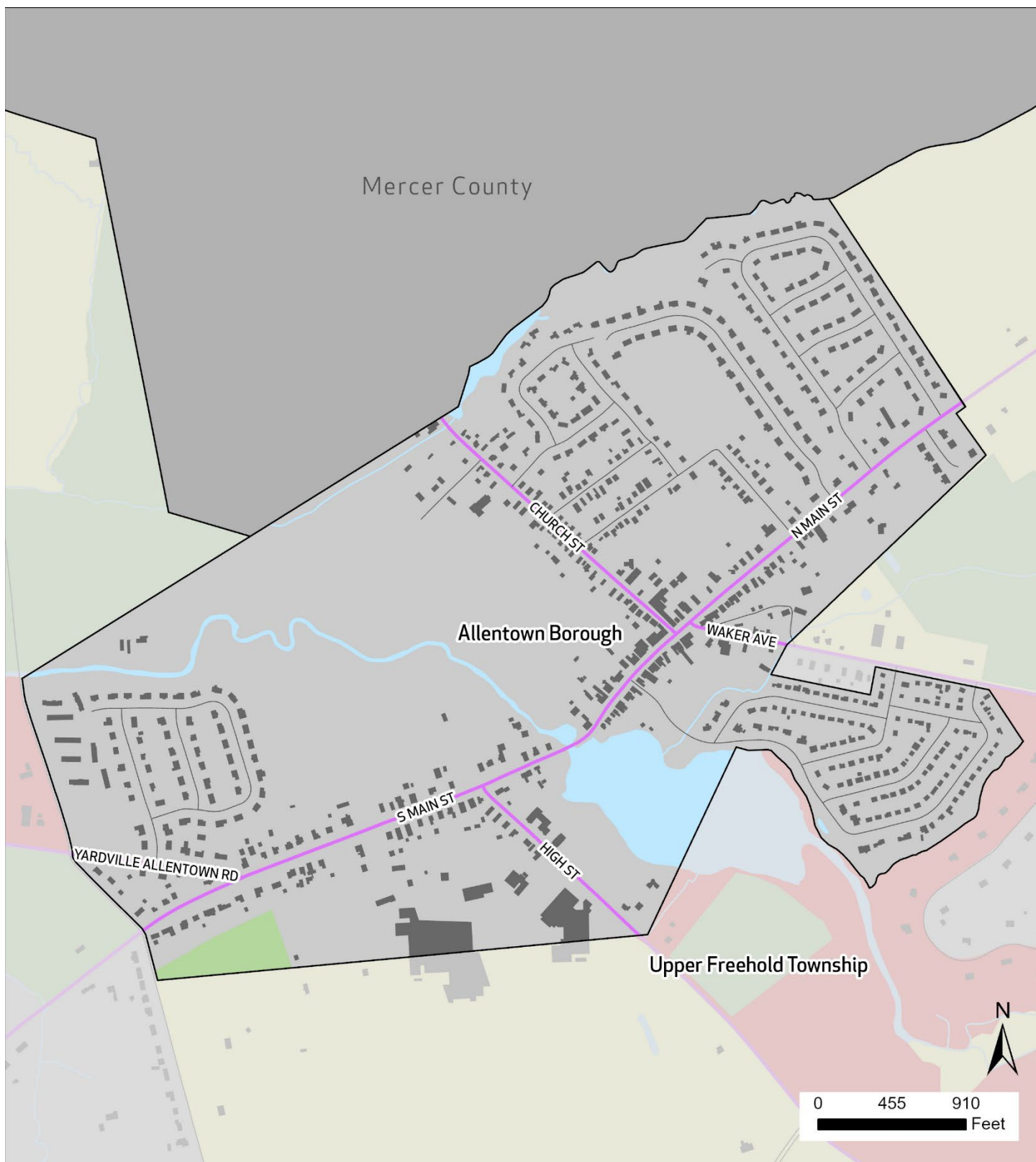
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Allentown Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Allentown Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2018	Conservation Plan Element
Capital Improvement Plan	X			
Local Emergency Operations Plan/Continuity of Operations Plan	X			
Floodplain Development Ordinance	X			
Floodplain Management Plan		X		
Stormwater Management Ordinance	X			
Stormwater Management Plan	X			
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan	X			
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan				
Other Plans that discusses hazard mitigation	X			Panhandle Plan, Upper Freehold Historic Farmland Byway Corridor Management Plan (2010)
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Allentown Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		
Grant Writer	X		
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Allentown Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Allentown Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank	X		
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities	X		
Other ongoing efforts to build additional financial capabilities	X		

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Update

Allentown Borough actively works to improve resilience to damage from natural disasters. Since 2020, the Borough has adopted updated stormwater management and floodplain management ordinances. Moving forward, the Borough will remain forward thinking and continue to coordinate with state and local agencies on the best ways to achieve resiliency within the community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 3-1	Build a Flood Wall around the Wastewater Treatment Plant	Protect two buildings at the wastewater treatment plant by installing a flood wall around both buildings and portable flood gates which can be installed or removed when storms are approaching. All other tanks and treatment units will be installed above the 500-year flood hazard elevation as part of the Wastewater Treatment Plant Upgrade Project.	Dam Failure, Flood	N/A	Allentown Borough OEM	N/A	\$4M	N/A	Completed	Upgraded to 500-year flood. Elevated tank to 500-year flood.
Action 3-2	Repair, Remove, or Rehabilitate the Allentown Dam	Repair, remove, or rehabilitate Allentown Dam, a High-Hazard Potential Dam, located along Doctors Creek	Dam Failure	N/A	Borough	N/A	N/A	N/A	Withdrawn	Withdrawn due to the dam recently being upgraded and requires more ongoing maintenance than a remodel (see Action 3-3).

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 3-3	Continue ongoing maintenance of Conine's Millpond Dam/ Allentown Dam	The dam under Rt. 524 and bridge U-12 need to be cleared of any debris deposited near the floodgate to facilitate the movement of water from the drainage out of Conine's Millpond Dam/ Allentown Dam. Additionally, general maintenance is needed to preserve functionality.	Dam Failure, Flood, Nor'easter, Hurricane and Tropical Storm	Low	Allentown Borough OEN	Municipal Budget, NJDEP Bureau of Dam and Safety and Flood Control	\$2k/ year	5+ years	Ongoing	The dam was recently upgraded in 2015, however, ongoing maintenance is needed to preserve the health of the dam and mitigate future dam failures. This action does not address socially vulnerable populations. If climate change increases the number of extreme storms seen having a high-functioning dam with adequate drainage will be crucial. Emergency Action Plan last revised in December 2024.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
Action 3-4	Improve drainage of the sewer system on county roads	The municipal sewer system that travels alongside and underneath Rt 524, Rt. 526, and Rt 539 in Allentown Borough need to be clear of any debris deposited by natural and manmade refuse that collects in the openings and drainage areas of the system.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Monmouth County	County/ Municipal Budget	\$1.5k	2 years	Ongoing	DPW currently maintains the inlet heads and grates for the stormwater system, however, the greater stormwater system needs to be maintained by the county for adequate flood drainage which is an ongoing commitment. This is a current requirement of the MS4 stormwater permit. This will help mitigate the effects of floods, nor'easters, hurricanes, and tropical storms. As climate change continues to worsen, the frequency of severe storms increases. The stormwater system needs to be adequately maintained and prepared.
Action 3-5	Dredge Mill Pond to Alleviate Erosion	Dredge the entirety of the Mill Pond area to maximize a depth of 4 feet deep. The depth would be shallower near the edges of the pond.	Flood	Low	Allentown Borough OEM	Municipal budget, USDA grant	\$2,357,500.00	2 years	Ongoing	The depth of Mill Pond is decreasing as leaves and other animal debris fill the area around the edges of the pond. Dredging will reduce the flood risk of this pond by increasing retention. If the frequency and severity of storms are affected by climate change more adequate retention will be necessary. Ongoing as carried over from the last plan.
Action 3-6	Replace the outfall pipe and storm pipe on Probasco Drive.	Replace the outfall pipe and storm pipe, as well as dredge the tributary from Probasco Drive to Indian run/ dam spillway, to provide a discharge point. The estimated dredging depth is 4 feet deep.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Allentown Borough OEM	FEMA HMA, Municipal Budget	\$603,200.00	5+ years	Ongoing	The current outfalls have submerged because of the amount of development, and they are filled with silt. There is no solution besides dredging the entire stretch of the river. This is an ongoing effort as it was carried off from the last plan. The Indian Run River needs to be cleaned which is approximately 3,000 feet. Dredging and desilting will help address concerns associated with floods, nor'easters, hurricanes, and tropical storms. If the frequency and severity of storms are affected by climate change more adequate retention will be necessary.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
Action 3-7	Acquire, elevate, or relocate buildings and infrastructure in flood-prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties.	There is currently no RL or SRL properties in the Borough; however, the Borough realizes the floodplain changes over time and the risk is always present. If in the next five years, properties become RL/SRL, the Borough will coordinate with residents to mitigate properties through structure elevation, demolition to open space, or another type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Borough and Property Owners	FEMA HMA	TBD	5+ years	Ongoing	Climate change may negatively impact the flood zone and the frequency of floods within the Borough. The Borough will be proactive in managing properties that may become repetitive loss or severe repetitive loss properties in the future. This is an ongoing effort.
Action 3-8	Dredge Indian Run Lake and river from Probasco Drive to Indian Run Dam.	The Indian Run River needs to be dredged along with Indian Run Lake which is approximately 3,000 ft.	Flood	High	Allentown Borough OEM	USDA, municipal budget	\$1.5M	2 years	New	The severe build-up of sediment and debris within the lake and river has decreased the water that can be retained and allows for an adequate flow of water. The current build-up results in flooding within the Borough after significant rain events. If the frequency and severity of storms are affected by climate change more adequate retention will be necessary.
Action 3-9	Begin Water Plant Flood Mitigation Projects	The current water plant within the Borough needs several maintenance projects to improve flood mitigation within the Borough. This includes floodproofing the mechanics of the building, improving floodgates, and replacing the roofs, aerators, and electricity. This is currently in the design phase.	Flood	Medium	Allentown OEM	Municipal Budget, I-Bank	\$2M	2 years	New	Newly added to increase flood preparedness. This is crucial if the frequency and severity of storms are affected by climate change adequate flood mitigation efforts will be needed.

4 – CITY OF ASBURY PARK

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Garrett Giberson	OEM Director	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2
Michele Alonso	Director of Planning and Redevelopment	Municipal Meeting #1, Municipal Meeting #2
John Hayes	Deputy City Manager	Municipal Meeting #1
Jason Harzold	Municipal Engineer	Municipal Meeting #1, Municipal Meeting #2
Gregory Toro	Deputy Director of Public Works	Reviewed appendix
Daniel Paczkowski	Public Works Supervisor	Reviewed appendix

COMMUNITY PROFILE

Overview

The City of Asbury Park is home to unique shops, restaurants, art galleries, music venues, and historical landmarks in its 1.43 square miles. It has a dense central business district and one mile of shoreline for beachgoers. The area between Ocean Avenue and Kingsley Street, the City's 1.25-mile-long boardwalk, Main Street, and the central business district along Cookman Avenue have all been substantially redeveloped in recent years.

Asbury Park has partnered with the Borough of Bradley Beach and the Township of Neptune to encourage walking and biking, as well as ensure pedestrian safety through the Connecting Community Corridors program. This initiative sets forth a strategic plan to streamline and improve inter-municipality transportation.

Asbury Park adopted a Complete Streets Policy in 2015 and published a Plan for Walking and Biking in 2018. These initiatives have committed the City of Asbury Park to work towards making the City a bicycle and pedestrian-friendly community. The City has approximately 14.5 miles of bicycle infrastructure and has plans to expand onto Memorial Drive, Asbury Ave, Eighth Ave, Comstock Street, Third Ave, Fourth Ave, and Monroe Ave.

The City received a Safe Roads to School Grant and will be utilizing the funds to implement traffic calming along Third and Fourth Avenues in the form of a raised intersection. The project is forecasted to be completed by summer of 2025. The City also received a Safe Streets 4 All Grant, which will be utilized to develop a Comprehensive Traffic Safety Action Plan.

Land Use, Development, & Growth

Asbury Park is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; urban or developed land accounted for nearly 89 percent of its total area during this period. The area covered by barren land and water did decline marginally by –8.4 acres and 3.1 -acres, while its developed land increased by 12.3 -acres, but the town's overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	53.6	45.2	-16%
Forest	-	-	-
Urban	855.2	867.5	1%
Water	65.0	61.9	-5%
Wetlands	2.8	2.1	-25%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2021 to Present and Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The following table details most of the major development projects in the City occurring as of July 26, 2024.

Project Name	Address	Units or Commercial Square Footage	Status	Experiences flooding?
Baltic and Aegean	216, 218 Third Avenue, 215 Second Avenue	44 units	Under construction	No
Townhouses at Lake	403 Lake Avenue	62 units	Under construction	Yes
Surfhouse	1101 Kingsley Street	220 units, 4600 sq. feet retail	Under construction	No
Inspire by Somerset	115 Fourth Avenue	160 units	Planning Board Approved	No
	Block 4105 Lots 1,2, and 4	9390 sq. feet commercial space		
The Rhythm	202 Seventh Avenue	14 units	Under construction	No
Sunset Square	1401 Kingsley Street	28 units	Under construction	No
Asbury Park Luxury Apartments	201 Sixth Avenue 1509, 1511 Kingsley Street	103 units	TRC Review	No
The Delta	Block 4306	45 Units	TRC approval	No
700 Monroe	700 Monroe	60 (12 affordable)	Planning Board Approved	No
316 Main Street	316 Main Street	24 units and 1,116 square feet commercial space	Planning Board Approved	No
The Rail at Asbury Park	201/301 Memorial Drive (900, 901 Mattison Avenue)	125 (25 affordable) 5000 sq. ft. commercial space	Planning Board Approved	No
	900-904 Springwood Avenue (aka 2 Memorial Drive)	92 (19 Affordable), 11,873 square feet commercial space		
Partner Engineering Headquarters	Partner Engineering	20,250 square feet office	Under construction	No
	1012 Asbury Avenue	105 (42 affordable)	Planning Board approved	No
Springwood Arts Center	1317 Springwood	1 unit and 2,361 square feet commercial space	Under construction	No

From the above developments, “Townhouses at Lake” falls under FEMA's 1% and 0.2% annual chance flood hazard, and New Jersey’s State Flood Hazard Area, as estimated by FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper). Four developments- “Inspire by Somerset”, “The Rhythm”, “Sunset square”, and “Asbury Park Luxury Apartments” are also within NJ Inland Design Flood Elevation. And “Springwood Arts Center” falls under the 5 feet SLR (Sea Level Rise) Low-Lying area zone (NJFloodmapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the city. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The City of Asbury Park has a total estimated population of 15,245, 3.3% of which is estimated to be under age 5, and 12.6% of which is estimated to be over age 65. The City experienced a -3.7% population loss estimated between 2013-2017 and 2018-2022 ACS survey periods. The opportunity for redevelopment and densification of the built environment has been presented post-population loss during this time period.

Additionally, within Asbury Park, there are 16 block groups which meet criteria for overburden (OBC) according to indicators of *Minority* (five block groups), *Low Income* (one block group), and *Low Income and Minority* (ten block groups) population vulnerability. The City also has three tracts which are identified as potentially vulnerable to hazard events under CEJST criteria, meeting this criterion due to *Health, Housing, Water and Wastewater, Workforce Development, and Energy* population characteristics. There are no areas of Asbury Park which meet criteria for CDRZ designation.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	15,245
Population Change since 2017	-3.7%
Percent of Population Age < 5	3.3%
Percent of Population > 65	12.6%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Coastal Erosion	
	Wave Action	
Human-made Hazards		
	Cyber Attack	Power Failure
	Economic Disruption	
	Terrorism	
	Civil Unrest	
	Pandemic	

The City ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Civil unrest was the only hazard that had a change in its risk level since the last plan update. It increased in severity from low to medium due to the protests in 2020, which resulted in some damage, the overall current climate, and Asbury Park being a City. Extreme temperature had no change in its risk level and remains at medium. However, there have been a couple of events in the past year that required the cooling center to be opened. Power failure is considered a low risk, primarily due to JPL Energy's mechanical failures, which result in outages. Flooding continues to be one of the biggest threats to the City and remains a high hazard, along with other storm events that may cause flooding, such as hurricanes,

tropical storms, and storm surges. Dam failure is not applicable as there are no dams within the City. Landslide is also not applicable due to the City's flat topography.

Significant Hazard Events Since Last Plan Update

In January 2022, there was a nor'easter with significant snowfall of around two feet.

On September 29, 2023, heavy rain (more than seven inches) and higher-than-normal tides caused extreme flooding throughout Asbury Park. Wesley Lake overflowed its banks, flooding Lake Avenue, and Deal Lake also overflowed, causing flooding along Deal Lake Drive. Damages included Asbury Festhalle & Biergarten, House of Independence, and a majority of businesses on Lake Avenue from Main Street to Ocean Avenue. Although most businesses have since reopened, Asbury Festhalle & Biergarten remains permanently closed.



Flooding along Wesley Lake. Source: Asbury Park Press



Flooding along Deal Lake. Source: M. Mertz

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the City of Asbury Park. One of the primary concerns is the increase in extreme weather events, such as heavy rainfall and nor'easters, which can lead to severe flooding. Asbury Park has already experienced extreme flooding events, such as the one on September 29, 2023, which caused significant damage to businesses and infrastructure. With climate change, the frequency and intensity of such events are likely to increase, exacerbating the risk of flooding and storm surges. This will not only affect the built environment but also pose a threat to the City's critical facilities and community lifelines, many of which are located within flood-prone areas.

Additionally, rising temperatures due to climate change will lead to more frequent and intense heatwaves. Asbury Park, like many other urban areas, is particularly vulnerable to the effects of extreme heat due to the presence of "heat islands" – areas with lots of asphalt and cement and a lack of green space. This can have severe health implications for residents, especially those with high-risk conditions. The City is likely to experience an increase in the number of days with temperatures above 90 degrees, further stressing the need for cooling centers and other heat mitigation measures. Overall, climate change will amplify the extent and magnitude of existing hazards, making it crucial for Asbury Park to implement robust adaptation and mitigation strategies.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

City of Asbury Park	
Initial FIRM	2/15/1979
Effective FIRM	6/15/22
Number of Policies In-Force:	458
Total Losses:	74
Total Payments:	\$4,025,878.01
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	11
RL – Total Paid:	\$1,524,474.85
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

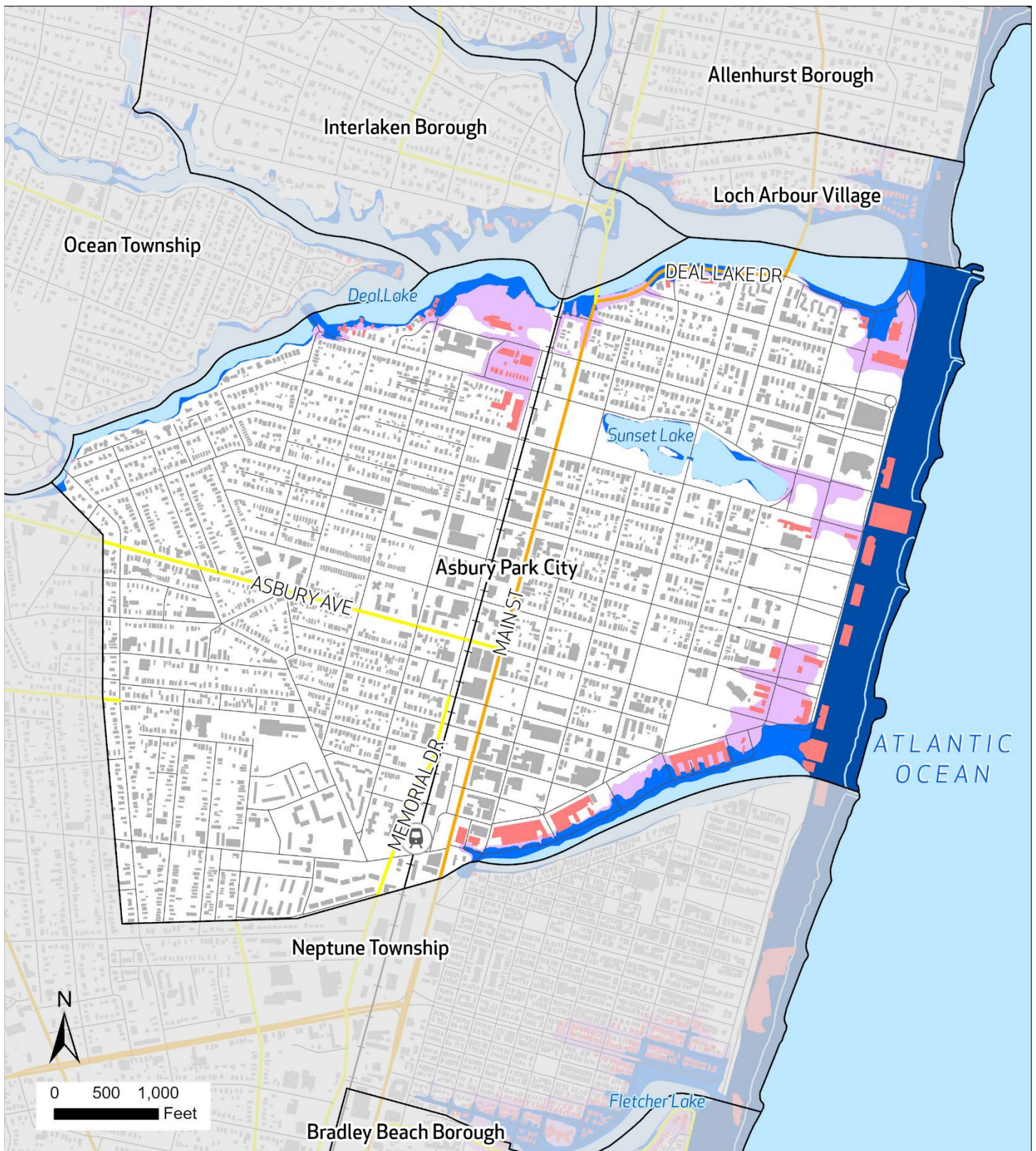
The Special Flood Hazard Area (SFHA) in the City of Asbury Park is primarily located adjacent to the waterbodies of the City: Deal, Sunset, and Wesley Lakes and the Atlantic Ocean. Approximately 14.7 percent of the total area of Asbury Park lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.9 percent of the area of the municipality is in the 0.2% annual chance flood zone.

Roughly 77 percent of Asbury Park is considered developed. Of the developed parcels of the town, 2.1 percent fall within the 1% annual chance flood zone and 1.5 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.1%	1.5%	0.0%
Exposed Land Area	14.7%	4.9%	1.2%

During the planning process, Asbury Park identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 28 total facilities. Of these facilities, three are located within the floodplain, including water systems and communications lifelines. Examples of the water systems lifeline includes facilities such as dams or water treatment plants, while examples of the communications lifeline include facilities such as cell towers or 911 dispatch facilities.

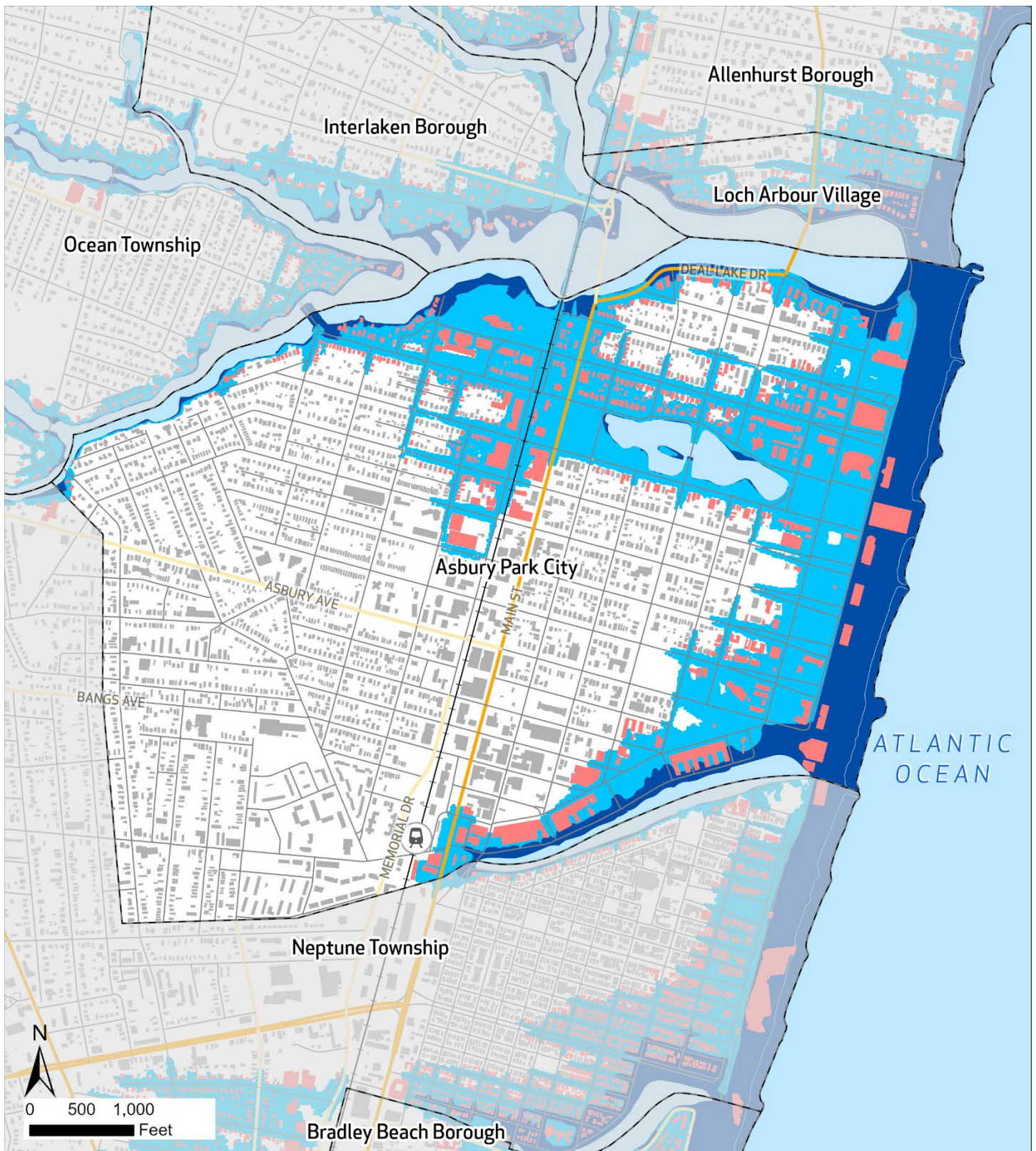
Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Communications	-	1	-
Water Systems	1	1	-



Flood Risk Asbury Park City

- | | | |
|---|--|--|
| <p>FEMA Flood Zone</p> <ul style="list-style-type: none"> 0.2% Annual Chance AE (1%) VE (1%) | <ul style="list-style-type: none"> State Routes County Routes Local Roads Rail Lines NJ NJTransit Rail Station | <ul style="list-style-type: none"> Municipal Boundaries Building Footprints Building Footprints within Floodplain Water |
|---|--|--|

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Asbury Park City

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Asbury Park City

- | | | |
|---|---|--|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | <div style="width: 5px; height: 5px; border: 1px solid black; border-radius: 50%; position: absolute; left: -5px; top: -5px;"></div> Rail Lines | |
| |  NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification
Asbury Park City

- | | | |
|---------------------------------|------------------------|----------------------|
| High or Medium Density Housing | State Routes | Municipal Boundaries |
| Low or Very Low Density Housing | County Routes | Building Footprint |
| No Housing | Local Roads | Water |
| | Rail Lines | |
| | NJTransit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Asbury Park City has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017	Discusses conservation efforts.
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	
Floodplain Development Ordinance	X		2022	Establishes more stringent design and construction standards to prevent flooding
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		2021	Establishes updated standards and to reflect and align with updates to NJDEP requirements
Stormwater Management Plan	X		2007	Plan outlines specific stormwater design and performance standards for new development and proposes stormwater management controls to address impacts from existing development
Watershed Management Plan		X		
Sheltering Plan	X		2024	
Evacuation Plan	X		2024	
Substantial Damage/Improved Structures Response	X		2024	
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		2024	
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			One City: West Side Choice Neighborhood Transformation Plan The Sunset Lake Master Plan Asbury Park Arts and Culture Plan
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Asbury Park City has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		City Manager or his/her designee. Currently T&M Associates, City Engineers
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Asbury Park City has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Community Alert System – NIXLE – Utilized for public emergency notifications
StormReady	X		Existing EOP, Partnership With County and State OEM, NWS
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Asbury Park City has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP	X		Funding provided for installation of emergency generators at critical facilities
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		Annual NJDOT Municipal Aid/Urban Aid grants to improve roadway and stormwater infrastructure
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Silver

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The City of Asbury Park has prioritized flood prevention as a major goal in 2025. Recent flooding events and overall stormwater system deficiencies necessitate the development of strategies and implementation of capital improvements to prevent future flooding, minimize flood damage, and improve the performance of the City's existing stormwater infrastructure.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 4-1	Purchase Portable Light Towers	Portable light towers for rescues at night or during a power outage.	All Hazards	N/A	City Administration	Municipal budget		N/A	Completed	
Action 4-2	Replace and Upgrade Generators at Critical Facilities	Replace generator at Wastewater Treatment Plant, purchase and install generators at the Asbury Park Senior Citizen Center, and replace generator at City Hall (housing the OEM Command Center and the police station). All three facilities will require a prop	All Hazards	N/A	Director of Engineering and Public Works	FEMA HMA	\$1M	N/A	Completed	Action Completed Risk of treatment plant failure dramatically reduced by the installation of emergency power supply. All populations and demographics within the City are affected. Impacts of climate change will not change outcome.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 4-3	Clean and Upgrade Outfall Pipes to Remove Sediment and Increase Stormwater Capabilities at Sunset Lake	Clean and upgrade outfall pipes to remove sediment and increase stormwater capabilities at Sunset Lake	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Public Works, Engineering	Municipal budget	\$35M	1 year	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-4	Install Larger Outfall Pipes and an Automatic Dredge Flume to Mitigate Flooding at Wesley Lake	Wesley Lake needs larger outfall pipes, an automatic dredge flume, sewer inspectors of foot bridge.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Director of Engineering and Public Works	FEMA HMA, Municipal budget	\$12M	2 years	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 4-5	Elevate Residential Structures at Risk to Flooding, including any Repetitive Loss (RL) or Severe Repetitive Loss (SRL) Properties	Elevate flood-prone residential structures, with a focus on RL and SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Construction Department	FEMA HMA	\$10M	5 + years	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-6	Dredge Deal Lake, Construct Automatic Tide Gate, and Expand CapaCity of Boat Ramp to Mitigate Flooding Around Deal Lake	Dredge Deal Lake by two feet and improve the living shorelines; replace the existing tide gate with an automatic type with sensors to maintain the gate open before the Atlantic Ocean begins backing into the lake during extreme high tide or severe weather	Flood, Nor'easter, Hurricane and Tropical Storm	High	Public Works, Engineering	Municipal budget, The Nature Conservancy (TNC), Deal Lake Commission	\$2.5M	1 year	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-7	Reconstruct Stormwater Lines to Mitigate Flooding in the City	Pinpoint all areas of flooding thereby identifying existing storm facilities and their respective routes to the new systems. Reconstruct all storm lines and structures from the flooded areas leading and connecting to the new systems taking the path of least resistance	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Director of Engineering and Public Works	FEMA HMA, Municipal budget	\$18M	1 year	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-8	Relocate Fire House/EMT Services and Add Security Measures	The Fire House and EMT building is over 120 years old. The City is looking to acquire a property outside the SFHA for these services. Once the new building is constructed, the City would like to add surveillance cameras to the exterior of the building.	All Hazards	Low	City Fire and Administration	FEMA HMA, Homeland Security grants, Municipal budget	\$21M	1 year	Ongoing	Currently under construction Fire risk reduction Action addresses socially vulnerable populations. Climate change will not affect the action outcome.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 4-9	Initiate Quarterly Inspect Sewer Pipes	Quarterly, use a video feed to inspect the conditions of City pipes.	All Hazards	Low	City Public Works and Engineering	Municipal budget	\$250,000	5 + years	Ongoing	In development. Flood risk reduction Action addresses socially vulnerable populations
Action 4-10	Install Temporary Signals and Generators for Traffic Lights for Emergency Evacuation Routes	Install temporary signals at intersections when power is out (shore term); identify critical intersections and develop a prioritized list for generator-powered emergency traffic control (long-term).	All Hazards	Low	City Engineering and Transportation Director	FEMA HMA, Municipal budget	\$150,000	4 years	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-11	Increase Security in Public Spaces, especially the Boardwalk, the CBD, and the Train Station	Increase security at DPW, along the Boardwalk, and in City parks. Expand the closed-circuit systems to include public spaces.	Terrorism	Low	City Administration	Homeland Security grants, Municipal budget	\$150,000	1 year	Ongoing	
Action 4-12	Floodproof DPW & Sewer Treatment Plant	Floodproof or elevate facilities for the DPW yard and sewer plant (located on the beach) that are prone to flooding.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	City Public Works and Engineering	FEMA HMA	\$550,000	1 year	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-13	Purchase and Install Generator and Provide ADA Access for the Asbury Park Library (Emergency Shelter)	The library needs a generator and ADA access to service the vulnerable population in times of severe weather events. Additionally, the City would like to migrate the City's data into the library, as it is the safest building in the City.	Flood, Cyber Attack, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	City	FEMA HMA, Homeland Security grants, Municipal budget	\$150,000	2 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 4-14	Acquire properties in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Acquire structures that are listed as RL/SRL properties and restore to open space.	Flood, Nor'easter, Hurricane and Tropical Storm	High	City and Property Owners	FEMA HMA	TBD	5 + years	Ongoing	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.
Action 4-15	Construct strengthened bulkhead along with Interlaken Borough and City of Asbury Park	Strengthen flood resilience along Deal Lake with a fortified bulkhead. Collaboration with surrounding municipalities ensures cost-effectiveness and durability.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Loch Arbour Village, Interlaken Borough, City of Asbury Park	FEMA HMA	TBD	5 + years	New	Lack of funding Flood damage reduction. Action would address socially vulnerable population. Climate change affects the action outcome.

5 – ATLANTIC HIGHLANDS BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Sara Weimer	OEM Director	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Robert Ferragina	Atlantic Highlands Borough Administrator	Reviewed document
Lori Hohenleitner	Atlantic Highlands Mayor	Reviewed document
James Philips	Atlantic Highlands Department of Public Works	Reviewed document
Doug Rohmeyer	Atlantic Highlands Borough Engineer	Reviewed document
Francis Reiner	Atlantic Highlands Borough Planner	Reviewed document

COMMUNITY PROFILE

Overview

The Borough of Atlantic Highlands shares the distinction of being named by the New Jersey chapter of the American Planning Association as a “Great Place in New Jersey.” The borough is in the northeast section of Monmouth County and is part of the county’s Bayshore Region, which includes the nine municipalities that border Raritan Bay. The 1.2-square mile borough set on Raritan Bay offers astonishing views of the New York City skyline, especially from the Mount Mitchell Scenic Overlook, the highest point on the county’s eastern seaboard.

A long waterfront, active harbor, and vibrant downtown with local businesses are just a few of the features that continue to attract people to Atlantic Highlands. The borough is home to the Seastreak Ferry service, which passengers can take to New York City on their daily commute, or to other places such as Martha’s Vineyard and Sandy Hook Beach. The Bayshore Trail, a popular waterfront section of the Henry Hudson Trail that connects Atlantic Highlands and Highlands, was re-opened after being repaired and upgraded with a new drainage system, making it more resilient to damage from future storms.

The Coastal Waterfront Design Element included in the borough’s Master Plan provides guidance for resilient development and redevelopment along the waterfront. It calls for the coordination of the borough’s plans and ordinances with County and State plans. This element is based in part on recommendations from the Jacques Cousteau National Estuarine Research Reserve, as noted in its “Getting to Resilience” report, which evaluated the borough’s potential risks from natural disasters.

After receiving substantial property damage from Superstorm Sandy, Atlantic Highlands continues to rebuild and promote resiliency. The Atlantic Highlands Municipal Marina, which was restored after Superstorm Sandy to accommodate 600 boats, was among the largest projects to receive federal disaster funding in New Jersey.

Land Use, Development, & Growth

Atlantic Highlands is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; throughout this period, urban or developed land accounted for nearly 84 percent of its total area, while forested land made up nearly 12 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	6.1	5.9	-3%
Forest	95.3	95.6	>0%
Urban	663.5	664.4	>0%
Water	7.9	6.9	-13%

Wetlands	18.6	18.6	>0%
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Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Recent major development includes two apartment complexes that have been completed during this period. 15 West at 15 Lincoln Ave includes 10 units and was completed in 2021. Saltaire, a development located at 158 1st Ave, includes 18 units, and was completed in 2022. These properties are near the 0.2% annual chance floodplain, but are not located within it.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Following the completion of the Borough Housing Element and Fair Share Plan in 2019, Atlantic Highlands anticipates future housing developments. One such development is Brant Point, which broke ground in April 2024, and will include 16 single-family homes located on Harbor View Drive. Brant Point is not located within the floodplain.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Atlantic Highlands Borough has a total estimated population of 4,409. Of these residents, an estimated 3.5% are under age 5, and 19.6% are estimated to be over age 65. With nearly one-fifth of the population over age 65, the borough may consider targeted pre-disaster communication toward older communities. The borough saw a modest growth between ACS periods, with an estimated population gain of 2.0%.

No parts of Atlantic Highlands meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,409
Population Change since 2017	2.0%
Percent of Population Age < 5	3.5%
Percent of Population > 65	19.6%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flood	Coastal Erosion	Wildfire
Hurricane/Tropical Storm	Extreme Wind	Drought
Landslide	Extreme Temperature	Earthquake
Storm Surge	Tornado	Lightening
	Wave Action	
	Winter Storm	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Pandemic	
	Terrorism	

Note: Dam Failure was ranked N/A by the Borough.

Hazard Ranking Explanation

Atlantic Highlands is one of the few areas within the Monmouth County that has landslide risk. Extreme wind was changed from medium in the prior HMP update to high concern. This is due to several wind events impacting the Borough recently. The Borough ranks extreme temperatures as medium. The main concern from this hazard is the potential for power outages impacting cooling/cooling centers. Wave Action is ranked as medium. The Borough stated that Sandy Hook protects the town from the worst of this hazard. Earthquake is low concern however there were minor cracks in the Borough from the 2024 earthquake centered in New Jersey. Terrorism is ranked medium. The town explained that it is always a concern due to the presence of the ferry service. Dam Failure is not applicable as there are no dams located within the municipality or nearby which would threaten the town in the case of failure.

Significant Hazard Events Since Last Plan Update

Significant hazard events reported in Atlantic Highlands since the last plan update consist largely of Extreme Wind events. Most recently a "Microburst" wind event which occurred on June 22, 2024. As a result of this event, trees were downed all throughout town. This caused a power outage in the Borough for about 8 hours. A similar microburst occurred in 2021 which was similar to the June 2024 microburst. In Summer 2022, the Borough experienced straight line winds.

The Borough has also experienced erosion in recent years caused by landslide experienced on Bayside drive. The borough reports that frequent downed trees and erosion often makes road near Henry Hudson's Springs impassable.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the extent and magnitude of risks and hazards in Atlantic Highlands Borough. Rising sea levels and increased frequency of extreme weather events such as hurricanes, tropical storms, and heavy rainfall will exacerbate flooding and coastal erosion, posing greater threats to the borough's infrastructure and residential areas. The borough's vulnerability to landslides and extreme wind events is also likely to increase, as changing weather patterns lead to more intense and frequent storms. Additionally, higher temperatures and prolonged heatwaves could strain the power grid, leading to more frequent power outages and impacting cooling centers. These changes necessitate proactive measures to enhance resilience and mitigate the adverse effects of climate change on the community.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Atlantic Highlands Borough	
Initial FIRM	8/03/1981

Atlantic Highlands Borough	
Effective FIRM	6/15/2022
Number of Policies In-Force:	105
Total Losses:	86
Total Payments:	\$3,656,275.67
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	15
RL – Total Paid:	\$1,198,789.78
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	4
SRL – Total Paid:	\$115,043.55

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

The Special Flood Hazard Area (SFHA) in the Borough of Atlantic Highlands is primarily located adjacent to the waterbodies of the borough: Many Mind and Wagner Creeks and the areas adjacent to the Raritan Bayshore. Approximately 16.1 percent of the total area of Atlantic Highlands lies within the 1% annual chance flood zone as defined by FEMA. An additional 3.7 percent of the area of the municipality is in the 0.2% annual chance flood zone.

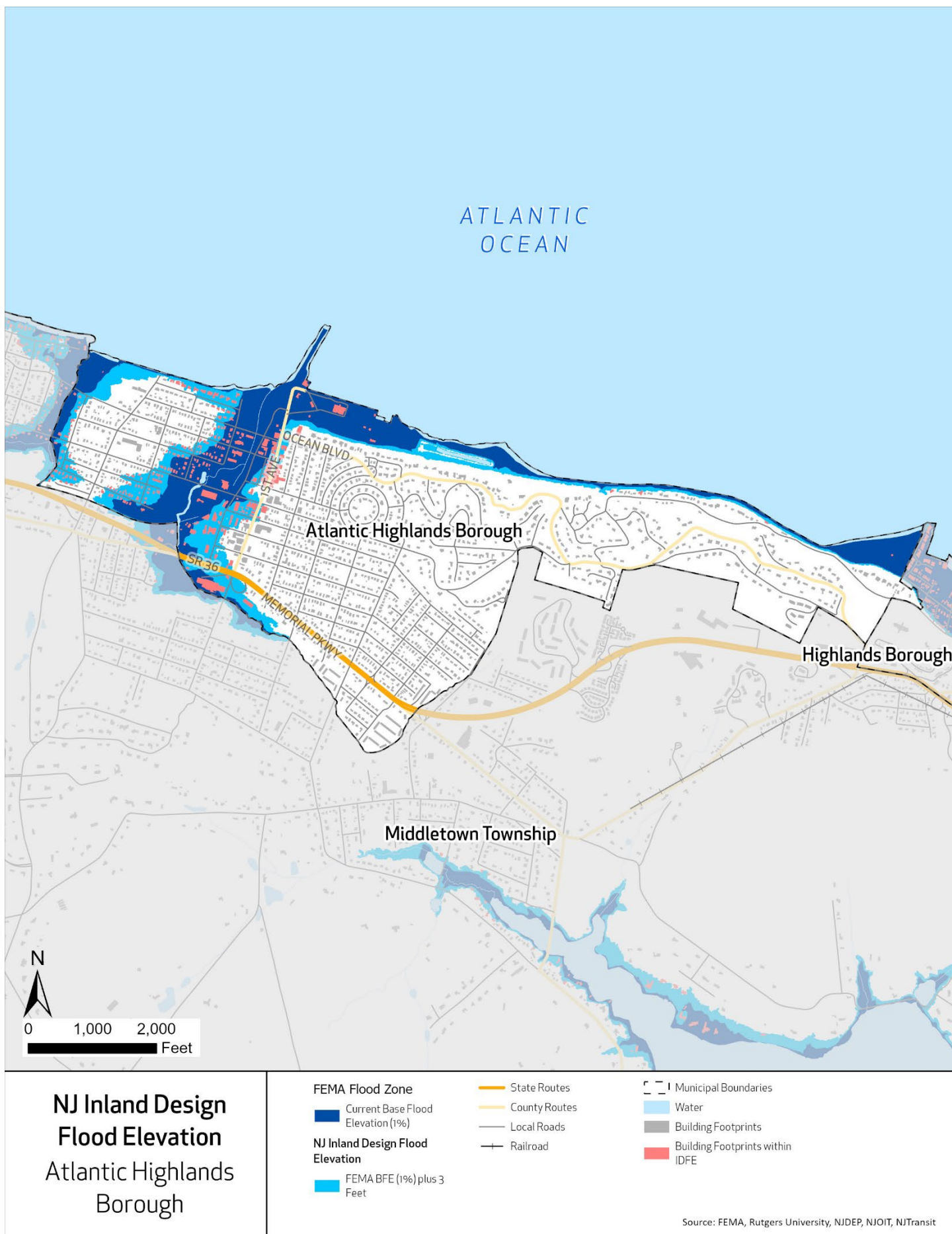
About 83.0 percent of Atlantic Highlands is considered developed. Of the developed parcels of the town, 9.4 percent fall within the 1% annual chance flood zone and 1.0 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	9.4%	1.0%	5.6%
Exposed Land Area	16.1%	3.7%	7.2%

During the planning process, Atlantic Highlands Borough identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified nine total facilities. Of these facilities, none are within the floodplain or areas projected to be at risk from sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number Within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-







Permanent Inundation Under Sea Level Rise (SLR) Scenarios

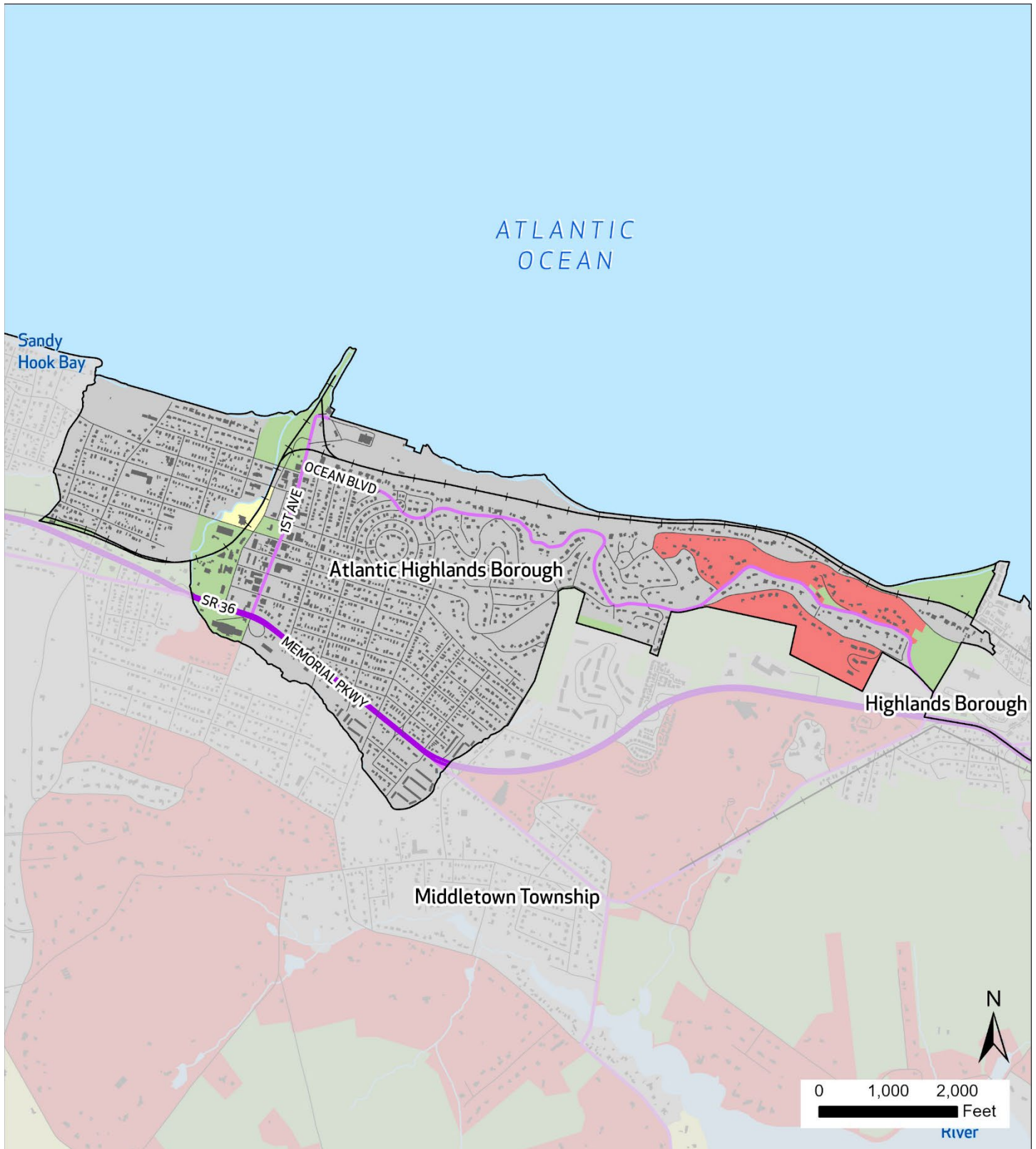
Atlantic Highlands Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Atlantic Highlands Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Atlantic Highlands Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2019	The 2019 Master Plan contains a Coastal Waterfront Design Element intended to guide development and redevelopment along the waterfront and to coordinate local plans and ordinances as well as County and State Plans. The Plan also contains a Conservation Element which establishes the framework for the borough to conserve restore or enhance water resources, wetlands, floodplains, and other natural resources. This section includes recommendations from the January 2015 Getting to Resilience Report as well as discussion of sea level rise and floodplain management objectives.
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	
Floodplain Development Ordinance	X		2022	The Borough adopted a new Flood Damage Prevention Ordinance using the Model Code Coordinated Ordinance created by FEMA and NJDEP to maintain NFIP eligibility. The ordinance did not incorporate optional higher standards.
Floodplain Management Plan		X		
Stormwater Management Ordinance		X		
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan	X			
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			The General Zoning Provisions of the borough contains a Steep Slope Ordinance. This ordinance requires a permit for most work or disturbance, including tree trimming, in the designated Slope Area. The goal of such an ordinance is to reduce the hazards of steep slopes, such as erosion, flooding, and soil slippage.

Administrative and Technical Capabilities

Atlantic Highlands Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		The Floodplain Administrator is the Borough Administrator and is a full-time municipal employee. They Borough Administrator is also responsible for implementing hazard mitigation actions.
Grant Writer	X		The Borough employs a contractor as a grant writer.
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to		X	

Position	Yes	No	Explanation
support hazard mitigation projects			
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations	X		

Education and Outreach Capabilities

Atlantic Highlands Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Borough website has some information on hazards available to the public. The borough also uses phone notifications and social media to communicate hazard information as necessary and in the case of an emergency.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Atlantic Highlands Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities	X		The borough prioritizes risk reduction projects based on impacts to human life and safety.
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Safe Routes to School Rating:** Silver
- **Sustainable Jersey Participation Status:** Silver

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Atlantic Highlands is a sustainable community that actively works to integrate environmental planning with proactive policy and aims to improve resilience to damage from natural disaster. Since 2020, the Borough has completed the standby generator project and continues to work on completion of additional projects to enhance the municipality's resiliency goals. Moving forward, Atlantic Highlands Borough will remain forward thinking and prioritize roadway, steep slope, and critical infrastructure improvements, coordinating with local, county, and state agencies on the best ways to achieve resiliency within this community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	There are no completed or withdrawn actions.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 5-1	Construct Proper Drainage Infrastructure to Eliminate High Velocity Overland Flows that Cause Slope Failure	Design and construct proper drainage to eliminate the high velocity overland flows that cause slope failure and loading along Hillside Rd & Paper St. There are three options to stabilize the slope: to carry the stormwater from the end of Hillside Rd and pipe it to the Bay, a detention basin, or stop the velocity of the stormwater.	Landslide	High	Borough of Atlantic Highlands	Local budget, grants, open space, HMA	\$2 million	1 year	Ongoing	By providing proper drainage, the velocity of water running off the hill will be slowed down resulting in a lower risk of erosion and landslide. No progress has been made on this action since last plan update.
Action 5-2	Provide Slope Stabilization along Bayside Dr. and Shoreline Protection along the Henry Hudson Trail	Provide hillside stabilization along 400+ feet of Bayside Drive, reduce erosive wave action, stabilize the Henry Hudson shoreline and coastal bluffs, protect the Regional trail access, and stabilize and protect the	All Hazards, Landslide	High	Borough of Atlantic Highlands or Monmouth County	FEMA HMA, FEMA Hazard Mitigation Assistance (HMA), The Nature Conservancy (TNC), NOAA National Fish and Wildlife	\$20,100,000.00	3 years	Ongoing	<i>Placeholder: Meeting with Monmouth County Park System in January 2025 to discuss more about this action.</i> This action should reduce the risk of landslide.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
		function of the Bayshore Regional Sewer				Foundation (NFWF)				
Action 5-3	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Most of the homes that were flooded by Superstorm Sandy are now elevated. The Borough will work with the outstanding RL properties on mitigation options and any new RL/SRL properties that are added to the list.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowner	FEMA HMA	\$407,750	3 years	Ongoing	No progress has been made on this action.
Action 5-4	Purchase and Install Portable 100 KW Diesel Generator at Atlantic Highlands Harbor Utility	A new portable 100 KW diesel generator with transfer switch will be on a trailer and transfer switch will be installed at the Harbor Office. This will allow continued power to the harbor office which will allow refueling for all emergency service vehicles and vessels.	All Hazards, Power Failure	Low	Borough of Atlantic Highlands	Local budget, FEMA FMA	\$62,000	1 year	Ongoing	Project completed: The 110kW Standby Generator has been delivered and installed by contractor. The cost for the Generator was \$117,263.00 U.S. Dollars. The full maximum amount was taken from the borough budget in 2023.
Action 5-5	Floodproof First Avenue Sewer Pump Station	The pump station needs to be floodproofed with bulkheading at both the entrance door and garage door and install a bulkhead in front of the generator that keeps the plant up and running during power outages.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough of Atlantic Highlands	FEMA HMA	\$40,000	1 year	Ongoing	No progress has been made on this action since last plan update.
Action 5-6	Restore the Many Mind Creek Stream Corridor	Implement the mitigation actions from the Army Corp of Engineers Report and the Monmouth County Raritan/Sandy Hook Bay	Flood, Wave Action,	Low	Borough of Atlantic Highlands	FEMA HMA, NJ Corporate Wetlands Restoration Partnership		2 years	Ongoing	Remediation of Many Mind Creek has been completed by the NJ Natural Gas Company for contamination related to its historical use as a dumping ground

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
		Coastal Resilience Planning Study, including but not limited to clearing the existing outlet to allow the creek to properly discharge into the Bay provide habitat for local fauna.	Nor'easter, Hurricane and Tropical Storm, Storm Surge			(NJCWRP), National Oceanic and Atmospheric Administration				for coal tar waste and other pollutants. Any mitigation actions were dependent on that being completed. The Creek has been dredged but flooding has not improved. Additional drainage at the confluence of the creek with the bay, should result in proper drainage of the creek during tidal changes.
Action 5-7	Extend the Existing Breakwall in the Raritan Bay to Protect the Marina	Extend the existing breakwall 150 LF to the east into the Raritan Bay, enclosing and protecting the marina.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Atlantic Highlands	FEMA HMA	\$8 million	2 years	Ongoing	No progress has been made on this action since last plan update.
Action 5-8	Work with the County to install a new breakwall to protect the Bayshore Waterfront Trail	Work with the County to install a new breakwall to protect the Bayshore Waterfront Trail	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Monmouth County	County	TBD	5 years	New	This action was initiated by Monmouth County to protect the Bayshore Waterfront Trail. Atlantic Highlands Borough doesn't own the trail but will work with the County within the scope of responsibility to assist.

6 – AVON-BY-THE-SEA BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Ken Child	OEM Coordinator	Individual Meeting, Mitigation Workshop, Point of Contact

COMMUNITY PROFILE

Overview

The Borough of Avon-by-the-Sea is a predominantly residential beachfront resort community fronting the Atlantic Ocean and Shark River. The 0.4-square mile borough is characterized by its small commercial district along Main Street and numerous single-family Victorian homes. Several quaint bed and breakfast inns are available for seasonal and year-round visitors. The allure of the borough's boardwalk and beaches make it a popular destination for day-trippers as well as those seeking a quiet vacation. One of Avon's most popular venues is The Columns, a seasonal restaurant and club in a Victorian mansion overlooking the Atlantic Ocean.

In 2016, Avon-by-the-Sea became the 12th Monmouth County municipality to join FEMA's CRS program, and did so with a rating of Class 6, which provides residents with a 20 percent reduction in flood insurance rates. In 2017, the Borough submitted a Municipal Public Access Plan to the New Jersey Department of Environmental Protection (NJDEP) that provides a vision for public access to tidal waters and the shoreline. The Borough is currently in the second phase of a living shoreline project at Sylvan Lake intended to improve its water quality.

Land Use, Development, & Growth

Avon-by-the-Sea is a predominantly residential community, with urban or developed land accounting for nearly 78 percent of its total area. Between 2015 and 2020, the community underwent minimal change in its land use composition; throughout this period, urban or developed land accounted for roughly 78 percent of its total area and the share of water and barren land hovered at approximately 16 percent and 6 percent, respectively.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	17.8	18.7	5%
Forest	-	-	-
Urban	246.9	246.9	>0%
Water	52.1	50.3	-3%
Wetlands	1.4	2.3	64%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The former US Coast Guard Station closed (135 Washington Ave) and the plan is to build four new homes along Washington Avenue and two more homes on the former US Coast Guard property off Washington Lane. All these properties are within FEMA's 1% annual chance floodplain (NJFloodMapper).

There are redevelopment plans for 15 townhouses at 2 Field St and five to six townhouses at 719 Route 71. These properties are not located in the Floodplain and do not experience flooding.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Avon-By-The-Sea Borough has a total estimated population of 1,792. Of this population, 1.2% are estimated to be under age 5, and 33.4% are estimated to be over age 65. With such a large population of the borough over age 65, Avon-By-The-Sea may direct hazard mitigation strategy with an aging population taken into consideration. The Borough experienced a modest population loss between the ACS periods of 2013-2017 and 2018-2022, with an estimated -1.2% fewer residents in the latter period.

No parts of the borough meet criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,792
Population Change since 2017	-1.2%
Percent of Population Age < 5	1.2%
Percent of Population > 65	33.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperatures	Lightning
Nor’easter	Extreme Wind	Drought
Flood	Tornado	Wildfire
Storm Surge	Winter Storm	Earthquake
	Coastal Erosion	
	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

There are no changes in hazard ranking since the previous plan in 2021. However, it is important to note that the Borough has continued to experience significant hazard events, such as the extreme wind event in March 2021, which caused minor

roof damage to homes within the Borough. Additionally, the installation of backflow preventers has mitigated flooding from Shark River, reducing the frequency of flooding in certain areas from annually to once every three years.

Significant Hazard Events Since Last Plan Update

In March 2021, there was an extreme wind event from a thunderstorm that caused minor roof damage to homes within the Borough.

When Shark River backs up, water comes up through storm drains. However, this has been mitigated by the installation of backflow preventers at 1st Avenue, 2nd Avenue, 4th Avenue, and 5th Avenue near the River. 3rd Avenue does not have a backflow preventer as it is tied into the County Road (Washington Ave), so water floods on 3rd Avenue. During heavy rain events, water from Shark River can overtop the bulkheads, and there is no way to stop it. This area of the Borough used to flood every year, but with the installation of the backflow preventers, this area only floods once every three years when water comes over the bulkheads.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Avon-by-the-Sea. One of the primary concerns is the increase in sea levels, which will exacerbate the risk of coastal flooding. The borough is already vulnerable to flooding from the Shark River and the Atlantic Ocean, with a significant portion of its area lying within the 1% annual chance flood zone. As sea levels rise, the frequency and severity of flooding events are likely to increase, posing a greater threat to homes, businesses, and critical infrastructure. This will necessitate the implementation of more robust flood mitigation measures, such as the construction of additional backflow preventers and the elevation of buildings in flood-prone areas.

Additionally, rising temperatures due to climate change will lead to more frequent and intense heatwaves. Avon-by-the-Sea, like many other coastal communities, is particularly vulnerable to the effects of extreme heat due to its urbanized environment and limited green spaces. This can have severe health implications for residents, especially the elderly population, which constitutes a significant portion of the borough's demographics. The borough will need to enhance its heat mitigation strategies, such as increasing the availability of cooling centers and promoting the use of green infrastructure to reduce the urban heat island effect. Overall, climate change will amplify the extent and magnitude of existing hazards, making it crucial for Avon-by-the-Sea to implement comprehensive adaptation and mitigation strategies.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Avon-by-the -Sea Borough	
Number of Policies In-Force:	347
Total Losses:	303
Total Payments:	\$14,693,105.95
Number of RL Properties:	10
Number of Mitigated RL Properties:	0
RL – Total Losses:	28
RL – Total Paid:	\$1,568,624.24
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	4
SRL – Total Paid:	\$93,456.27

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

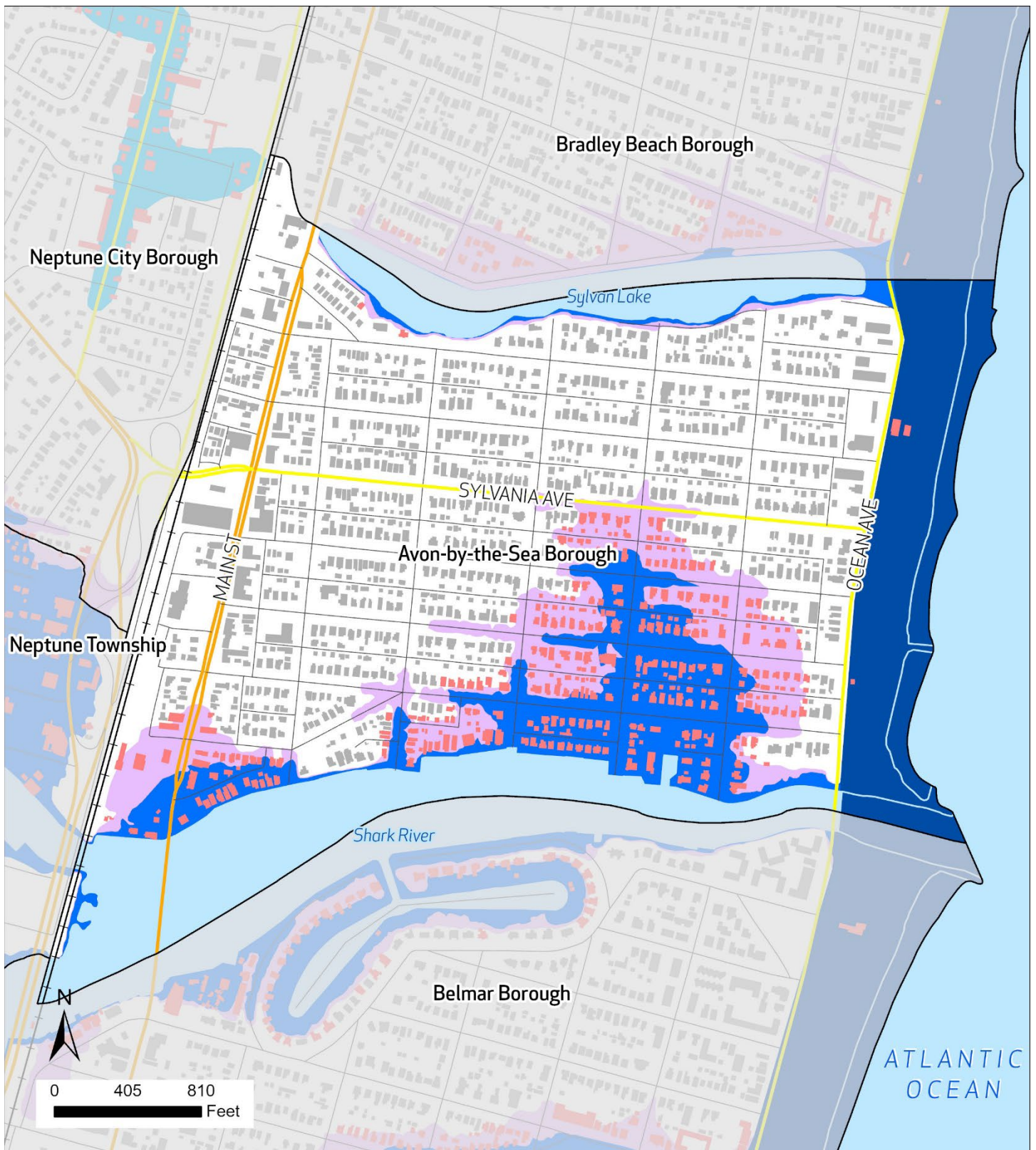
The Special Flood Hazard Area (SFHA) in the Borough of Avon-by-the-Sea is primarily located adjacent to the waterbodies of the borough: Sylvan Lake, the Shark River and the Atlantic Ocean. The low-lying area near the Shark River is especially flood prone, reaching up 2nd Ave and adjacent streets. Approximately 25.8 percent of the total land area of Avon-by-the-Sea lies within the 1% annual chance flood zone as defined by FEMA. An additional 10.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 81.0 percent of Avon-by-the-Sea is considered developed. Of the developed parcels of the town, 18.7 percent fall within the 1% annual chance flood zone and 12.3 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	18.7%	12.3%	24.9%
Exposed Land Area	25.8%	10.2%	23.8%

During the planning process, Avon-by-the-Sea identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified seven total facilities. Of these facilities, none are within the floodplain or in areas projected to be at risk from sea level rise

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk Avon-by-the-Sea Borough

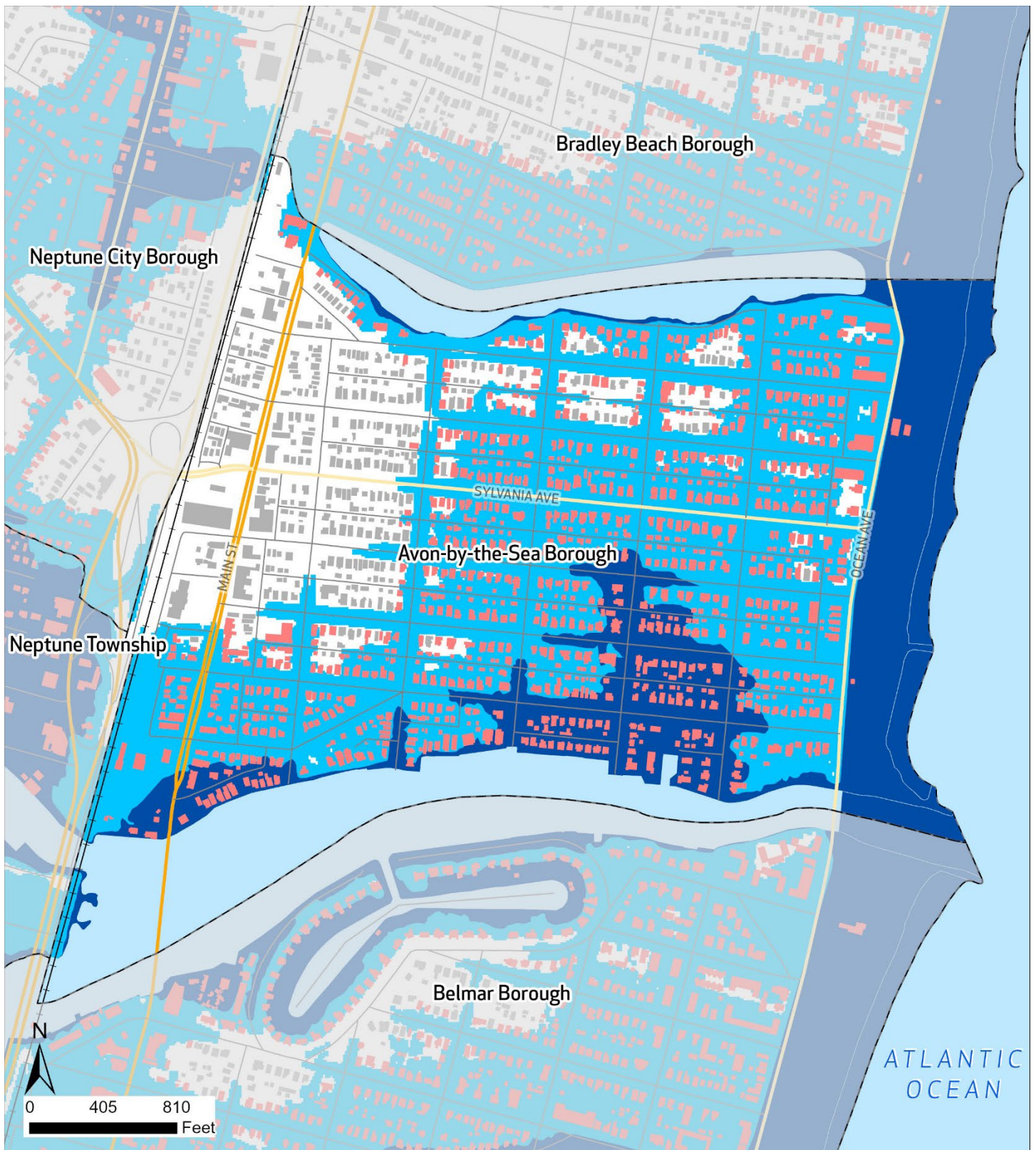
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Avon-by-the-Sea Borough

FEMA Flood Zone

 Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

 FEMA BFE (1%) plus 3
Feet

 State Routes

 County Routes

 Local Roads

 Railroad

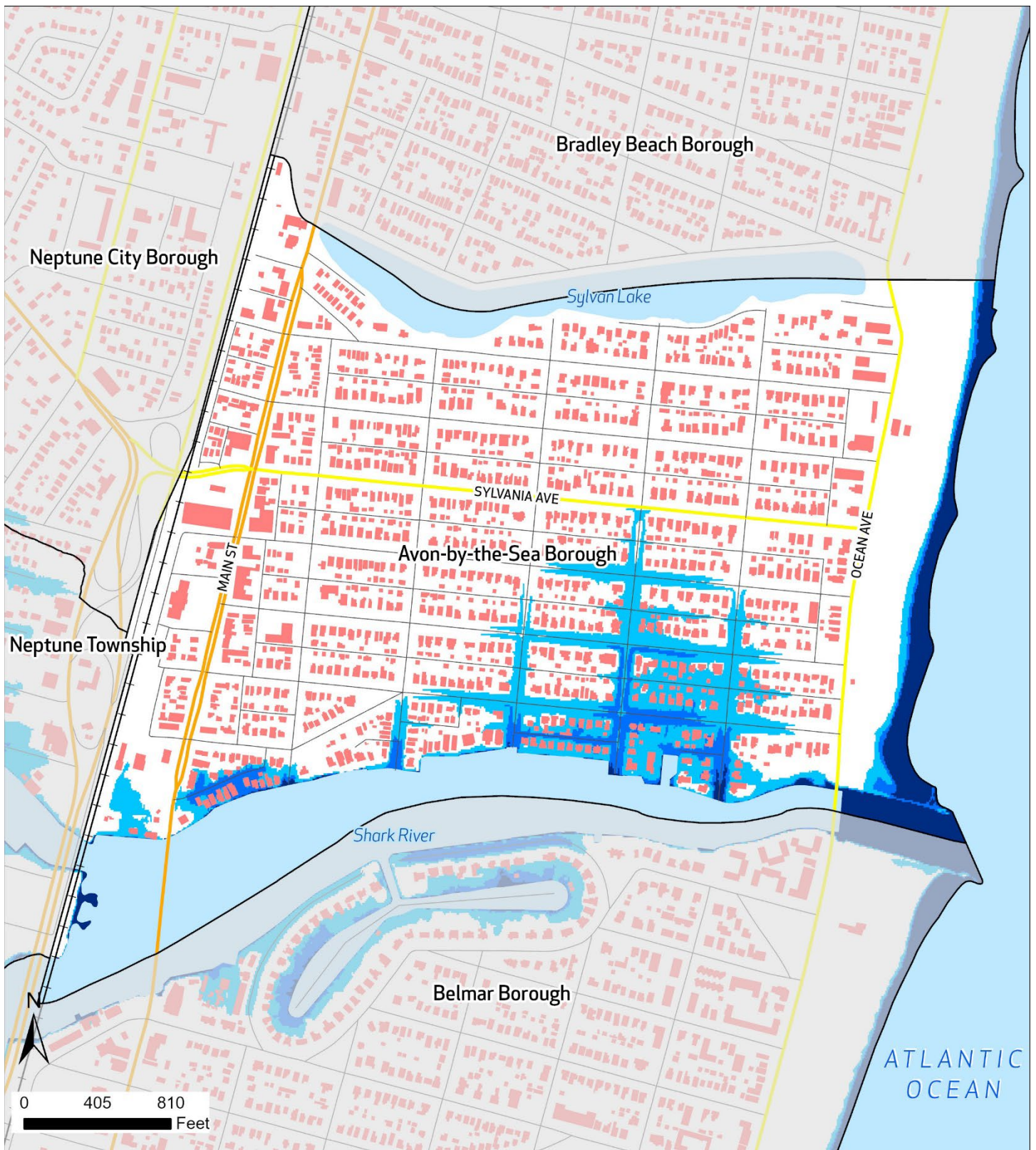
 Municipal Boundaries

 Water

 Building Footprints

 Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios

Avon-by-the-Sea Borough

- | | | |
|---|--|--|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Avon-by-the-Sea Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Avon-by-the-Sea Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2004 – 2018 update	
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan		X		
Floodplain Development Ordinance		X		
Floodplain Management Plan		X		
Stormwater Management Ordinance		X		
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Part of the Regional Flood Mitigation Group that produces flood studies and ongoing mitigation projects.
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Avon-by-the-Sea Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		X	
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	Low socially vulnerable population in the Borough.

Education and Outreach Capabilities

Avon-by-the-Sea Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public		X	
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Avon-by-the-Sea Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Avon-by-the-Sea is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System (CRS) Classification:** 7
- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since 2021 Avon-By-The-Sea has been focused on flood mitigation with new homes being built to the new flood elevations and the remodeled homes being retrofitted as much as possible to bring them into compliance. We have also been focused on the river and lake with flood compliance as well. The Shark River has had back-flow preventers installed in three different pipes that allow outfall of water to the river to prevent water from backing up into the road surfaces adjacent to the river. These have been successful in reducing flooding along the river unless the water comes over the wall adjacent to the river.

At the Sylvan Lake we have removed a concrete wall adjacent to the lake in three larger sections and replaced the wall with a sloped area of vegetation which reduces the likelihood of flooding from coming into adjacent roadways or yards. A middle section of the lake is still under consideration for this type of work, but this area has several sections which are already down and reducing the challenges with flooding. Other than that, the town continues to educate the residents on emergency preparedness.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
There are no completed or withdrawn 2021 actions at this time										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
6-1	Dredge Sylvan Lake and Remove Sediment	Overall goal of project is to reduce sediment levels within the Sylvan Lake Drainage Basin to improve the health of the waterway and to provide additional capacity for stormwater runoff and coastal inundation during storm surge. The Borough would like to	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Borough Administrator supported by OEM Duty Coordinator	NRCS grants, Municipal budget, The Nature Conservancy (TNC), USDA	\$1M	2 years	Ongoing	
6-2	Acquire, elevate, or relocate buildings and infrastructure in flood	Mitigate Flood-prone Properties, especially RL and SR Properties.	Flood, Wave Action, Nor'easter,	High	This project is managed cooperatively	FEMA HMA	\$4.6M	5 + years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties		Hurricane and Tropical Storm, Storm Surge		with the Construction Department, Floodplain Administrator and the Office of Emergency Management					
6-3	Construct a Tide Value for Sylvan Lake	Coordinate with Bradley Beach on constructing a Tide Value to lower the level of the lake.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Avon-by-the-Sea; Bradley Beach	FEMA HMA, Municipal budget	TBD	2 years	Ongoing	
6-4	Fortify Sewer Pump Station to Provide for Continuity of Operations During Storm Events	Elevate and flood-proof sewer pump station to provide for continuity of operations during storm events.	Flood, Hurricane and Tropical Storm, Storm Surge	Medium	Borough	FEMA HMA	\$100,000	1 year	Ongoing	
6-5	Construct Backflow Preventors along Shark River and Rebuild Stormwater Infrastructure	Construct backflow preventors at the end of all the streets that terminate at Shark River (1st Ave - 5th Ave) and rebuild stormwater infrastructure and manholes alongside the backflow preventor construction.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough	FEMA HMA	TBD	3 years	Ongoing	
6-6	Upgrade Surveillance Systems at Critical Facilities	Upgrade surveillance system and connect the school and municipal facilities feed into one combined system.	Terrorism	Low	Borough	DHS	TBD	1 year	Ongoing	

7 – BELMAR BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Robert DeMartin	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
Brian Poppert	Deputy OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
Kevin Kane	Business Administrator	HMP Review
Billy Musto	DPW Supervisor	HMP Review
April Claudio	Borough Clerk	HMP Review
James Oris	Borough Engineer	HMP Review
Gerald Buccafusco	Mayor	HMP Review

COMMUNITY PROFILE

Overview

The Township of Belmar is a one-square mile community with a small-town charm that was founded in 1872. Belmar is one of the most active seaside communities on the Jersey Shore, with year-round attractions including restaurants and shops along Main Street, recreational activities, an active marina with restaurants overlooking the Shark River, a boardwalk with eateries, a first aid station with restrooms, a vibrant art scene, and annual festivals including the very popular New Jersey Seafood Festival. Belmar is a beautiful community with beaches and a 1.3-mile boardwalk that is open year-round with panoramic views of the Atlantic Ocean.

Belmar adopted a beach management plan in 2019 that addresses long-term protection and recovery of threatened and endangered species populations, while recognizing the need for storm protection and recreation. As part of this effort, the Borough planted dune gardens at the 4th and 12th Avenue beaches featuring pollinator-friendly plants in addition to traditional dune grasses. In 2022, Belmar was awarded a Certificate of Recognition from the NJ Transit Village Initiative for being a Designated Transit Village for 20 years.

Land Use, Development, & Growth

Belmar is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; throughout this period, urban or developed land accounted for nearly 65 percent of its total area. The area covered by water did diminish marginally or by 2 percent, but it still accounted for nearly 30 percent of the Borough's area in this period.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	43.5	48.0	10%
Forest	0.7	0.7	>0%
Urban	614.5	615.0	>0%
Water	287.6	281.5	-2%
Wetlands	5.0	6.1	22%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

48 units are being constructed at 5th Avenue and Main Street, 72 at 9th Avenue and Main Street, and 10th Avenue and Railroad Avenue. Parts of these streets fall under FEMA's 1% and 0.2% annual chance floodplain, and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper). Belmar Inn is also due to be

demolished and converted into condominiums and may be within the New Jersey State Flood Hazard Area, as estimated by FEMA BFE +3.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

On 12th Ave, the Belmar Inn is due to be demolished and converted into condominiums, two residential structures will be demolished to make way for a modern condominium complex. The new complex will include new stormwater management facilities, underground utilities, solar panels, and electric vehicle charging stations. All improvements are intended to be ADA-compliant.

198 units are to be constructed on Marina Avenue between 8th and 10th Avenue at the prior Motel Lodge by the railroad. 139 units are to be constructed at 6th Avenue and Main Street, 56 units by 8th Avenue and Main Street, and additional units at 10th Avenue near Main Street. Parts of these streets fall under FEMA's 1% and 0.2% annual chance flood hazard, and NJ Inland Design Flood Elevation (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Belmar Borough has a total estimated population of 5,877. This population is estimated to be 3.5% under 5 years old, and 17.5% over age 65. With nearly one-fifth of the borough population over age 65, Belmar may consider targeted engagement strategy and evacuation plans with an aging population in mind. The borough experienced population growth between 2013-2017 and 2018-2022 survey periods, gaining an estimated 2.8% in population during this time.

The borough has one block group on its far west side identified as potentially vulnerable due to overburden (OBC) based on Low Income population criteria. No areas of Belmar Borough meet designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	5,877
Population Change since 2017	2.8%
Percent of Population Age < 5	3.5%
Percent of Population > 65	17.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/ Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Coastal Erosion	
	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Nor'easters remain a significant concern. In January 2022, a storm caused oceanic flooding on Ocean Avenue at the southern end of Belmar. Coastal erosion is a moderate concern due to the erosion on the beachfront and marina.

Significant Hazard Events Since Last Plan Update

Flooding occurred at Silver Lake during the 2024 storm, which brought eight inches of precipitation and caused the lake to overflow at street level. However, improvements at Silver Lake and Lake Como help keep the flooding at street level, preventing it from affecting homes. Route 35 experienced coastal flooding, with the worst occurring at Route 35 and K Street by the L Street beach. The flooding backs up onto K Street towards 13th Avenue. Route 35 is shut down about ten to fifteen times per year. Additionally, Route 35 and Maplewood Road flood from runoff.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the extent and magnitude of risks and hazards in Belmar. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and heavy precipitation are likely to increase. This will exacerbate coastal flooding, storm surges, and erosion, posing greater threats to Belmar's infrastructure and residential areas. The increased precipitation will also lead to more frequent and severe inland flooding, particularly in low-lying areas near Silver Lake and Lake Como, which are already prone to overflow during storms.

Moreover, sea level rise will further elevate the risk of coastal flooding and erosion. This will not only affect the beachfront and marina but also critical infrastructure such as Route 35, which already experiences frequent flooding.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Belmar Borough	
Initial FIRM	5/13/1972
Effective FIRM	6/15/2022
Number of Policies In-Force:	740
Total Losses:	485
Total Payments:	\$19,379,207.82
Number of RL Properties:	33
Number of Mitigated RL Properties:	0
RL – Total Losses:	85
RL – Total Paid:	\$3,449,480.56
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	6
SRL – Total Paid:	\$188,405.49

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

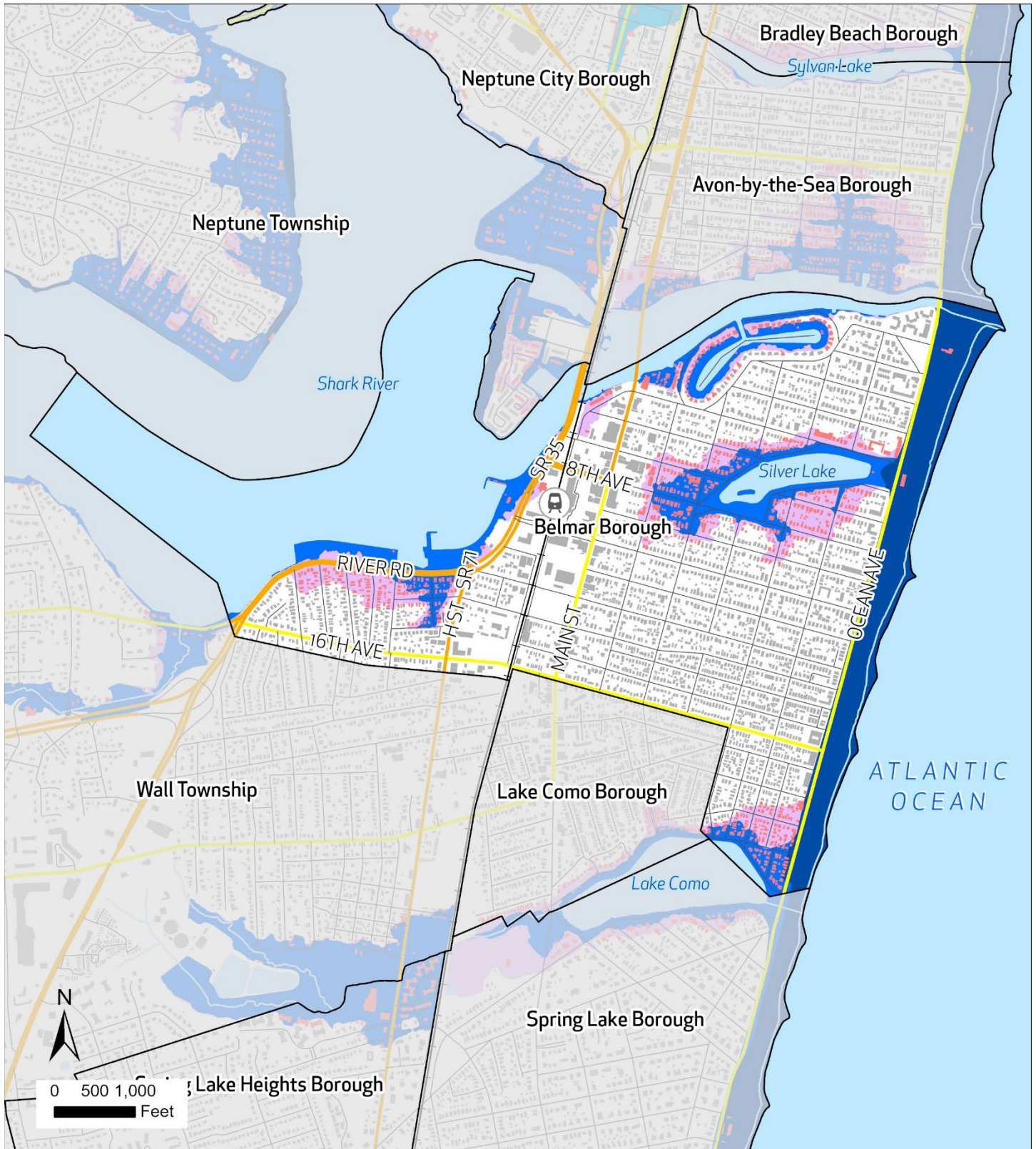
The Special Flood Hazard Area (SFHA) in the Borough of Belmar is primarily located adjacent to the waterbodies of the borough: Silver Lake and Lake Como, the Shark River and the Atlantic Ocean. The low-lying areas near these Lakes are especially flood prone. Approximately 25.1 percent of the total land area of Belmar lies within the 1% annual chance flood zone as defined by FEMA. An additional 7.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 82.6 percent of Belmar is considered developed. Of the developed parcels of the town, 25 percent fall within the 1% annual chance flood zone and 10.2 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	12.5%	13.8%	5.6%
Exposed Land Area	25.1%	7.2%	7.5%

During the planning process, Belmar identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 14 total facilities. Of these facilities, three are located within the floodplain and one is within the area projected to be at risk from sea level rise. These facilities include facilities within the energy, safety and security, and water systems community lifeline types.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number Within 5 feet of Sea Level Rise
Energy	1	-	1
Safety and Security	-	1	-
Water Systems	1	-	-



Flood Risk Belmar Borough

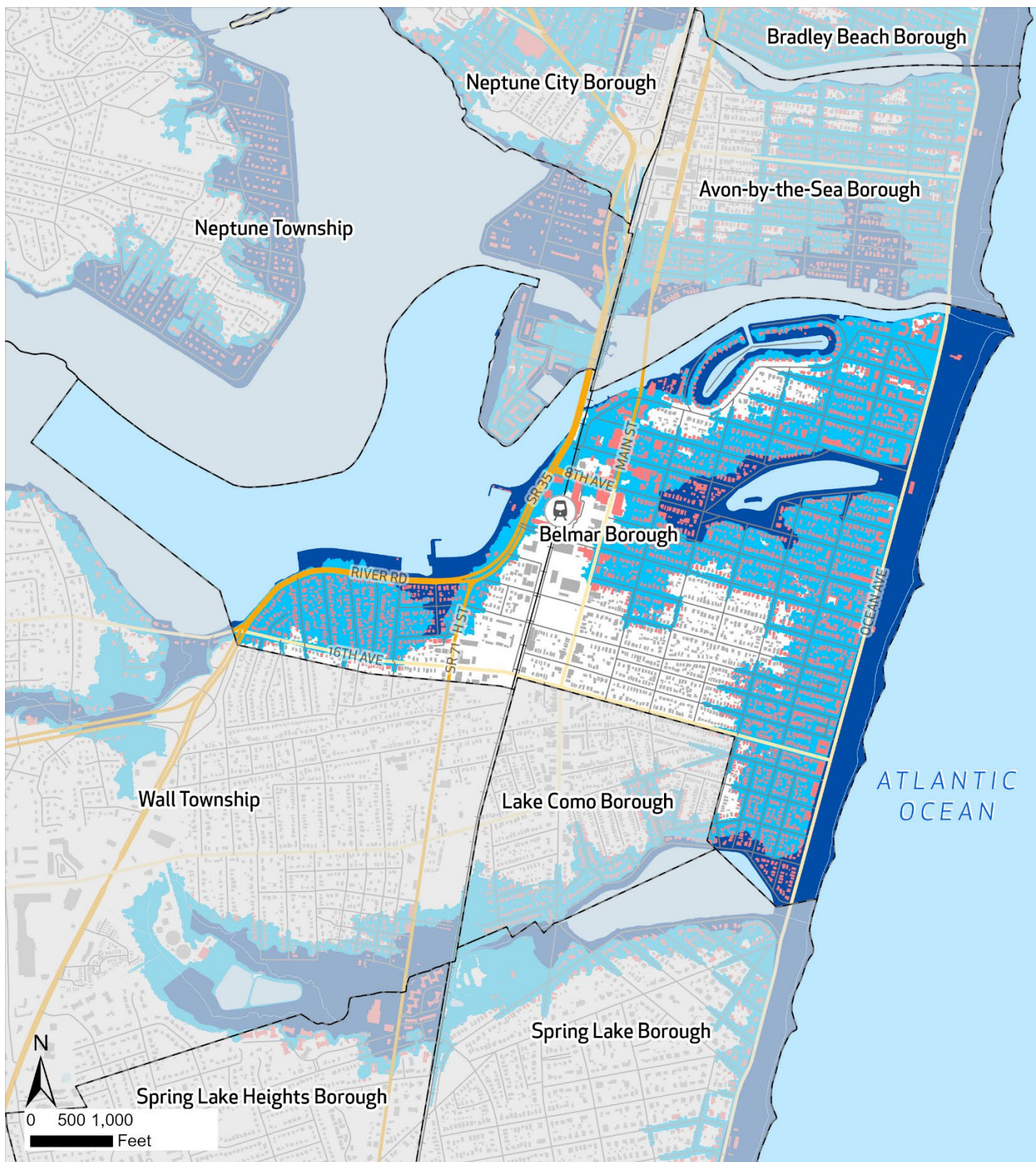
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Belmar Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Belmar Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Belmar Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Belmar Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2016	Has supporting recommendations for hazard mitigation and resilience
Capital Improvement Plan	x			
Local Emergency Operations Plan/Continuity of Operations Plan	x			
Floodplain Development Ordinance	x			
Floodplain Management Plan	x			
Stormwater Management Ordinance	X			
Stormwater Management Plan	x			
Watershed Management Plan	x			
Sheltering Plan	x			
Evacuation Plan	x			
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan	x			Letters sent to residents in flood zones yearly
Disaster Debris Management Plan		x		
Tracking elevation certificates and/or Letter of Map Change	x			
Post-Disaster Recovery Plan	x			
Current/recent redevelopment plans or studies	x			
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discuss hazard mitigation	x			
Other ordinance and regulation that mitigate the impacts of natural hazards		x		

Administrative and Technical Capabilities

Belmar Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer	x		
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	x		
Organizations that work with socially vulnerable or underserved populations		x	

Education and Outreach Capabilities

Belmar Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Nixle, social media
StormReady	x		
Firewise USA		x	
Severe Weather Awareness Week		x	
Community Rating System (CRS)	x		

Financial Capabilities

Within the last five years, Belmar Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		X	
FEMA Public Assistance		x	
FEMA HMGP		x	
Non-FEMA Federal Funding Programs		x	
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs	x		
Evaluation process on the prioritization of risk reduction projects against other local activities	x		Jakes Law – Inclusive Park Monmouth County Park Agreement, lights for Dempsey Park
Other ongoing efforts to build additional financial capabilities	X		NJDOT Road grants, Transit village grant

Additional Capability Assessment Information:

- Belmar is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System: Class 5**

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The mission of the Borough of Belmar Hazard Mitigation Plan is to enhance the resilience and safety of our community by proactively identifying, assessing, and reducing the risks posed by natural and human-made hazards. Through collaborative efforts, strategic planning, and the implementation of practical solutions, we aim to protect lives, property, and the environment while ensuring the continued vitality of Belmar. We are committed to fostering a culture of preparedness, promoting sustainable development, and prioritizing the well-being of our residents and visitors in the face of current and future challenges.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 7-1	Purchase and Install Transfer Switches for Generators	Transfer switches for generators at the fire station/first aid building, municipal complex.	All Hazards	Low	Borough	FEMA HMA	\$100,000	1 year	Completed	Self-funded by Borough. \$100K.
Action 7-2	Mitigate Silver Lake Flooding	The Silver Lake Flooding mitigation project is constructed. A 48" gravity fed and forced main running from Silver Lake to the Shark River Inlet under A Street.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$1,300,000	N/A	Completed	Self-funded through Bond Ordinance
Action 7-3	Consolidate and Relocate Emergency Services Outside of SFHA	Consolidate the three fire stations and first aid squad to a building outside the SFHA.	All Hazards	N/A	N/A	N/A	N/A	N/A	Withdrawn	<i>Not in the current plan.</i>

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 7-4	Lake Como Flooding Mitigation	The Lake Como Flood Mitigation Project is to increase the amount of stormwater which can be removed from the lake before and during a storm event, by replacing the current outlet pipe and providing for a permanent forced main to pump out storm water.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$25,000	N/A	Ongoing	<i>Self funded by bond. \$165K</i>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 7-5	Replace and Elevate Bulkhead at L Street Beach and Maclearie Park	Replace existing timber bulkhead with a new steel bulkhead along Route 35 at L Street Beach and Maclearie Park. The existing timer and concrete are deteriorated and too low to offer significant protection to the properties behind it.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$2,700,000	N/A	Ongoing	<i>Landings replaced by FEMA BRIC. Remaining sections still need to be completed.</i>
Action 7-6	Purchase and Install a Generator for Police Station to Provide Continuity of Operations During a Storm	The Belmar Police Station needs a new generator to provide for continuity of operations during a storm event.	All Hazards	N/A	N/A	N/A	\$200k	N/A	Ongoing	<i>Waiting on funding.</i>
Action 7-7	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Of the approximately 210 houses located in the SFHA of VE and A, 114 are primary residences that are eligible for federal funding to cover the Increased Cost of Compliance to elevate the structures. These primary residences range from Elevation 6 - 11.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Affected homeowners	FEMA HMA		2 years	Ongoing	Still waiting for funding. With the Borough having control of high-risk areas and properties, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed.
Action 7-8	Install a Steel Sheet Pile along the Beach	The installation of a steel sheet pile, 30-feet long driven into the beach on the east side of the boardwalk (on the east side of Ocean Avenue) will establish surge protection at elevation 13 feet.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Belmar	FEMA HMA	\$5,000,000	2 years	Ongoing	No funding.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 7-9	Improve Beachfront Surveillance Capabilities with fixed cameras	The Borough identifies a need for increased surveillance on the beachfront. There are currently 3 functional cameras, but more are needed.	Terrorism	Low	Borough	FEMA DHS	\$20,000	3 years	New	Borough looking to add 3 more surveillance cameras on the beachfront which is one of the biggest summer tourism beaches in the state. These cameras would assist in surveillance along with assisting with missing persons on the beach or in water. These cameras would also assist in monitoring coastal storms and flooding from the OEM EOC.
7-10	Pump station on State Hwy 35	The Borough identifies a need for a new pump station for a wet well. During coastal storms and power outages, the pump station does not work and causes backup.	All Hazards	High	Borough	FEMA HMA	\$250,000	3 years	New	During storms and tidal flooding, the pump station does not work efficiently, leading to sewage backup. The pumps are outdated and need to be replaced. Continued coastal flooding and storms make this a more common occurrence.
7-11	Tide Check Valves on State Hwy 35 and K St.	During coastal storms and high tides, flooding occurs on State Hwy 35 in the area of K St. Water from the Shark River Inlet will come up through the catch basins leading to coastal flooding and road closures to State Hwy 35 and neighboring streets.	All Hazards	High	Borough	FEMA HMA	\$500,000	3 years	New	This is a high priority as the roadway floods approximately 13 times a year. This flooding leads to road closures of a state highway which is a main thoroughfare through town. This roadway is an access route to the local hospital for surrounding towns. By addressing this issue will help reduce road closures and water backing up into residents' property nearby.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
7-12	Relocate borough fuel pump from a flood zone or elevate.	The Borough currently has its fuel pumps located in the marina. This area is in a flood zone and at risk of being inaccessible and/or damaged during a coastal flooding event. Borough would like to relocate fuel pump to another location in town.	All Hazards	High	Borough	FEMA HMA	\$250,000	5 years	New	The Borough's fuel pump which is utilized by emergency vehicles and town vehicles which service Belmar and Lake Como. This fuel pump is located in the Belmar Marina in a flood zone and has flooded in the past. When flooded, vehicles do not have access to fuel. By moving the fuel pumps to a non-flood zone will help ensure proper response during an emergency or storm from.

8 – BRADLEY BEACH BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Norman Goldfarb	OEM Coordinator	Attended Municipal Workshops #1 and #2, Attended meeting on 2/20/25, Reviewed appendix and provided input.
Robert Pearsall Jr.	OEM Deputy Coordinator	Attended Municipal Workshops #1 and #2, Attended meeting on 2/20/25, Reviewed appendix and provided input.
James C Arnold	Chief of Police	Attended meeting on 2/20/25, Reviewed appendix and provided input.
Jennifer Beahm	Borough Planner	Attended meeting on 2/20/25, Reviewed appendix and provided input.
Ben Matlack	Borough Engineer	Reviewed appendix and provided input.

COMMUNITY PROFILE

Overview

Bradley Beach is an oceanfront Borough in coastal Monmouth County, New Jersey, initially developed as a popular resort town as part of Ocean Township and then Neptune Township. Bradley Beach was incorporated as a Borough in 1893, making it one of the youngest towns along New Jersey's shore. The Borough is a small but diverse town that describes itself as a family community. The Borough has a total land area of 0.63 square miles, with 4,268 estimated residents (as of 2018-2022 ACS estimates).

Bradley Beach is largely built out with residential and commercial development. Bradley Beach has a thriving downtown corridor along Main Street (State Route 71) which runs north to south along the Borough's western portion. Main Street features a growing number of retail and dining establishments, in addition to the popular Bradley Brew Project microbrewery. The Borough adopted a Complete and Green Streets policy in 2022, an initiative that intends to provide safe roadways for all users, including pedestrians and bicyclists. Following a road safety audit of Main Street, the Borough installed bicycle-friendly infrastructure including bike racks and sharrows along Main Street.

Bradley Beach is bounded by two retention basin lakes – Fletcher Lake to the north and Sylvan Lake to the south. The topography of Bradley Beach causes most water runoff through the town to roll south toward Sylvan Lake. To the east, Bradley Beach has vegetated dune structures protecting much of the Atlantic Coast connection to the developed Borough.

To promote resilience, provide educational outreach, and bring community awareness to the preferred use of natural resources to mitigate coastal storm events, Bradley Beach constructed a maritime forest along Fletcher Lake in 2013 featuring indigenous coastal ecosystem tree, shrub, and grass species. Recommendations in the 2014 Master Plan Reexamination Report to "increase its sustainability profile by setting forth a Borough wide green initiative" allowed Bradley Beach to achieve a bronze-level certification from Sustainable Jersey.

Land Use, Development, & Growth

Bradley Beach is a primarily residential community, although publicly owned land forms a substantial part of the Borough. As a result of the predominance of residential land use, in 2020, urban or developed land accounted for 86 percent of the Borough's total area. From 2015, the acreage covered by developed land hovered at roughly 355 acres, while wetlands grew by nearly 15 acres, while barren land diminished by 11 acres. However, these changes did not heavily impact the overall land use composition of the Borough.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Barren Land	35.2	24.2	-31%
Forest	-	-	-
Urban	354.6	354.6	>0%
Water	23.4	19.4	-17%
Wetlands	0.1	15.1	15000%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

301 Main Street, a multi-family, 30-unit building, started construction in 2015 and was recently completed. This area does not experience and hazards.

The historic Beach Cinema Theater was purchased with plans for redevelopment and a reconfiguration to a theater, restaurant, and gathering space. This area does not experience and hazards.

The First United Methodist Church, vacant for over twenty years, was purchased by the Borough. The building is planned to be demolished and subdivide into four single lots. This area does not experience any known hazards.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None at this time.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Bradley Beach Borough's total population is estimated to be 4,268. This population is estimated as under 1% (.98%) aged under 5 years and 24.5% over age 65. With nearly a quarter of its population over age 65, the Borough may prioritize an aging population in hazard mitigation plans and preparation. The Borough saw nearly consistent population in the periods between 2013-2017 and 2018-2022, with an estimated .14% population change.

Within Bradley Beach, there is one block group meeting overburden criteria as a *Low-Income* community. This block group is along the Borough's far northwestern corner. There are no areas of Bradley Beach which meet designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,268
Population Change since 2017	0.1%
Percent of Population Age < 5	1.0%
Percent of Population > 65	24.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

Bradley Beach previously had a working relationship with the local foodbank before their relocation to Neptune City. They are building a new relationship with the Red Cross after failures in Red Cross coordination during Sandy and COVID-19 events.

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flooding	Extreme Temperatures	Drought
Hurricane/Tropical Storm/Nor'easter	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
Coastal Erosion		
	Wave Action	Dam Failure (N/A), Landslide (N/A)
Human-made Hazards		
	Pandemic	Civil Unrest
	Cyber Attack	Power Failure
	Economic Disruption	
	Terrorism	

Hazard Ranking Explanation

During risk assessment meetings, Bradley Beach emphasizes that flooding is the primary hazard of concern for their Borough. As a coastal community bounded by Sylvan Lake and Fletcher Lake to the north and south, and the Atlantic Ocean to the east, controlling water flow and mitigating flood risk is of the highest priority.

Other significant hazards related to the Borough's low-lying location along the Atlantic coast include hurricane and tropical storm risks, along with the associated risks of flooding and storm surges. Mitigating these risks before and during storm events is a priority.

Other hazards of lower concern for the Borough include extreme temperatures, winter storms, tornadoes, wave action, wildfires, earthquakes, and drought. The Borough has not experienced measurable effects from these hazards in recent years since the last plan update.

Coastal erosion is another high-priority hazard for the Borough. Erosion caused a sinkhole along Fletcher Lake near the outfall pipe. Recently, Lake Terrace Road collapsed around Fletcher Lake due to a failed bulkhead and coastal erosion; Neptune Township led the repairs to Lake Terrace.

Significant Hazard Events Since Last Plan Update

Bradley Beach's primary concern in recent years has been flooding, particularly post-rain event flooding in the southern end of town, where water drains toward Sylvan Lake due to the town's topography. Some flooding also occurs along the northern end of the Borough at Fletcher Lake. In September 2023, Fletcher Lake overflowed onto Lake Terrace, flooding the basements of residences along the road.

With its coastal location along the Atlantic shoreline, Bradley Beach also faces hazards such as coastal erosion and sea level rise, as well as local impacts from hurricanes, tropical storms, and nor'easters. The Borough's vegetated dune structures along the Atlantic coast play a major role in minimizing inundation in mainland areas of Bradley Beach.

In August 2022, Bradley Beach's beachfront was closed due to safety concerns after sinkholes caused by breaches in an outflow pipe appeared in the sand one block north of Ocean Park Avenue Beach and at Lake Terrace Beach near the border of Ocean Grove. The Army Corps of Engineers, NJ Department of Environmental Protection, and Bradley Beach Office of Emergency Management and Public Works coordinated to resolve the sinkhole issues.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Bradley Beach. As a coastal community, Bradley Beach is particularly vulnerable to the effects of sea level rise, which can exacerbate flooding and coastal erosion. Rising sea levels will increase the frequency and severity of tidal flooding, storm surges, and inundation events, putting more properties and infrastructure at risk. The Borough's existing flood mitigation measures, such as vegetated dune structures, may become less effective as sea levels continue to rise, necessitating additional investments in coastal defenses and flood management systems.

Moreover, climate change is likely to lead to more intense and frequent extreme weather events, including hurricanes, tropical storms, and nor'easters. These storms can bring heavy rainfall, strong winds, and storm surges, further increasing the risk of flooding and damage to the Borough's infrastructure. The increased intensity of these storms will also heighten the risk of coastal erosion.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Bradley Beach Borough	
Initial FIRM	8/01/1979
Effective FIRM	6/15/2022
Number of Policies In-Force:	246
Total Losses:	86
Total Payments:	\$2,810,871.57
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	11
RL – Total Paid:	\$216,501.73
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

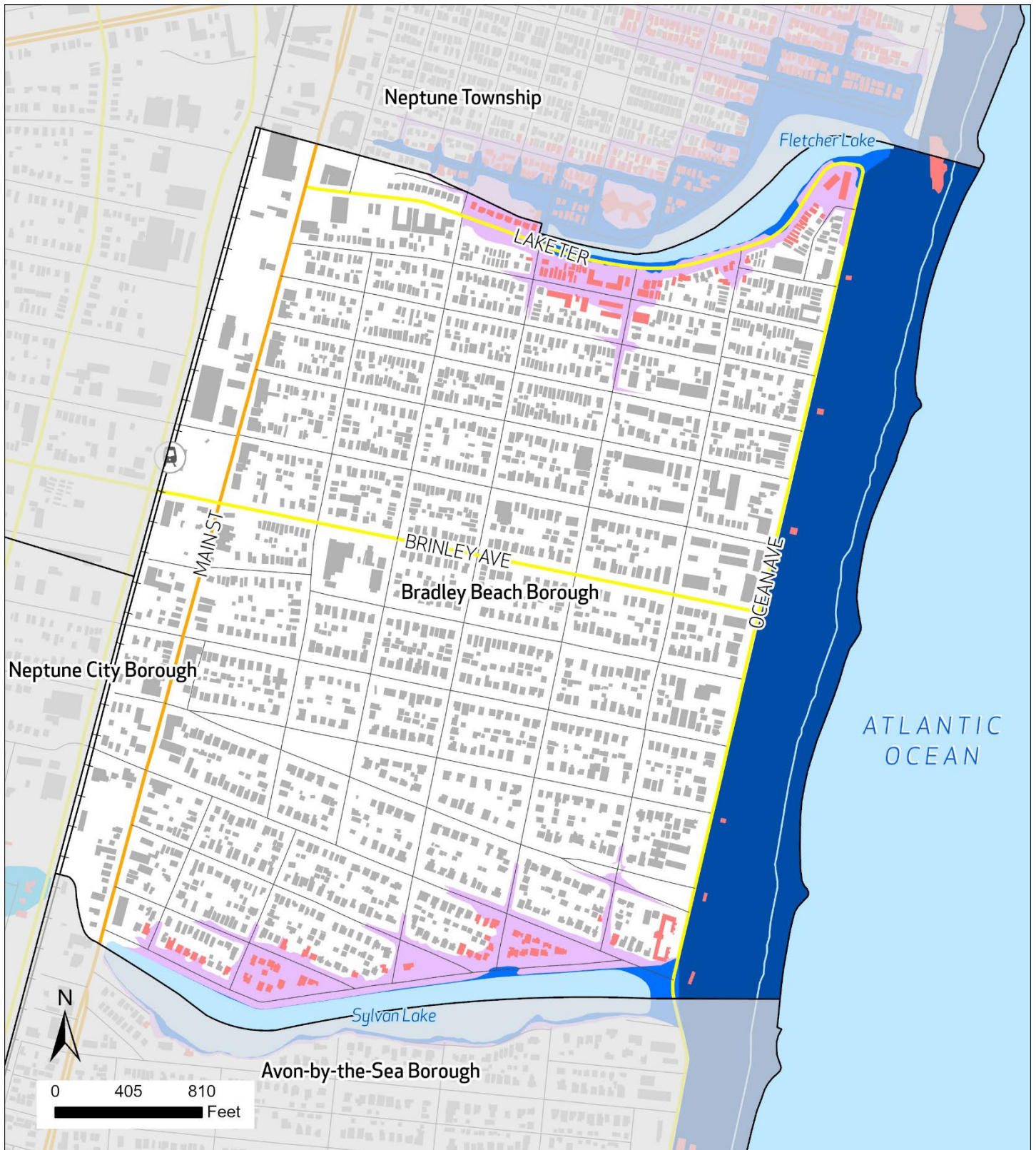
The Special Flood Hazard Area (SFHA) in the Borough of Bradley Beach is primarily located adjacent to the waterbodies of the Borough: Fletcher and Sylvan Lakes and the Atlantic Ocean. Approximately 17.6 percent of the total area of Bradley Beach lies within the 1% annual chance flood zone as defined by FEMA. An additional 6 percent (5.95%) of the area of the municipality is in the 0.2% annual chance flood zone.

About 74.7 percent of Bradley Beach is considered developed. Of the developed parcels of the town, 0.2 percent fall within the 1% annual chance flood zone and 7.5 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	0.2%	7.5%	0.0%
Exposed Land Area	17.6%	5.9%	2.6%

During the planning process, Bradley Beach identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified eight total facilities. Of these facilities, none are within the floodplain or areas projected to be at risk from sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk Bradley Beach Borough

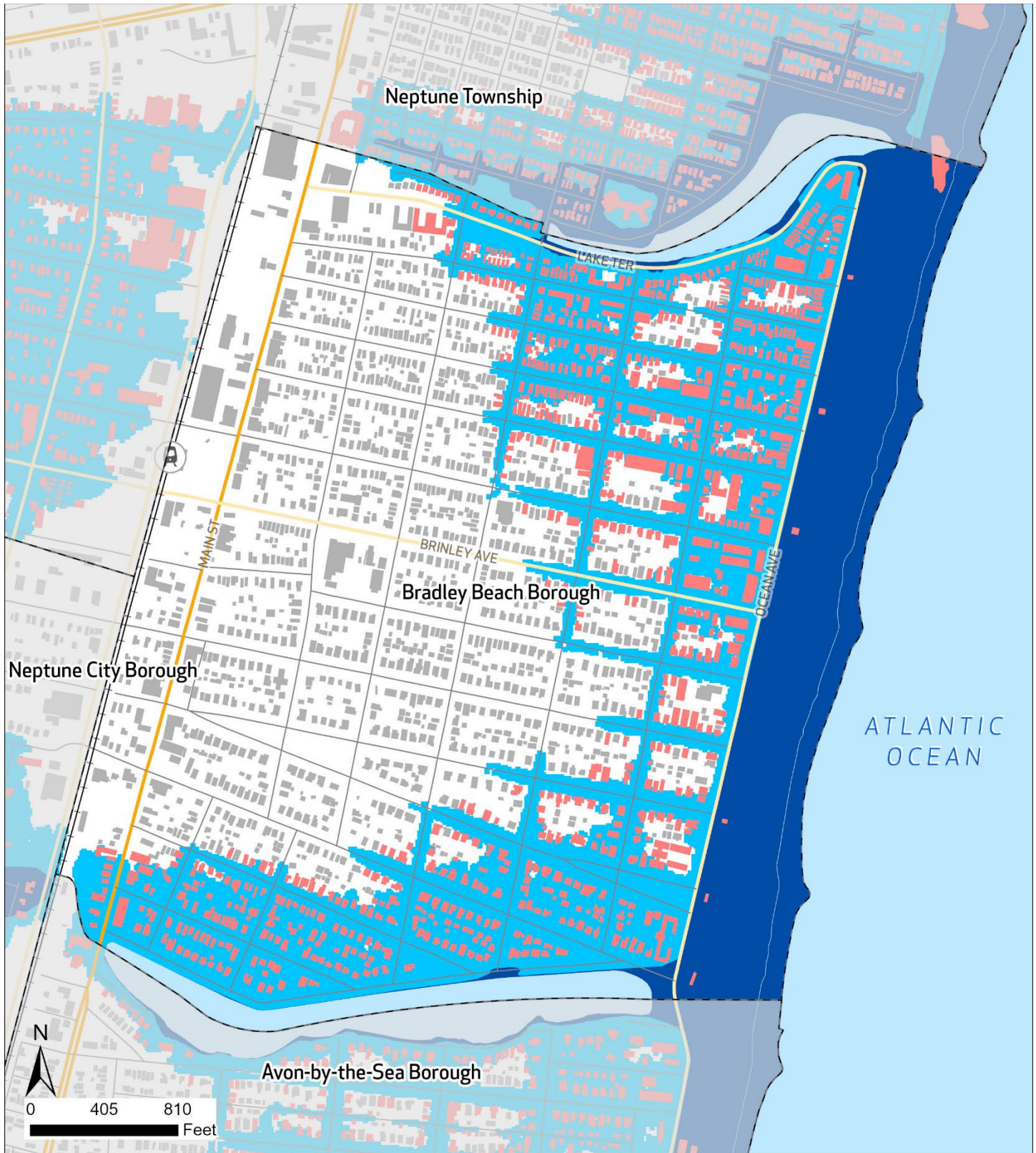
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Bradley Beach Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios

Bradley Beach Borough

- | | | |
|---|---|--|
|  Area Inundated Under 2 Feet SLR |  Interstate Highways |  Municipal Boundaries |
|  Area Inundated Under 3 Feet SLR |  State Routes |  Building Footprint |
|  Area Inundated Under 5 Feet SLR |  County Routes |  Water |
| |  Local Roads | |
| |  Rail Lines | |
| |  NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Bradley Beach Borough

- | | | |
|---------------------------------|-------------------------|----------------------|
| High or Medium Density Housing | State Routes | Municipal Boundaries |
| Low or Very Low Density Housing | County Routes | Building Footprint |
| No Housing | Local Roads | Water |
| | Rail Lines | |
| | NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Bradley Beach Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2018	Has recommendations in support of hazard mitigation
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X			EOPs Annex's
Floodplain Development Ordinance	X		2022	Has recommendations to address stormwater management
Floodplain Management Plan	X		2022	Has recommendations to address stormwater management
Stormwater Management Ordinance	X		2020	Has recommendations to address stormwater management
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan	X			Part of EOP
Evacuation Plan	X			Part of EOP
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			County Plan revised as of 2023; Temporary debris area update needed
Tracking elevation certificates and/or Letter of Map Change	X		2022	Tracking elevation certificates of all new developments
Post-Disaster Recovery Plan	X			EOP Damage Assessment Annex
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			Part of the Regional Flood Mitigation Group with Neptune City and Neptune Township
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Bradley Beach Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Borough Engineer is the floodplain administrator
Grant Writer	X		Borough Engineer is the grant writer
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		American Red Cross
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Bradley Beach Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Bright Arrow is the notification system that sends out a message to people's emails and phones 2258 people signed up for it. Used for weather and safety alerts. Social media, news media, radio.
StormReady	X		"StormReady" recognition and designation through Monmouth County
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		Also has website

Financial Capabilities

Within the last five years, Bradley Beach Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Community Rating System (CRS) Classification:** 7
- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Bradley Beach has prioritized the installation of a new outfall pipe and bulkhead at Sylvan Lake as well as replacement of dunes along the entire beachfront. Extend the promenade and bulkhead along Ocean Avenue. Elevate or relocate buildings and infrastructure in flood prone areas. Dredge Sylvan Lake. Acquire and install generators and surveillance cameras to critical structures for continuity of service in Bradley Beach. Additionally, coordination efforts with neighboring municipalities and Monmouth County to address localized flooding is also a priority.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
The Borough has not completed or withdrawn any 2021 mitigation actions at this time.										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 8-1	Install New Outfall Pipes and Bulkhead at Sylvan Lake	Install new outfall pipes and bulkhead around Sylvan Lake as well as replacement of dunes along the entire beachfront.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor, Council, Borough engineer, and Sylvan Lake Commission	Bonding, FEMA HMA	\$200,000	1 year	Ongoing	<p>A NJDOT Local Transportation Project Fund Grant was received for bulkhead replacement. Project is in conceptional phase. Grant is \$2,442,600 for replacement of a portion of the remaining wood bulkhead from Madison Ave. to Evergreen Ave.</p> <p>This critical infrastructure project will enhance the resilience of shorelines in Bradley Beach and is supported by a grant from the New Jersey Department of Environmental Protection (DEP). This project is to address an urgent need to repair and reconstruct the flume and outfall pipe of this vital waterway shared by communities. An estimated \$4 million dollars will be spent on the project, and this has been partially funded through a 75% state aid grant (DEP), with the remainder shared equally by Bradley Beach and Avon-by-the-Sea.</p>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 8-2	Improve the Borough's Communication and Notification System	The Borough is currently exploring the feasibility of networking with other municipalities in order to establish and implement contingency plans for communications continuity. The Borough has recently implemented several methods of notification to the pub	All Hazards	Low	OEM	Municipal budget	\$300,000	1 year	Ongoing	Bright Arrow is the notification system that sends out a message to people's emails and phones – 2 thousand people signed up for it. Used for weather and safety alerts. Social media, print media, televisión, radio.
Action 8-3	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate 135 flood-prone structures with a particular focus on RL and SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor, Council, and Borough Engineer	FEMA HMA	\$16.2M	5 + years	Ongoing	No recent elevations for RL/SRL Properties.
Action 8-4	Strengthen Training of Emergency Response for Police, Fire, and First Aid	Ongoing training of team members to assist in emergencies in areas such as traffic control, medical assistance, and/or weather-related matters.	All Hazards	Low	Mayor and Emergency Management Coordinator	Municipal budget	\$6,000	1 year	Ongoing	No update
Action 8-5	Dredge Sylvan Lake	Dredge the lake to remove debris and sand thus providing space for water to prevent and mitigate flooding in low lying areas.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	OEM, Engineering	Municipal budget, USACE	TBD	1 year	Ongoing	Needs to be done – hasn't been done

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 8-6	Purchase and Install Generators for Critical Facilities and Shelters	Purchase and maintain generators to continue critical community services during utility interruptions and storm events for Borough Hall, Department of Public Works yard, Fire Department, Elementary School, Library.	All Hazards	Low	OEM, Engineering	FEMA HMA	\$200,000	1 year	Ongoing	Borough hall – has one, needs to update generator Fire House (shelter)- has one, needs upgraded DPW – they have portable generators Library – needs one Elementary School (shelter) – needs one Recreation Center (shelter): needs one
Action 8-7	Target Harden the Municipal Building and Boardwalk with Surveillance Cameras	Purchase and install surveillance cameras at the municipal building and boardwalk.	Terrorism	Low	OEM, Engineering	Homeland Security grants, Municipal budget	\$20,000	1 year	Ongoing	Recommendation to include elementary school to list.
Action 8-8	Clean and Repair Outfall Pipe along Lareine Ave. which leads to Repetitive Flooding for Nearby Properties	Clean and repair 18-inch outfall pipe that flows under Lareine Ave into Fletcher Lake.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	OEM, Engineering	Municipal budget	\$200,000	1 year	Ongoing	
Action 8-9	Extend the promenade and the bulkhead along Ocean Avenue to provide increased flood protection	South side of town – elevation is lower down there and Sandy damaged this area.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Bradley Beach	FEMA HMA, Borough budget	\$15 Million	2 years	New	

9 – BRIELLE BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Gary Olsen	Chief of Police, Primary Point of Contact	Municipal Meeting 12/6/2024
Thomas Nolan	Borough Administrator	Review 12/30/2024
Frank Garruzzo	Mayor	Review 12/30/2024
Christopher Willms	Code Enforcement	Review 12/30/2024
Alan Hilla	Engineering	Review 12/30/2024
Christine Bell	Flood Plan Manager	Review 12/30/2024

COMMUNITY PROFILE

Overview

Located along the northern banks of the Manasquan River, the Borough of Brielle was named after the Netherlands town of Brielle due to its resemblance to the coastal towns along the North Sea and the English Channel. The 1.65-square mile borough is in the southeastern corner of Monmouth County. Brielle's seafaring industry is still found at the waterfront with over 200 commercial and charter fishing boats. Several popular eating and drinking establishments are located along the Manasquan River.

Brielle is characterized by its compact land development pattern, which is predominantly residential, but includes a large, built-out commercial area. Since Brielle is largely developed, the Borough removed the residential cluster provision in its zoning ordinance based on the recommendations in its 2006 Master Plan Reexamination Report. The Report recommended promoting future conservation of the borough's environmentally significant land by establishing an entirely new conservation and recreation zone district for Nienstedt and Sedge Islands. The Report also recommended updated land uses and development standards for the R-1 Zone District, and a re-evaluation of its parking standards to determine the appropriate number of parking spaces needed per boat slip at its marinas. Conservation efforts by the Borough include adopting regulations that address tree preservation, steep slopes, and on-site grading.

Land Use, Development, & Growth

Brielle is a primarily residential community, with most of its land being developed. As a result of the predominance of residential land use, in 2020, urban or developed land accounted for 71 percent of the Borough's total area. From 2015, the acreage covered by developed land hovered at roughly 1019 acres, while water covered nearly 331 acres, or 23 percent of the Borough's total area. Between 2015 and 2020, there was negligible change in the town's overall land use composition.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	5.0	6.4	28%
Forest	65.1	60.7	-7%
Urban	1015.9	1018.6	>0%
Water	330.3	330.9	>0%
Wetlands	26.1	25.7	-2%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

No recent development was brought up in the meeting.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The three bridges that connect Brielle and Manasquan will be rehabilitated or replaced in a \$35.5 million public infrastructure project. The Monmouth County 3 Bridges project, as it is referred to, is currently in the scoping phase of development. Funding for this project is anticipated to be provided by the federal government, funneled through the North Jersey Transportation Planning Authority.

Additionally, the development of 43 units is planned at 403 Higgins Ave, where the Whiskey Lounge is currently located. The property, which was recently sold for US\$6 Million, falls in the NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper). Also, 73 units planned in the wooded area by Schoolhouse Rd. and Route 35 and another 20 units are planned near Higgins Ave and are not in a FEMA flood zone.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Brielle Borough’s total population is estimated to be 4,957. This is a 4.6% population growth since the last estimated survey period in 2013-2017. The Borough has 4.5% of its population estimated to be under age 5, and 21.4% over age 65. The borough’s large share of population over age 65 indicates a potential vulnerability which should be accounted for in both pre-disaster planning and post-disaster recovery efforts. The ongoing population growth (nearly 5% over five-year survey periods) may also indicate increased development pressure in the face of hazard vulnerability.

No parts of Brielle Borough meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,957
Population Change since 2017	4.6%
Percent of Population Age < 5	4.5%
Percent of Population > 65	21.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
------	--------	-----

Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Earthquake
Flood	Tornado	Wildfire
Storm Surge	Winter Storm	
	Coastal Erosion	
	Wave Action	
	Drought	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Power Failure	
	Pandemic	

Hazard Ranking Explanation

Brielle continues to rank extreme temperatures as a medium concern. The town explained that one family had used the cooling station since the last plan update. Drought also ranks as a medium concern; during a recent drought event, houses along Union Lane did not have water. Additionally, one tower was critically low on water, and water tanks had to be deployed in the area to prepare in case of a fire.

Apart from a lightning strike that burned down one side of a house and damaged electrical appliances on Valley Rd. in the summer of 2024, there have not been any significant lightning events. As a result, the borough continues to rank lightning as a hazard of low concern. Another significant weather event was a mini twister in July 2019 that affected three streets in the borough.

The human-made hazards of cyber attacks and terrorism both rank as medium concerns; the borough recently lost US\$30,000 to a phishing attack, and two major arteries leading to Ocean County pass through the borough. Additionally, the borough has changed the ranking of power failure from low to medium.

Significant Hazard Events Since Last Plan Update

The borough is prone to flooding whenever rainfall lasts for a few days or during high tide coinciding with a rainstorm. Although the borough has not experienced extensive property damage due to flooding since the last plan update, some properties in the Glimmer Glass area, particularly those near Debbie's Creek, were affected. In 2024, the fire company had to pump water out from the basements of the affected houses. Additionally, the NJ Transit train bridge is impacted during rainstorms and flooding; NJ Transit is planning to replace the bridge by 2029. The borough is uncertain if service will be suspended during the replacement period. Three houses on Fisk Avenue, on the eastern side of the railway tracks, have been elevated. The town also noted that the area between Green Avenue and Crescent Drive is prone to recurring flooding.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Brielle Borough. As a coastal community, Brielle is particularly vulnerable to the effects of sea level rise, which can exacerbate flooding and coastal erosion. Rising sea levels will increase the frequency and severity of tidal flooding, storm surges, and inundation events, putting more properties and infrastructure at risk. The borough's existing flood mitigation measures may become less effective as sea levels continue to rise, necessitating additional investments in coastal defenses and flood management systems.

Moreover, climate change is likely to lead to more intense and frequent extreme weather events, including hurricanes, tropical storms, and nor'easters. These storms can bring heavy rainfall, strong winds, and storm surges, further increasing the risk of flooding and damage to the borough's infrastructure. The increased intensity of these storms will also heighten the risk of coastal erosion such as sinkholes and road collapses.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Brielle Borough	
Number of Policies In-Force:	197
Total Losses:	214
Total Payments:	\$11,184,477.05
Number of RL Properties:	8
Number of Mitigated RL Properties:	0
RL – Total Losses:	21
RL – Total Paid:	\$500,531.31
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	4
SRL – Total Paid:	\$245,635.37

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

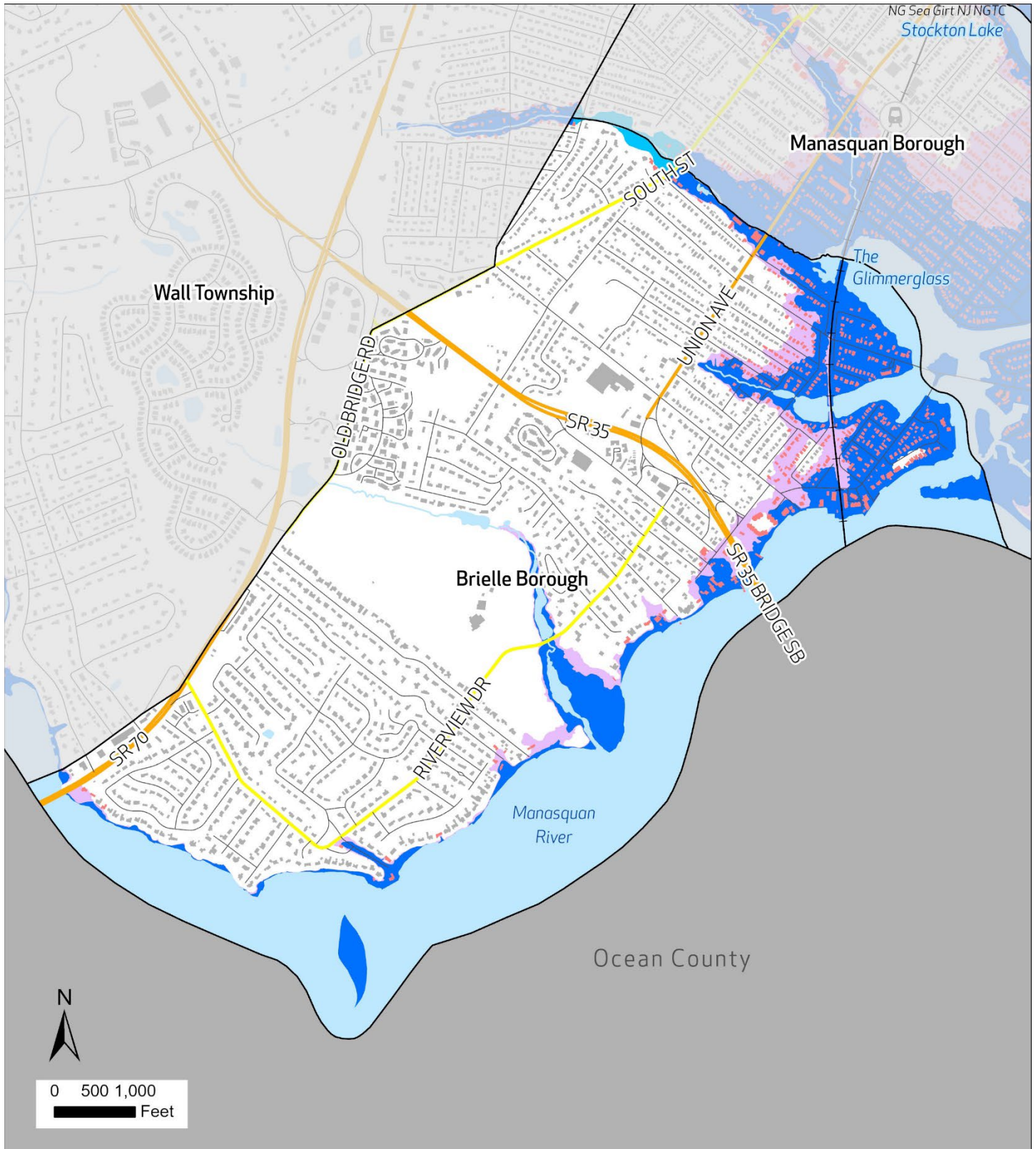
The Special Flood Hazard Area (SFHA) in the Borough of Brielle is primarily located adjacent to the waterbodies of the borough: the Manasquan River and its smaller tributaries. The low-lying portion on the eastern part of town adjacent to the Glimmerglass is especially flood prone. Approximately 13.3 percent of the total land area of Brielle lies within the 1% annual chance flood zone as defined by FEMA. An additional 3.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 90.3 percent of Brielle is considered developed. Of the developed parcels of the town, 18.4 percent fall within the 1% annual chance flood zone and 3.4 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in line with overall flood risk in the town.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet of Sea Level Rise
Developed Parcels	18.4%	3.4%	16.2%
Exposed Land Area	13.3%	3.2%	8.4%

During the planning process, Brielle identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 13 total facilities. Of these facilities, four are within the floodplain. Two of these four facilities are also within the area projected to be at risk from 5 feet of sea level rise. These four facilities fall within the Water Systems lifeline category. Examples of the Water Systems lifeline include dams and pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 Feet of Sea Level Rise
Water Systems	4	-	2



Flood Risk

Brielle Borough

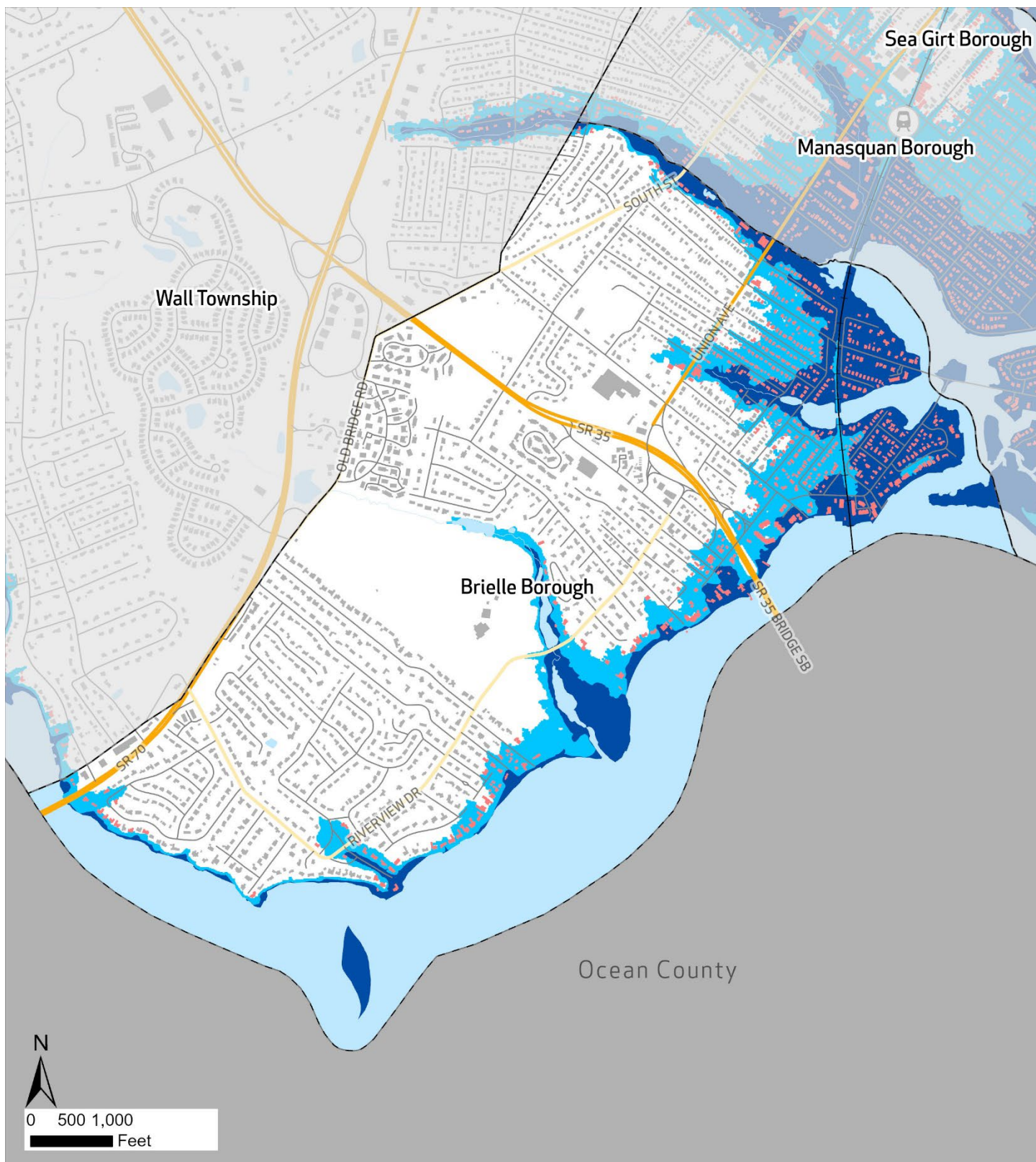
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Brielle Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

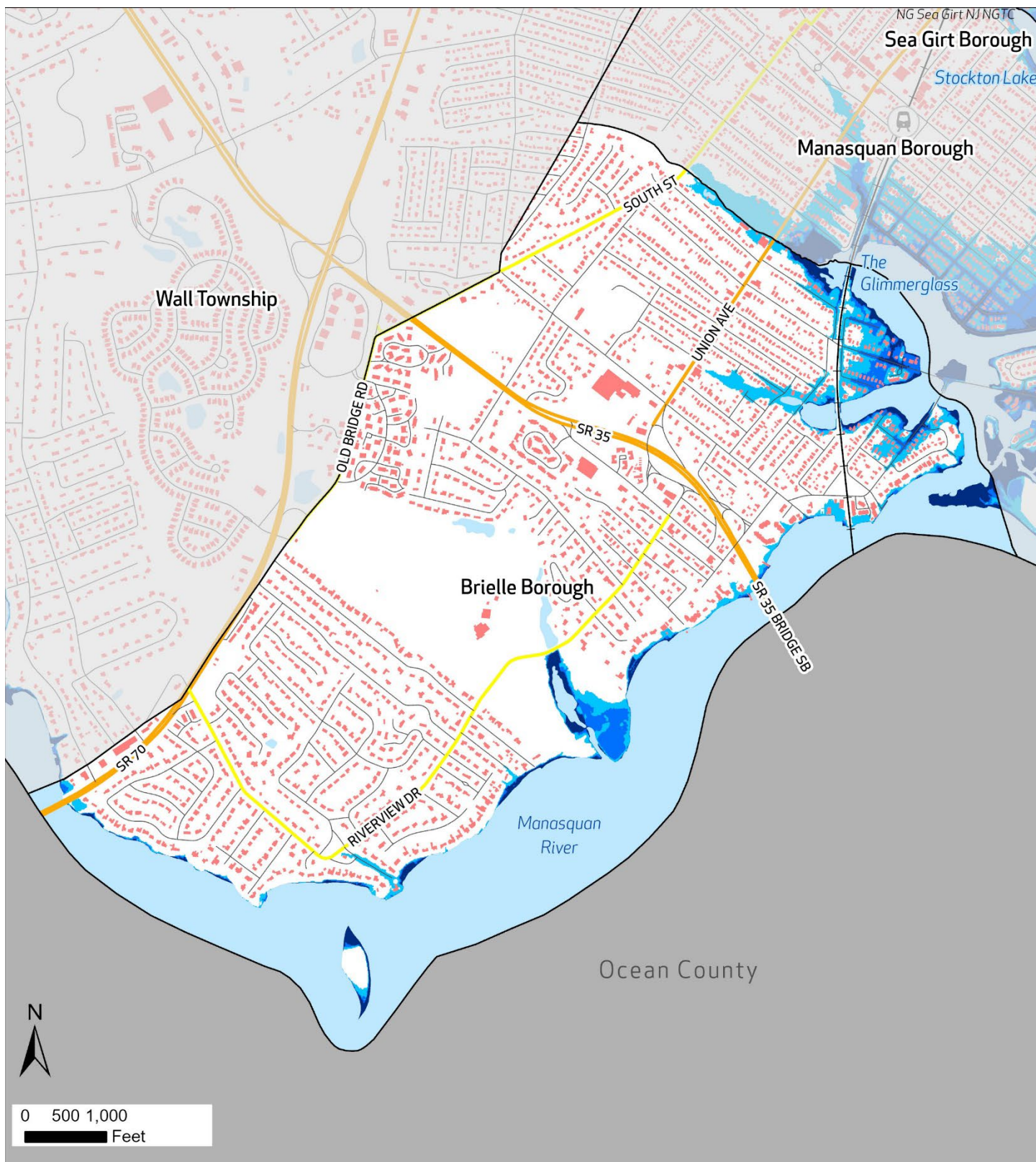
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Brielle Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Brielle Borough

- | | | |
|--|--|--|
| Intermix | State Routes | Municipal Boundaries |
| High or Medium Density Housing | County Routes | Building Footprint |
| Low or Very Low Density Housing | Local Roads | Water |
| No Housing | <div style="width: 0; height: 0; border-left: 3px solid transparent; border-right: 3px solid transparent; border-bottom: 5px solid black;"></div> Rail Lines | NJ Transit Rail Station |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Barneгат Light Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2016	
Capital Improvement Plan	X		2024	
Local Emergency Operations Plan/Continuity of Operations Plan	X		2025	
Floodplain Development Ordinance	X		Adopted in 2022	No higher freeboard standards than required by building code/FEMA. The Borough has adopted N.J. Model Ordinance.
Floodplain Management Plan	X			
Stormwater Management Ordinance	X			New Stormwater Management Ordinance adopted in 2023 and amended in 2024 to incorporate the Inland Flood Rules.
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan				
Substantial Damage/Improved Structures Response				The community identifies substantially damaged/improved structures in the flood damage prevention ordinance.
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		None received through SSA. Point for further discussion.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			Mostly housing development. Most sites are within delicate watersheds and must focus on stormwater management and mitigation.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan				
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Barneгат Light Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Floodplain Administrator Christine Bell is a part-time municipal employee who works as an Engineer for Avakian. There is no other Certified Floodplain Manager currently employed by the community.
Grant Writer		X	
Staff trained to support mitigation		X	There is currently no available staff trained to support mitigation. The responsible party for implementing hazard mitigation actions is undetermined.
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Barnegat Light Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Website/Social Media/CodeRed (Emergency Communications Network)
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Barnegat Light Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Our overall mitigation strategy focuses on enhancing community resilience by addressing the most critical vulnerabilities to natural disasters. Over the next five years, we will prioritize infrastructure improvements. Additionally, we will invest in flood control measures and emergency response enhancements to ensure the safety and well-being of our community.

The Borough continues to advance its program to acquire, elevate, or relocate buildings and infrastructure in floodprone areas, repair and replace bulkheads along the Manasquan River, fortify pump stations, and ensure all potential shelters and community lifelines have backup power. Since the previous update, bulkhead restoration at Brainard is complete, but the bulkhead at Osprey Dr. collapsed. Repair has not started yet on this project, yet.

Completed or Removed Actions

There are no withdrawn actions. All activities identified in the previous plan continue to remain priorities and ongoing actions.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status
Action 9-01	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	The Borough is proposing mitigation through house elevation or acquisition for homes within the 100-year flood zone, specifically RL/SRL properties.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough and residents	FEMA HMA	\$18,000,000.00	2 years	Ongoing
Action 9-02	Restore Bulkheads Along the Manasquan River	The Borough is proposing bulkhead upgrades within key right-of-way areas. Multiple Bulkhead restoration projects through the Borough with priority being Ocean Avenue to prevent the end of the roadway from collapsing, which would undermine the adjacent project	Flood, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm	High	Borough - Engineer	FEMA HMA	\$750,000.00	1 year	Ongoing

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status
Action 9-03	Fortify Six Pump Stations to Provide Continuity of Operations during a Storm Event	Protect four pump stations that are located along the water and in a flood zone.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA HMA	\$5,000,000.00	2 years	Ongoing
Action 9-04	Purchase and Install New Generator for School (Shelter)	New generator for schools that serve as shelters during storms.	All Hazards	Low	Borough Administrator	FEMA HMA	\$750,000.00	1 year	Ongoing
Action 9-05	Acquire Current Flood-prone Property for a New Dock to House Police Rescue Boat	Acquire a flood-prone property along the Manasquan River and demo the existing house for open space and new dock for police rescue boat	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm	Low	Borough Administrator	Municipal budget	\$2,000,000.00	2 years	Ongoing

10 – COLTS NECK TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Tyler Badaracco	OEM Coordinator	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Kathleen Capristo	Township Administrator	Reviewer
Louis Bader	Director of Public Works	Reviewer

COMMUNITY PROFILE

Overview

Colts Neck Township is located in central Monmouth County. The community is defined by large, rural residential estates, preserved farmland, open space, and equestrian farms. The Township is bisected by State Highway 34 and traversed by State Routes 34 & 18, and County Routes 520 & 537.

The landside portion of Naval Weapons Station Earle is in Colts Neck and occupies approximately a quarter of the township's land area at 11,134 acres. A Joint Land Use Study was conducted in 2017 and identified that the land around NWS Earle was primarily zoned for residential uses. As a result, the study recommends that Colts Neck share proposed land development with station officials, recognize a 3,000-foot buffer from NWS Earle boundaries in planning documents, and cooperate in the purchasing of land that could be utilized as an open space buffer. These strategies protect community water supply, conserved farmlands, and increases recreational areas.

Colts Neck is currently working on updating its Open Space Plan, and its Comprehensive Farmland Preservation Plan. An environmental resource inventory is also underway. Colts Neck established a Green Team Advisory Committee in 2021. It has an active Shade Tree Advisory Committee, as well as a Farmland and Open Space Committee.

Land Use, Development, & Growth

Colt's Neck consists of substantial land dedicated to residential use, along with several acres of land being put to farming or designated as forested land or wetlands. As a result, in 2020, urban or developed land accounted for nearly 39 percent of the Borough's total area, while wetlands, barren land and agricultural land accounted for 25 percent, 18 percent and 15 percent respectively. From 2015 to 2020, there was negligible change in the land use composition of the community, apart from marginal decreases in agricultural and forested land and wetlands, and a negligible increase of 1 percent or 46 acres in developed land.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	2977.6	2954.8	-1%
Barren Land	32.0	44.9	40%
Forest	3745.2	3717.7	-1%
Urban	7847.0	7893.0	1%
Water	626.7	628.0	>0%
Wetlands	5097.5	5087.7	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2020, the Township amended its Housing Element and Fair Share Housing Plan to enable the development of a 360-unit apartment complex, 72 of which will be affordable housing units. The site plan was approved by the Colts Neck Planning Board in 2021 and County Development Review Committee in 2023. The NJ Department of Environmental Protection formally adopted the amendment to the sewer service area required for this project in March of 2024.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

A high-density housing program is going in right across from the high school. This development is approximately 350 condo units. It will be about 12 buildings with three floors. These condos will be completed in 2026 and lie within the medium wildfire zone.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Colts Neck Township has an estimated total population of 9,969 as of the 2018-2022 ACS survey period, a negligible 0.49% population decline since the estimate during the 2013-2017 ACS survey. This population is estimated to be 3.4% under age 5, and 17.8% over age 65. With nearly one-fifth of township population aged over 65, vulnerabilities specific to an aging population may be identified in pre-hazard planning and post-disaster recovery efforts.

There is one block group within Colts Neck which is identified as potentially vulnerable due to overburden (OBC), meeting criteria for *Low Income* populations. This block group is along the Township’s southeast border. The Township also has one tract meeting criteria for vulnerability based on CEJST categories of *Local Energy, Housing, and Legacy Pollution*.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	9,969
Population Change since 2017	-0.5%
Percent of Population Age < 5	3.4%
Percent of Population > 65	17.8%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
	Extreme Temperature	Tornado
	Extreme Wind	Drought
	Hurricane/Tropical Storm	Earthquake
	Nor'easter	
	Winter Storm	
	Dam Failure	
	Flood	
	Wildfire	
	Lightning	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

The Township ranked Coastal Erosion, Landslide, Storm Surge, and Wave Action as N/A.

Hazard Ranking Explanation

Dam failure moved from low in the last HMP update to medium. This is due to the Township having a high-hazard potential dam (Swimming River Reservoir). There is also a significant hazard dam (Bucks Mill Dam). However, the probability of failure is low, keeping it at medium risk rather than high. Flood was lowered from high to medium as there were no significant flood events or damage in the past five years. Wildfires remained at medium. While there have been a few fires in the past year alone, they were all relatively contained and resulted in no damage. Power failure moved from low to medium in this plan update as the infrastructure is aging and high winds have caused outages. Coastal erosion, landslide, storm surge, and wave action are all not applicable due to the Township's general topography and geography.

Significant Hazard Events Since Last Plan Update

In December 2023, Colts Neck experienced significant power outages, with a total of 396 outages within the Township. There have been a few wildfires, but they were mostly contained to under 20 acres. One fire on October 9, 2024, in the southeast corner of town, was contained to five acres. Additionally, there were a few events in the past five years where the Township had to open the heating and cooling centers.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Colts Neck Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and extreme temperatures are likely to increase. This will exacerbate existing vulnerabilities in the Township, particularly in areas prone to flooding and power outages. For instance, the aging infrastructure that has already led to power failures could be further strained by more frequent and severe storms, leading to prolonged outages and increased recovery costs. Additionally, higher temperatures and prolonged heatwaves could increase the risk of wildfires, which, although currently contained, could become more frequent and harder to manage.

Moreover, climate change is expected to lead to increased flooding associated with heavy rain events, resulting in significant flooding in low-lying areas and overwhelmed drainage systems.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Colts Neck Township	
Initial FIRM	4/15/1982
Effective FIRM	9/25/2009
Number of Policies In-Force:	26
Total Losses:	41
Total Payments:	\$560,231.52
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	6
RL – Total Paid:	\$39,613.11
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

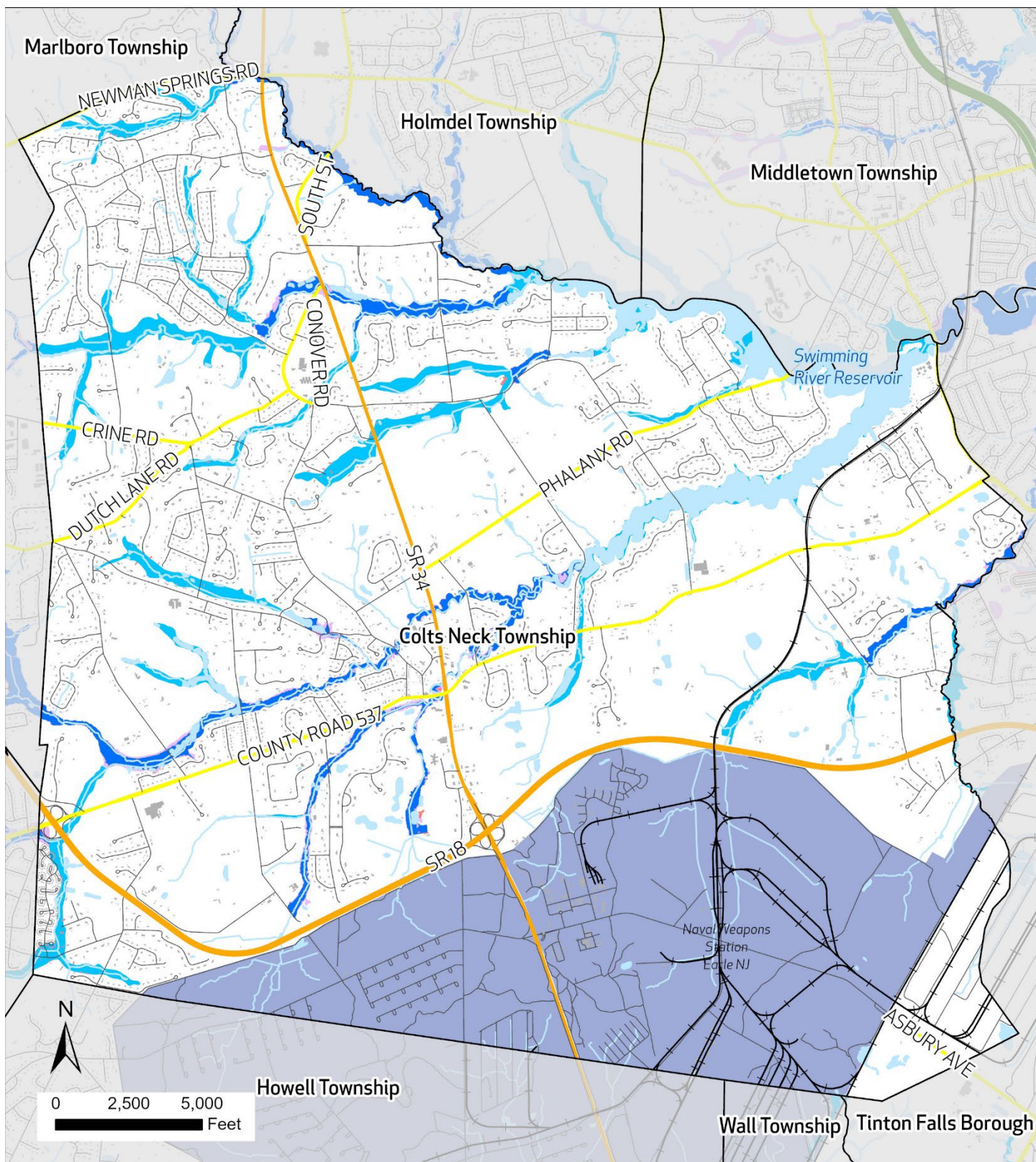
The Special Flood Hazard Area (SFHA) in Colts Neck Township is primarily located adjacent to the waterbodies of the borough: the Swimming River Reservoir and the many small creeks which flow into the reservoir. Approximately 7.9 percent of the total area of Colts Neck lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 77.4 percent of Colts Neck is considered developed. Of the developed parcels of the town, 17.4 percent fall within the 1% annual chance flood zone and 0.4 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are more prone to flooding

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	17.4%	0.4%	NA
Community Lifelines and Critical Facilities	20.0%	0.0%	NA
Exposed Land Area	7.9%	0.3%	NA

During the planning process, Colts Neck identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 30 total facilities. Of these facilities, six percent are located within the floodplain. All six are considered Water Systems community lifelines. Examples of the Water Systems lifeline type includes dams or pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	6	-	NA



Flood Risk Colts Neck Township

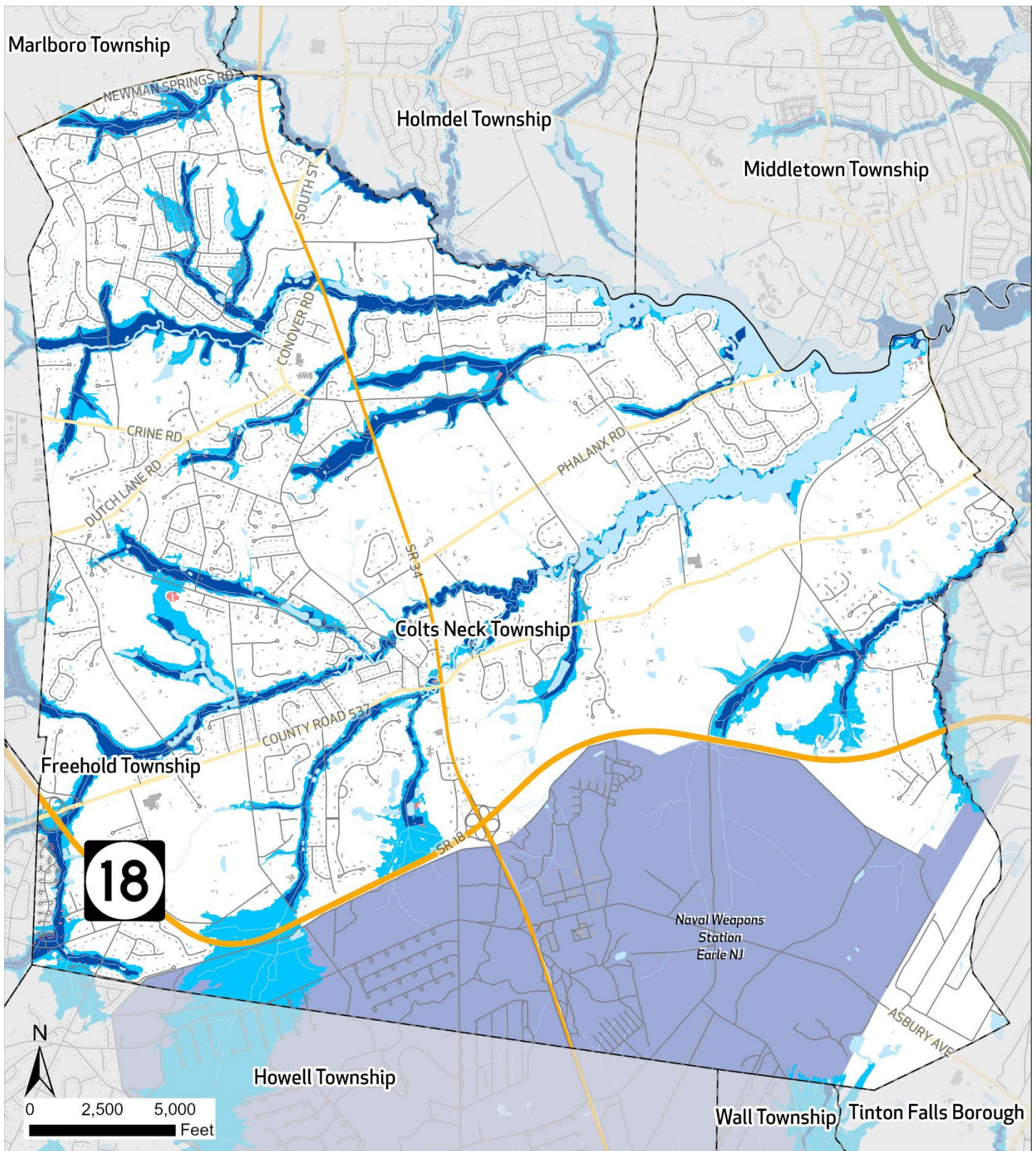
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Colts Neck Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Municipal Boundaries

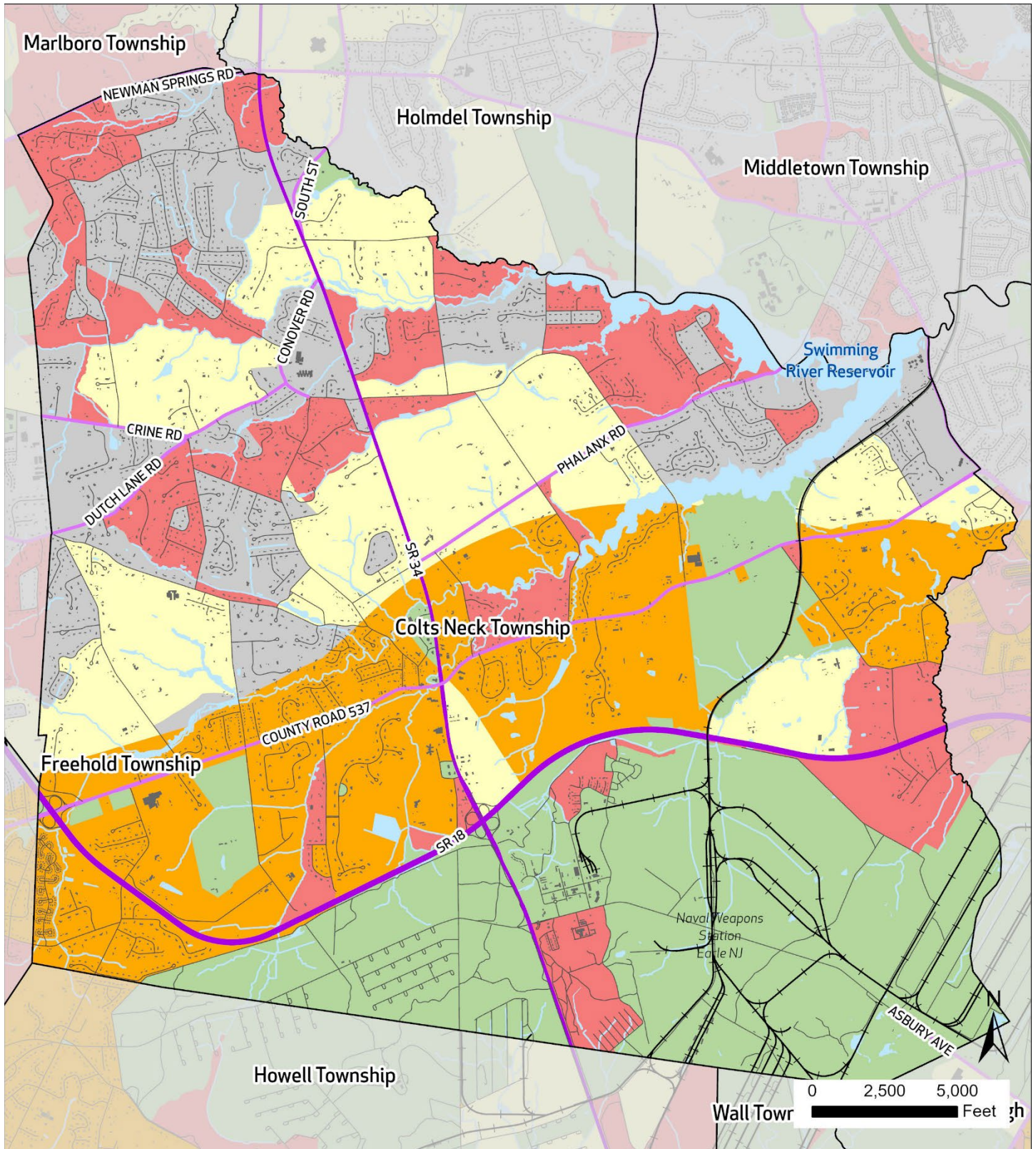
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Colts Neck Township

- | | | |
|---|--|--|
| Interface | Garden State Parkway | Municipal Boundaries |
| Intermix | State Hwy | Building Footprint |
| High or Medium Density Housing | Interstate Highways | Water |
| Low or Very Low Density Housing | State Routes | |
| No Housing | County Routes | |
| | Local Roads | |
| | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Colts Neck Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X			
Capital Improvement Plan	X		March 2024	
Local Emergency Operations Plan/Continuity of Operations Plan	X		December 2024	
Floodplain Development Ordinance		X		
Floodplain Management Plan		X		
Stormwater Management Ordinance		X		
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan	X		December 2024	
Evacuation Plan	X		December 2024	
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Next Steps to Compatibility Planning Study, Monmouth County, New Jersey (2022) encourages compatible development within the NWS Earle's Military Influence Area. Among the environmental constraints are natural hazards including wildfire, flooding, and storm surge.
Other ordinance and regulation that mitigate the impacts of natural hazards				

Administrative and Technical Capabilities

Colts Neck Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		X	
Grant Writer	X		Third Party organization to help facilitate any potential grant opportunities
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Monmouth county office of emergency management
Non-governmental organizations/other partners that work with the municipality on mitigation projects			

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations			

Education and Outreach Capabilities

Colts Neck Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Swift 911 has been used to communicate any potential hazards to the community as well as postings on the township website
StormReady			
Firewise USA			
Severe Weather Awareness Week	X		Swift 911 has been used to communicate any potential hazards to the community as well as postings on the township website
Community Rating System (CRS)			

Financial Capabilities

Within the last five years, Colts Neck Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Colts Neck Township has been and continues to actively seek proactive planning to better serve the township with regards to natural disasters that may hinder the daily operations of the township and its residents. Since 2021, the township has collaborated with shared service opportunities, both public and private, to mitigate future disasters around the township. This has been an ongoing process and continues to be assessed on a quarterly basis (LEPC). Colts Neck Township will continue to develop its planning with for future potential hazards with the highest concerns for public safety and awareness.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	Colts Neck Township does not have any completed or withdrawn actions from the previous plan.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 10-1	Create the Ability to Drill New Water Wells at Public Buildings to Maintain Operational Wells During a Power Outage or Drought	Drill replacement wells for residents on a case-by-case basis.	Drought, Nor'easter, Hurricane and Tropical Storm	Medium	Health Officer and Township Administrator	Homeland Security grants, Municipal budget	\$60,000	2 years	Ongoing	One of the wells has been completed. A new facility has been put in. The funding was through the Township's capital improvement programs. Access to running water during a natural disaster can be had for residents.
Action 10-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevate, acquire, or floodproof flood-prone structures, specifically RL/SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Individual homeowner	FEMA HMA	\$150K	3 years	Ongoing	Always ongoing as new repetitive loss properties could pop-up.
Action 10-3	Protect Community Center from Wind and Flood Events, and Purchase and Install Generators	Protect exterior of the Township's shelter, the Community Center, by covering windows, stacking sandbags around potential flood prone areas, and	All Hazards	High	Local OEM	Township funding, FEMA HMA	\$150K	2 years	Ongoing	Ongoing.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		providing additional embankments. Additionally, the Community Center, DPW, Municipal Complex, and Cedar Drive								
Action 10-4	Develop a Tree Trimming Program	Trim tree branches or remove trees and/or other structures that may cause an interruption of electrical power and removing obstruction of vehicle movement on public streets.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm	Medium	Local OEM/Public Works	Municipal budget	\$500K	5 + years	Ongoing	Extensive tree trimming and removal has been ongoing and will continue. This will help mitigate power loss and road closures around the township.
Action 10--5	Develop a Safety and Public Health Outreach Program	Develop a safety and public health outreach program that assists residents prepare and mitigate disasters. Develop an educational program to educate the public about hazard mitigation techniques and promote disaster-resistant development.	All Hazards	High	Local OEM	Local Budget, Grants	\$20,000	5 + years	Ongoing	This is ongoing. A lot more residents have moved into the Township in the last two years. It is an ongoing process continuing to try to get everyone signed up. This will help public outreach to all residents in the event of a major and minor event within the township
Action 10-6	Increase Cyber Security for the Township	Take measures to increase cyber security at Township buildings.	Cyber Attack	Medium	Township	Homeland Security grants	TBD	1 year	Ongoing	Ongoing. IT staffing has been implemented into the township.
Action 10-7	Repair, Remove, or Rehabilitate the Swimming River Reservoir Dam	Repair, remove, or rehabilitate Swimming River Reservoir Dam, a High-Hazard Potential Dam, located along Robins Swamp Brook.	Dam Failure	High	New Jersey-American Water Company	Municipal budget, NJDEP, FEMA HMA	TBD	3 years	New	Ongoing.

11 – BOROUGH OF DEAL

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
William Hulse	OEM Coordinator/ Captain of Police	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2, Review and Input
Nicholas Dowling	Deputy OEM Coordinator/Detective	Municipal Meeting #2, Review and Input
Samuel Avakian	Borough Engineer	Municipal Meeting #2, Review and Input

COMMUNITY PROFILE

Overview

The Borough of Deal is a beach town that encompasses 1.3 square miles. Deal has a suburban feel, with most of its land area being residential. As a coastal community, approximately 90 percent of Deal's land area lies within the state's CAFRA zone, and during Superstorm Sandy it experienced high winds, heavy rains, and record tidal surge and waves. Following the storm, the Borough prepared a Strategic Recovery Planning Report (2014) that focused on storm impacts and the borough's recovery, and recommended municipal actions intended to promote recovery and reduce vulnerability to future storms.

In 2017, the Borough submitted a Municipal Public Access Plan to NJDEP that provides a vision for public access to tidal waters and the shoreline. The plan includes a public parking element as the Borough continues to develop parking management strategies near its beaches. The plan is currently pending review by NJDEP. The Deal Lake Master Plan (2018) highlights important issues for the watershed area, including NJDEP restrictions and permitting issues, dredge material disposal, storm water management, and storm drain issues, among others.

The borough is part of the Deal Lake Commission, whose mission is to preserve and restore Deal Lake and its tributaries as a healthy and stable ecosystem, as well as controlling lake levels during heavy storms. Deal Lake and Lake Takannasee are part of Monmouth University Urban Coast Institute's Coastal Lakes Observing Network (CLONet), which partners with municipalities and community groups to organize citizen science efforts, workshops and conferences dedicated to understanding the causes of environmental problems facing seaside water bodies.

Land Use, Development, & Growth

Deal is a predominantly residential community and most of its land is developed. From 2015 to 2020, the share of urban or developed land hovered at nearly 95 percent of the Borough's total area. In this period, the area covered by water diminished by nearly 14 acres, while barren land grew by 9.3 acres and developed land increased by roughly 5 acres. However, despite these changes, the overall land use composition of the community remained roughly the same in this period.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	22.7	32.0	41%
Forest	1.4	1.4	>0%
Urban	724.2	729.3	1%
Water	18.8	5.0	-73%
Wetlands	3.8	3.2	-16%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

The DSN Beach Club was redeveloped and completed in Deal Borough. The Premium Parking beachfront has been redone. It is a dirt parking lot, so there was no increase in impervious surface, but there are wood barriers to ensure orderly

parking. This lot falls under NJ Inland Design Flood Elevation zone which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

There are no large-scale developments anticipated besides the redevelopment of the Deal Casino, but that is far away as there are a lot of CAFRA permits needed.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Deal has a total estimated population of 645. This population is estimated to be 3.6% under age 5, and 23.7% over age 65. The Borough experienced an estimated growth of 11.4% between the ACS survey periods of 2013-2017 and 2018-2022. Though there is a relatively small population, Deal has nearly one-quarter of its population aged over age 65, and hazard mitigation preparation will require attention toward this large segment of a potentially vulnerable community. Though no recent or upcoming large-scale development is noted by the community, a population growth of over 11% between five-year survey periods also highlights potential local vulnerabilities related to shifts in the built environment and a risk of densification causing additional hazard impacts.

No areas within the Borough of Deal meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	645
Population Change since 2017	11.4%
Percent of Population Age < 5	3.6%
Percent of Population > 65	23.7%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Nor'easter	Extreme Wind	Drought
Coastal Erosion	Tornado	Earthquake
Flood	Winter Storm	Wildfire
Storm Surge	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Pandemic	
	Economic Development	Power Failure
	Terrorism	

The Borough has ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Coastal erosion has changed from medium in the prior HMP update to high concerns due to significant erosion experienced along the Borough's coastline in 2020. Terrorism remains a large concern within the Borough, as Deal has a significant Jewish community. The police department continues to work closely with the synagogues to deter attacks. Flooding continues to be a major issue, as the current drainage system cannot support the large amount of rain from severe storms. This issue is worsened by buildup within the outfall pipes, causing scouring near the ocean outfall. Nor'easters remain a large concern, as roads can become impassable; however, this is common in coastal towns.

Significant Hazard Events Since Last Plan Update

There was significant flooding in Poplar Brook, which floods constantly. Although houses in this area are elevated slightly, the area near Poplar Avenue and Almyr Avenue experiences large backyard flooding. The most prominent flood in the Borough occurs between Poplar Avenue and Lamar Avenue. According to the DEP, this area needs to be cleaned out to mitigate some of the flooding. Severe flooding was observed on August 4th and 6th, 2024.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact Deal Borough by increasing the frequency and intensity of extreme weather events like hurricanes, nor'easters, and heavy rainfall. This will worsen existing vulnerabilities, particularly in areas prone to flooding and coastal erosion. The current drainage system, already struggling with severe storms, may become even more overwhelmed, leading to more frequent and severe flooding. Rising sea levels will also contribute to coastal erosion, threatening the Borough's coastline and infrastructure.

Additionally, higher temperatures and prolonged heatwaves could increase the risk of wildfires, which may become more frequent and harder to manage. The aging infrastructure, already causing power failures, could be further strained by more severe storms, leading to prolonged outages.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Deal Borough	
Initial FIRM	3/05/76
Effective FIRM	6/15/2022
Number of Policies In-Force:	123
Total Losses:	89
Total Payments:	\$1,877,391.02
Number of RL Properties:	1

Deal Borough	
Number of Mitigated RL Properties:	0
RL – Total Losses:	6
RL – Total Paid:	\$43,075
Number of SRL Properties:	2
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	9
SRL – Total Paid:	\$20,885.87

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

The Special Flood Hazard Area (SFHA) in the Borough of Deal is primarily located adjacent to the waterbodies of the borough: Deal Lake, Poplar Brook, and the Atlantic Ocean. Approximately 8.5 percent of the total area of Deal lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.6 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 89.3 percent of Deal is considered developed. Of the developed parcels of the town, 9.0 percent fall within the 1% annual chance flood zone and 0.1 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	9.0%	0.1%	3.1%
Exposed Land Area	8.5%	0.6%	2.5%

During the planning process, Deal identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 8 total facilities. Of these facilities, none are within the floodplain or the area projected to be inundated under sea level rise

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk Deal Borough

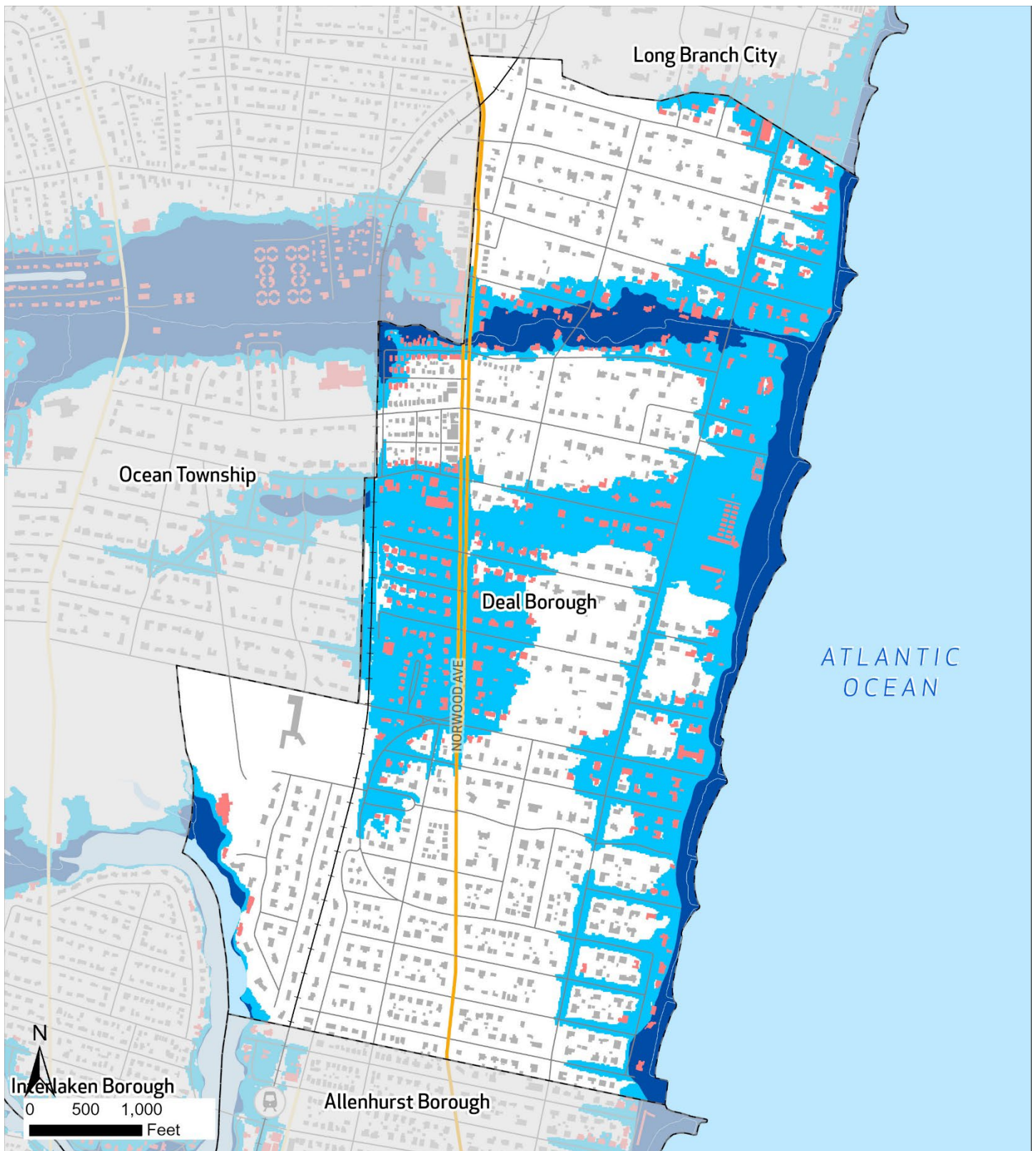
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- State Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Deal Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

Local Roads

Railroad

NJ Transit Rail Station

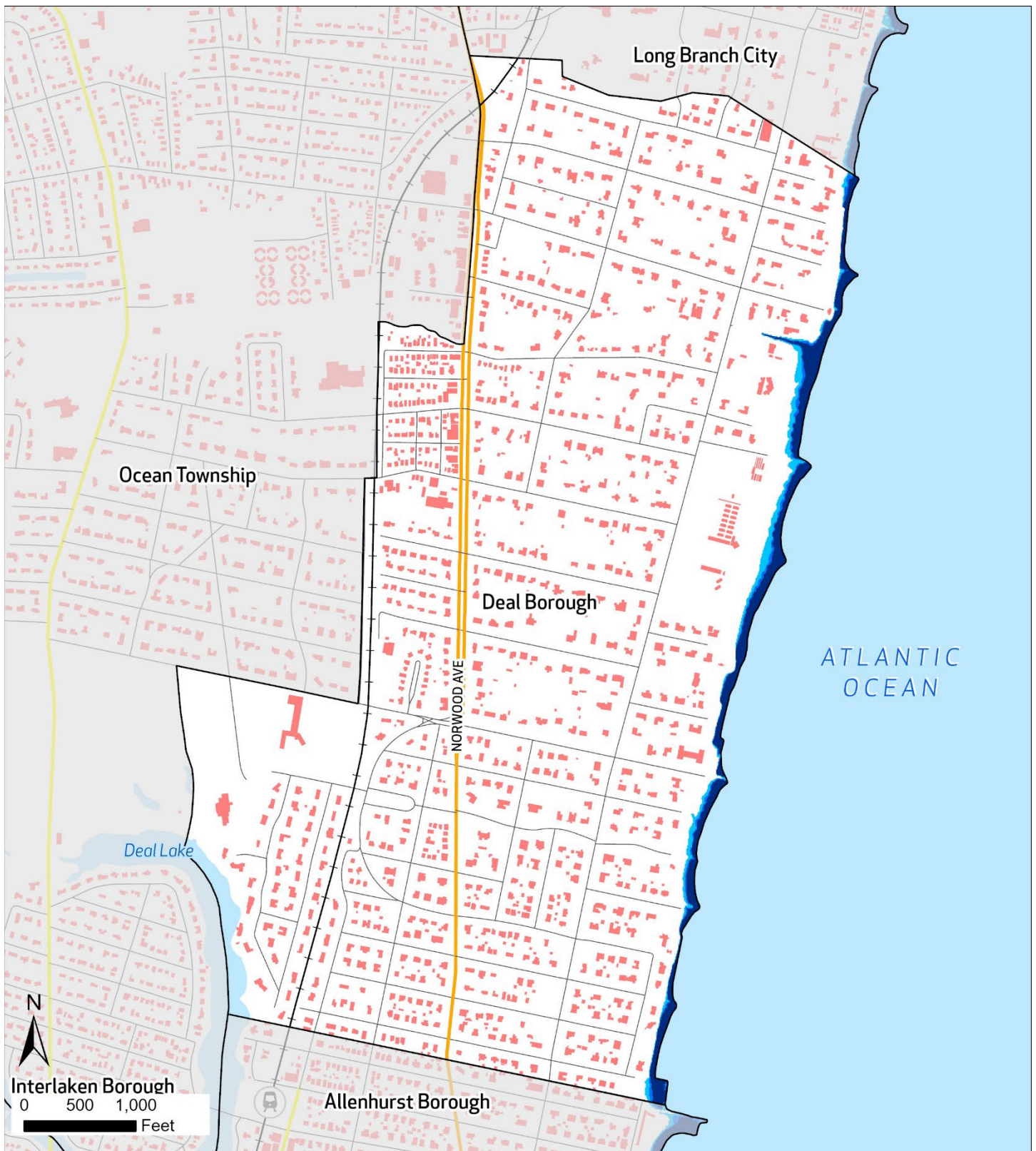
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Deal Borough

- | | | |
|---|---|--|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | <div style="position: absolute; top: 5px; left: 5px; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid black;"></div> Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification
Deal Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- Local Roads
- Rail Lines
- NJ NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Barnegat Light Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		7-1-2027	Discusses watershed and watershed management/protection
Capital Improvement Plan	X		10-15-2024	Prioritize roads that act as a major travel way in case of an emergency.
Local Emergency Operations Plan/Continuity of Operations Plan	X		1-26-25	
Floodplain Development Ordinance	X		6-30-2024	Restricts high-risk construction, promoting resilient building practices, and preserving natural floodplain functions to reduce flood damage and protect communities.
Floodplain Management Plan	X		6-30-2024	See Above.
Stormwater Management Ordinance	X		6-30-2024	Improving drainage systems, reducing flood risks, and enhancing water quality to protect infrastructure and communities from storm-related impacts.
Stormwater Management Plan	X		6-30-2024	See Above.
Watershed Management Plan		X		
Sheltering Plan	X		1-26-2025	
Evacuation Plan	X		1-26-2025	
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X		1-1-2025	Floodplain Manager reviews applications for conformance.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Barnegat Light Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Leon S. Avakian Inc.
Grant Writer	X		Leon S. Avakian Inc.
Staff trained to support mitigation	X		Deal OEM
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Barneget Light Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Nixle
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Barneget Light Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Update

Since the 2021 plan update, the Borough of Deal has prioritized coastal resilience, stormwater management improvements, and enhanced emergency response capabilities to mitigate the risks posed by flooding and severe weather events. Key efforts have included upgrades to drainage infrastructure, reinforcement of the borough's seawalls, and expanded community preparedness initiatives. Over the next five years, Deal will focus on shoreline stabilization, flood mitigation along critical roadways, and sustainable stormwater solutions to address the growing challenges of climate change. These proactive measures will help protect residents, safeguard infrastructure, and ensure long-term resilience for the community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	Deal Borough has no completed or withdrawn actions since the last plan update.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
11-1	Widen Outfall Pipes to Mitigate Flooding at Norwood Ave & Alymr Ave	Overflow pipes need to be increased to improve water flow during storms and reduce flooding on roadways and onto private property. Similar issue at Ocean Avenue has already been mitigated, but Norwood Avenue and Alymr Avenue remain in need of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Borough Administrator or overseeing engineering firm.	FEMA HMA	\$2,300,000	2 years	Ongoing	One pipe is partially or totally done, but the remainder of this action is ongoing.
11-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevation and/or acquisition of flood-prone residential structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List and Severe Repetitive Loss List. New Jersey is committed to continuing the reduction of RL and SRL properties in the State; in turn, they have assigned a high priority to mitigating SRL and RL properties in the State Hazard Mitigation Plan. We are committed to supporting these projects as interested	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Engineer	FEMA HMA	TBD	3 years	Ongoing	With the Borough having control of high-risk areas and properties, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		homeowners come forward and will support such homeowners, despite the loss in tax revenue, because we recognize the importance of making our community more disaster-resistant and reducing the financial burden of repetitive flooding in our community.								
11-3	Extend the Outfall at Phillips Avenue	Extend the outfall at Phillips Avenue. As of now, it does not go out far enough, and the pipe becomes clogged from erosion and flooding.	Flood	High	Borough	USACE, NJDEP	1 Million	5 Years	New	Expanding the outfall length will ensure all stormwater reaches the ocean and no scouring will occur on the beach.
11-4	Extend the Outfall at Neptune Avenue	Extend the outfall at Neptune Avenue. As of now, it is falling out into the culvert, and Monmouth Terrace is being flooded.	Flood	High	Borough	FEMA HMA	1 Million	5 Years	New	Expanding the outfall length will ensure all stormwater reaches the ocean and no scouring will occur on the beach.
11-5	Clear Out Alymr Avenue	Clear out Alymr Avenue including the private properties to mitigate backyard flooding. The Borough has permission from NJDEP but needs to obtain permission from the property owners.	Flood	High	Borough and Township of Ocean	Municipal budget	2 Million	5 Years	New	This project would allow the continued flow of stormwater to reach the existing infrastructure.
11-6	Dredge silt and debris from Poplar Brook	Desilt and dredge Poplar Brook to mitigate backyard flooding. As of now, debris causes blockages resulting in the water having nowhere to go.	Flood	High	Borough	USDA, Municipal Budget	\$500,000	3 Years	New	Dredging allows for more capacity in the brook. During a storm event, moving the water off of the road and into the body of water.
11-7	Dredge Deal Lake	Remove excess sediment form identified choke points and reduce flood risks during heavy rainfall events. As of now, buildup prevents retention.	Flood	High	Borough	Borough, Deal Lake Commission	\$750,000	3 Years	New	Dredging the lake will allow for more capacity in the lake. During a storm event, moving the water off of the road and into the body of water.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
11-8	Begin restoration efforts on the spread of the beach near Deal Casino Beach Club	Strengthen dunes to act as natural barriers in the area and plant native vegetation to stabilize the shoreline.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Mid	Borough	FEMA HMA Municipal Budget	\$150,000	2 Years	New	With the Borough having control over the beach club property, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed.
11-9	Brighton Avenue Drainage Swale Improvement	The existing drainage swale located in the rear properties between Brighton Avenue and Parker Avenue causes severe flooding during major storm events. Upgrading the swale to a piped infrastructure will help move the storm water to a recently expanded drainage system that heads to the Brighton Avenue Ocean outfall. This project can also help alleviate drainage problems in the neighboring town of Ocean Township. The work would entail the upsizing of an existing pipe crossing under the North Jersey Coast Line – NJ Transit train tracks.	Flood	High	Borough	Borough/ Grants	\$1,500,000	2 Years	New	This project would allow the continued flow of stormwater to reach the existing infrastructure.
11-10	Ocean Outfall Extensions	At numerous locations throughout the Borough, the storm water outfalls terminate at the bulkhead or natural wall. This causes sizable beach erosion following major storm events and smaller scale erosion after the majority of the other storm events. The Borough has been doing a good job with maintaining their beaches but in the event of a major storm	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Mid	Borough	Borough/ Grants	\$500,000	3 Years	New	Expanding the outfall length will ensure all stormwater reaches the ocean and no scouring will occur on the beach.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		event and the department of public works couldn't get to the beach sand grooming, a public safety issue is present. The extension of beach outfalls would help mitigate major beach erosion.								
11-11	Construction of Sand Dunes	The addition of sand dunes at vulnerable points along the Boroughs shoreline would allow for more resilience during a hurricane or major tidal event. The existing dunes will continue to be maintained under the DEP Permit, however, additional dunes will be considered.	Coastal Erosion, Wave Action, Nor'easter, Hurricane and Tropical Storm	Mid	Borough	Borough/ Grants	\$100,000	2 Years	New	Sand dunes act as the first line of defense in a severe tidal event. Creating more dunes will allow for more time for response.
11-12	Infrastructure Studies and Improvements	The Borough would like to conduct infrastructure flood studies due to infiltration and inflow during fast major storm events. Repairs, lining, and testing will need to be done to determine the origin of stormwater into the Boroughs sanitary infrastructure. Sewer backups and water damage has been experienced during major flooding events due to the lack of pumping capacity at the pump station.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Mid	Borough	Borough/ Grants	\$350,000	5 Years	New	The reason for this action is to find and prioritize the needs to be addressed in high-risk areas of town. Addressing the problem areas will allow for better assistance in the case of an emergency.

12 – BOROUGH OF EATONTOWN

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
William Mego	OEM Coordinator	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2
Rudy Trask	Deputy Coordinator	Email-Phone conversation, Input and Review
Django Weigers	Construction Official	Email, Input and Review

COMMUNITY PROFILE

Overview

Eatontown is located in the central portion of eastern Monmouth County and encompasses 5.86 square miles. Eatontown recently filed its Recreation and Open Space Inventory with the New Jersey Department of Environmental Protection. The inventory includes nearly 180 acres of land that has been designated to be permanently preserved. The newly preserved open space includes Bliss Price Arboretum and Wildlife Sanctuary, Leon Smock 80 Acre Park, Wampum Park. In 2020, the borough adopted a Complete Streets Policy and committed to ensuring that safety and sustainability are safeguarded in all public and private transportation projects. The borough has a Safe Routes to School “Gold” rating.

Land Use, Development, & Growth

Eatontown is a predominantly residential community and home to substantial publicly owned land. As a result, most of the Borough’s land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 80 percent of its total area. Although since 2015, the area covered by forested land diminished by roughly 20 acres, as the town’s developed land grew by 19 acres, its overall land use composition remained roughly the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	9.9	6.7	-32%
Barren Land	19.9	24.7	24%
Forest	394.9	375.4	-5%
Urban	2953.1	2972.0	1%
Water	24.0	25.4	6%
Wetlands	368.5	366.0	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Recent redevelopment projects include a proposal to construct 60 luxury market-rate townhouses and 15 affordable townhouses at the Suneagles Golf Course in Eatontown, as well as a remodeling of the existing banquet facility. Howard Commons, on Pine Brook Road, is proposed to be demolished and replaced with 275 new dwelling units consisting of single-family residences and townhomes and a convenience store. Both developments fall within FEMA’s “Area of Undetermined Flood Risk” (NJFloodMapper).

In 2021, FMERA authorized a Request for Offer to Purchase for a 292-acre tract that spans nearly all the remaining land in the Eatontown and Oceanport sections of the former fort. The goal was to attract a large, cohesive project with integrated residential, commercial, amenity-based, and public uses. The current focus at the former fort is the nearly \$1B Netflix bid, which is undergoing due diligence. The redevelopment plan for the former fort is currently proposed to be amended to permit the proposal, which includes 12 production studios, back lots, and office space.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The Monmouth Mall Redevelopment Plan was adopted in May of 2023, and a resolution confirming its compliance with the borough's master plan was passed in February. The plan, known as Monmouth Square, also received conditional approval from the County in the same year. The project includes a mix of medical offices, retail, and entertainment uses, along with 1,000 for-rent, residential units. In addition, the project includes a large promenade with open green space for visitors, and a clubhouse for the site's residents. The changes are intended to create a village-like atmosphere by providing a center square within the site that would allow for a civic/public space serving residents and the community at large. Specifications include 915,437 square feet of both new and renovated space, spread across 26 buildings.

The project is expected to be constructed over twelve phases.

- Near Old Fort Monmouth on Pinebrook road about 500 units will be going in.
- The Old Orchard golf course is going to be 250 senior units with retail fronting Rt. 36

This is not in area of known flood risk.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Eatontown has a total population estimated at 13,522, of which 4.99% is under age 5 and 17.8% is over age 65. The Borough experienced an estimated 10.3% population growth between 2013-2017 and 2018-2022 ACS survey periods. This is notable population growth over a five-year survey period, and successful hazard mitigation planning within the borough will address vulnerabilities of a changing built environment, increased development density, and shifting population trends that come along with this growth.

There are three block groups in Eatontown's northwest which are identified by OBC as potentially vulnerable, overburdened by criteria of *Minority* population indicators (two block groups) and *Low Income and Minority* population indicators (one block group). There are no areas of Eatontown Borough meeting designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	13,552
Population Change since 2017	10.3%
Percent of Population Age < 5	5.0%
Percent of Population > 65	17.8%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/ Tropical Storm	Extreme Temperature	Lightning
Nor'easter	Extreme Wind	Storm Surge
Flood	Tornado	Earthquake
	Winter Storm	Wildfire
	Dam Failure	
	Drought	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Pandemic	
	Terrorism	

Note: Coastal Erosion, Landslide, and Wave Action are ranked N/A by the Borough.

Hazard Ranking Explanation

A few hazards saw changes from the last HMP update. Dam failure moved up to a medium hazard from not applicable because the Wampum Dam is over sixty years old. Although it was recently inspected, some of the mechanics are old. Drought also increased to medium due to a significant drought and an increase in the number of fires, putting stress on the water reserves. Storm surge was lowered from the last plan update as Eatontown Borough is not currently on the coast, but significant storms still have negative impacts. Additionally, the pandemic hazard moved to medium from high after the peak of COVID-19. Coastal erosion, landslides, and wave action are all not applicable due to the general geography and topography.

Significant Hazard Events Since Last Plan Update

While no major incidents have occurred since the last plan, some hazards were still experienced. There was a flooding incident on Meadow Brook Avenue after eight inches of rain fell at once in February 2024, causing building damage as a basement collapsed. Additionally, there have been some fires and nor'easters.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Eatontown Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and heavy rainfall are likely to increase. This will exacerbate existing vulnerabilities, particularly in areas prone to flooding and coastal erosion. The current drainage system, which already struggles to handle severe storms, may become even more overwhelmed, leading to more frequent and severe flooding events. Rising sea levels will also contribute to coastal erosion, further threatening the Borough's coastline and infrastructure¹.

Additionally, higher temperatures and prolonged heatwaves could increase the risk of wildfires, which may become more frequent and harder to manage. The aging infrastructure, already causing power failures, could be further strained by more severe storms, leading to prolonged outages.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Eatontown Borough	
Initial FIRM	9/16/1981
Effective FIRM	6/20/2018
Number of Policies In-Force:	23
Total Losses:	18
Total Payments:	\$19,192.04
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$10,773.48
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

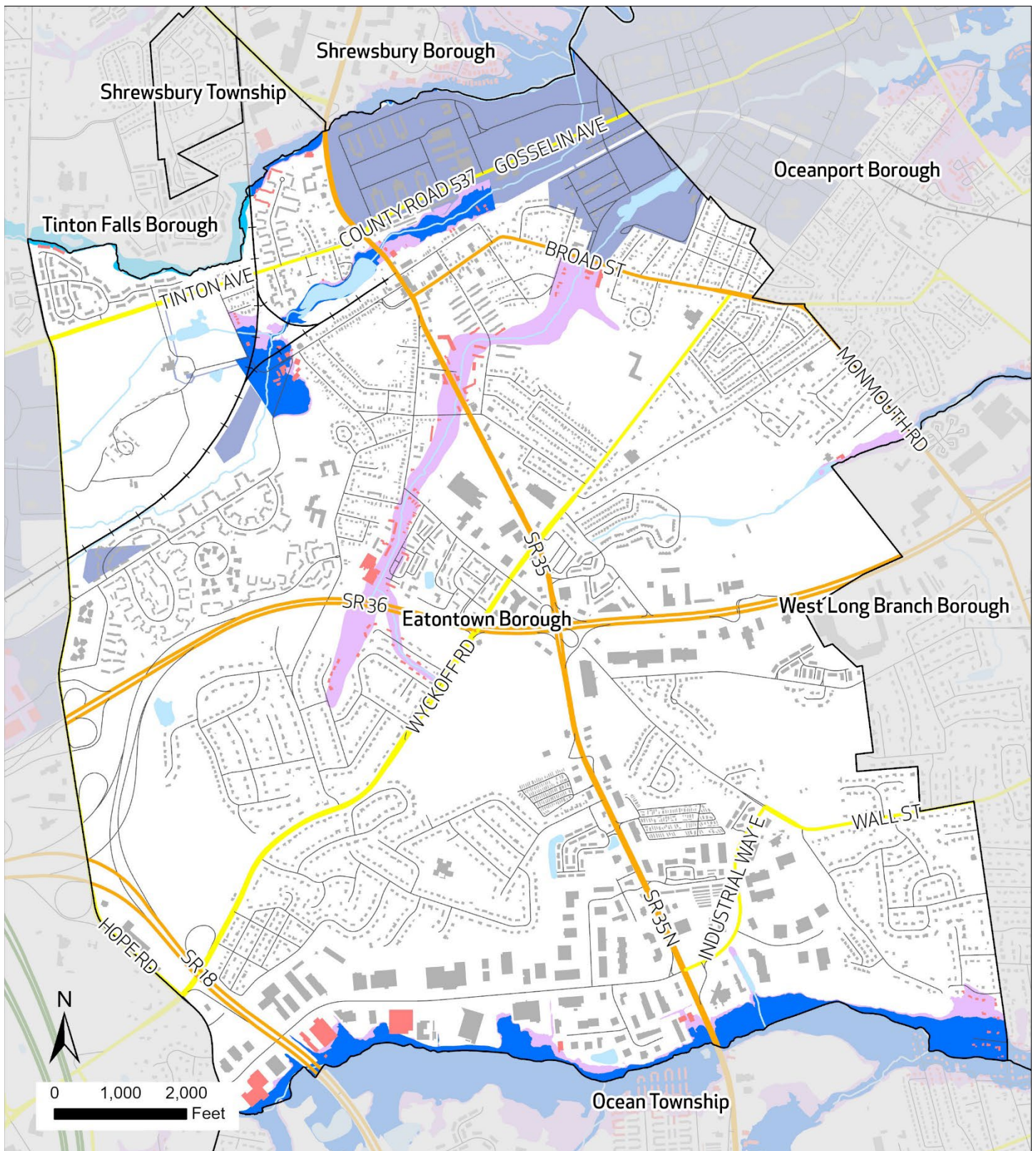
The Special Flood Hazard Area (SFHA) in the Borough of Eatontown is primarily located adjacent to the waterbodies of the borough: Turtle Mill, Wampum and Whale Pond Brooks, and Parkers Creek Branch. Approximately 3 percent of the total area of Eatontown lies within the 1% annual chance flood zone as defined by FEMA. An additional 3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 84.1 percent of Eatontown is considered developed. Of the developed parcels of the town, 2.4 percent fall within the 1% annual chance flood zone and 3.1 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.4%	3.1%	NA
Exposed Land Area	3.0%	3.0%	NA

During the planning process, Eatontown identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 26 total facilities. Of these facilities, three are located within the floodplain. These facilities fall under the Energy, Safety and Security, and Water Systems community lifeline types.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	5 feet of Sea Level Rise
Energy	1	-	NA
Safety and Security	1	-	NA
Water Systems	-	1	NA



Flood Risk Eatontown Borough

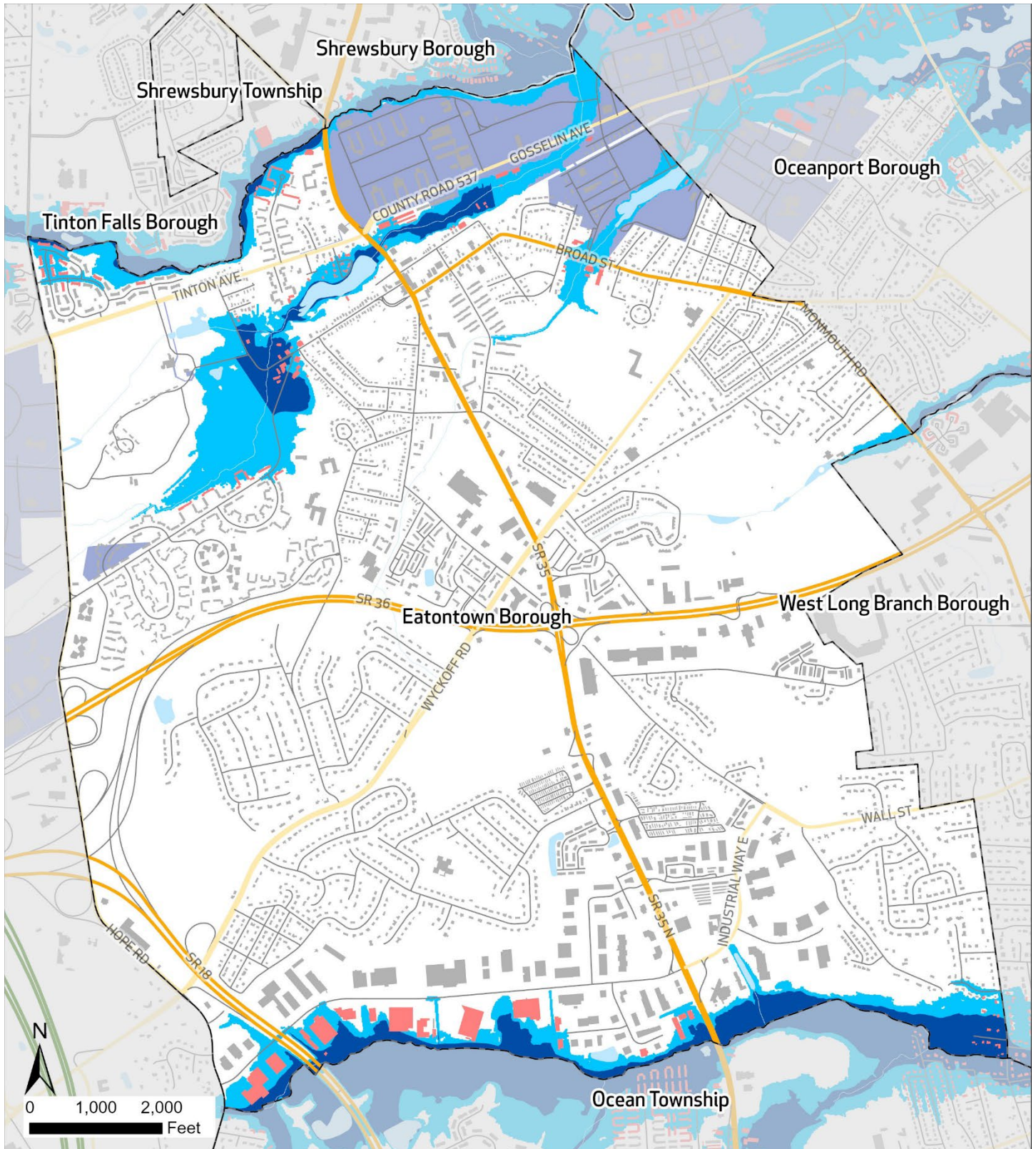
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Eatontown Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Municipal Boundaries

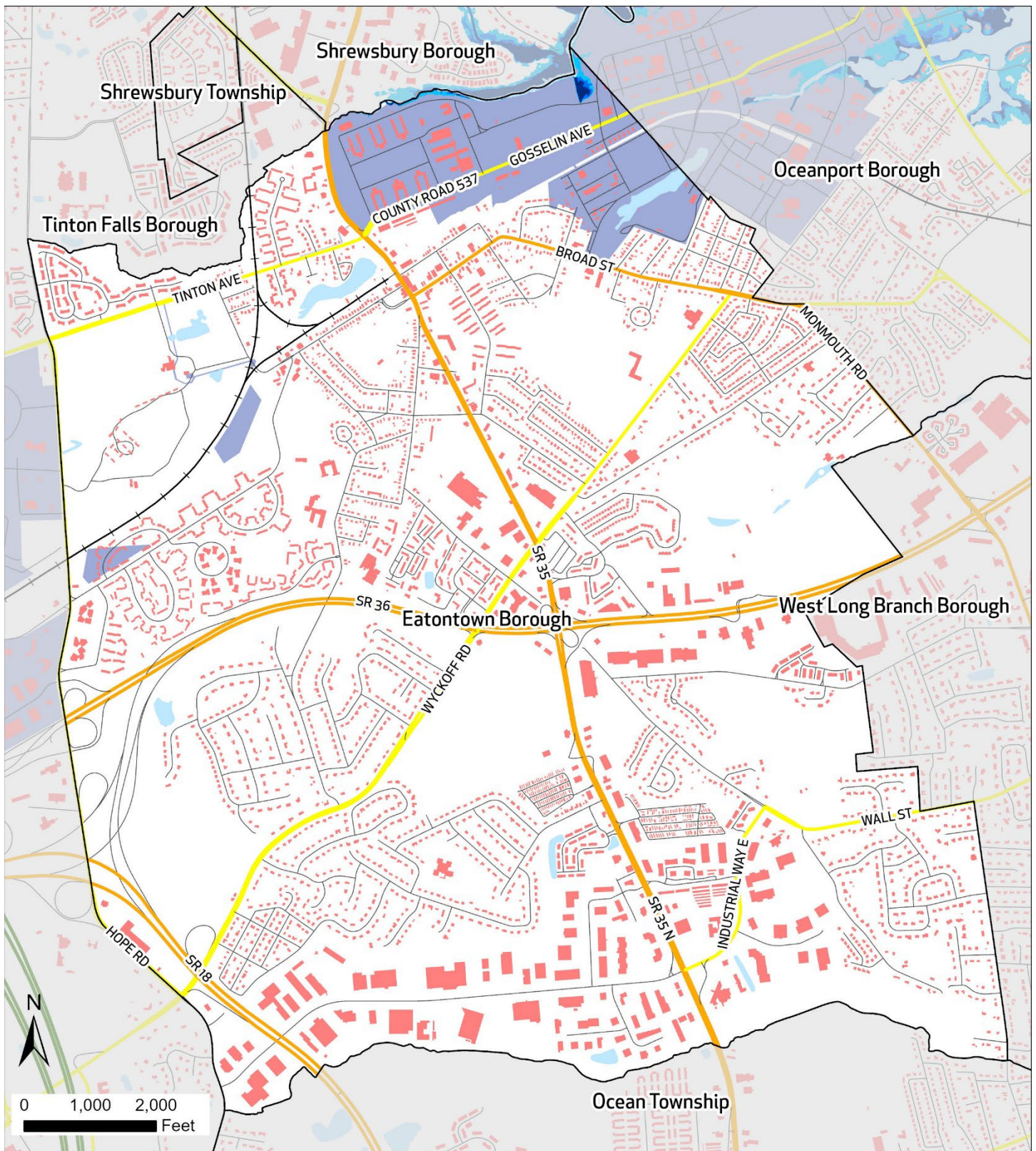
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

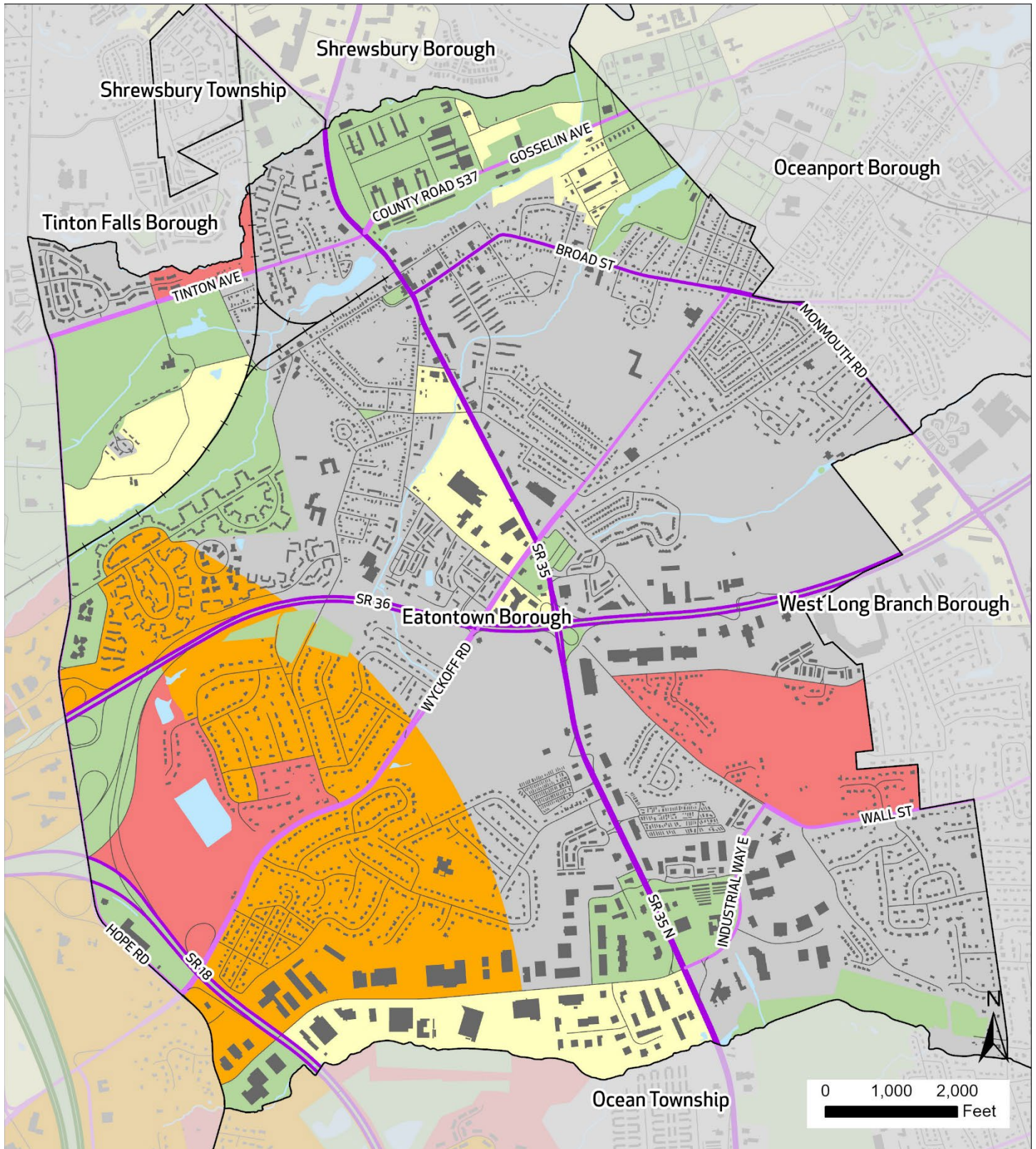
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Eatontown Borough

- | | | |
|---|--|---|
| Area Inundated Under 2 Feet SLR | Garden State Parkway | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | Interstate Highways | Building Footprint |
| Area Inundated Under 5 Feet SLR | State Routes | Water |
| | County Routes | Department of Defense Land |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Eatontown Borough

- | | | |
|---|--|--|
| Interface | Garden State Parkway | Municipal Boundaries |
| Intermix | State Hwy | Building Footprint |
| High or Medium Density Housing | Interstate Highways | Water |
| Low or Very Low Density Housing | State Routes | |
| No Housing | County Routes | |
| | Local Roads | |
| | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Eatontown Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2023	
Capital Improvement Plan	X			Establishes what structures and/or equipment is replaced first in to keep the COOP operating
Local Emergency Operations Plan/Continuity of Operations Plan	X		7/2025	Emergency Operations Plan for the town
Floodplain Development Ordinance	X		11/2022	Adopts Federal and State Requirements
Floodplain Management Plan	X			
Stormwater Management Ordinance	X		01/2021	Manage storm water runoff
Stormwater Management Plan	X		01/2021	Manage storm water runoff
Watershed Management Plan		X		
Sheltering Plan	X		7/2024	Borough EOP
Evacuation Plan	X		7/2024	Borough EOP
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		1/2025	Borough EOP
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X			
Current/recent redevelopment plans or studies	X			
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Borough EOP
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Eatontown Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		
Grant Writer	X		
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Eatontown Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Boro Webpage
StormReady	X		
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Eatontown Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC	X		
FEMA FMA	X		
FEMA Public Assistance	X		
FEMA HMGP			
Non-FEMA Federal Funding Programs	X		
Other FEMA resources		X	
NJ Infrastructure Bank			
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities	X		

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Silver

MITIGATION STRATEGY

Overview and Progress Since the Last Plan Update

Since the last plan, the Borough is prioritizing getting the Wampum Lake gates replaced and dredging of the books. During heavy rainstorms we are having our brooks over run their banks, which creates flooding. When this happens, the Borough must shut down roads thus impeding our emergency response. Also, we have purchased three schools (shelters) and we are waiting for the board of education to complete the study to have generators installed. Finally, we have been working with the various departments to write SOPs to deal with storm events and how they impact their departments.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 12-1	Develop a Power Failure Plan	Update Winter Storm Response Plan to incorporate all current aspects of recent changes throughout the borough. Inclusive of but not limited to adding new facilities and/or structures erected since the last update, and identify personnel changes which may	Winter Storm, Power Failure	High	Borough Administration	Borough funding	\$200,000	1 year	Completed	Complete. The Borough have an EOP now. It just got passed and approved. It discusses a power failure plan. Every department has a plan for how they respond in the face of a major power outage.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
12-2	Dredge and Clean Husky Brook	Dredge Husky Brook and clean the stream to improve the natural drainage system.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor/Council, Borough Engineer	Local budget	\$150,000	2 years	Ongoing	The brook has seen a good level of dredging; however, this is ongoing as the buildup is a consistent issue. This will help mitigate floods, nor'easters, hurricanes, tropical storms, and storm surges. As climate change is expected to increase the frequency and intensity of extreme weather events, associated heavy rainfalls can lead to higher sediment loads in rivers. This means climate change may make this action continuous.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
12-3	Purchase and Install Backup Generators for Emergency Shelters	Install backup generators to run and operate emergency evacuation shelters. This will involve monitoring the state site on a daily basis and when we see an available generator we will start the process to acquire the generator.	All Hazards	Low	Eatontown Office of Emergency Management	Local budget and FEMA HMA	\$600,000	1 year	Ongoing	The generators have been purchased. The Borough is waiting for the engineers to install and hook them up. They have been getting the generators through LEASO because it is surplus government equipment. All the senior facilities and EOC backup have their own generators.
12-4	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Particular focus on those in our community that are on FEMA's RL and SRL List. New Jersey is committed to continuing the reduction of RL and SRL properties in the State.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Administrator	FEMA HMA	TBD on property	1 year	Ongoing	Continuous.
12-5	Clean and De-snag the Wampum Brook	Clean out the Wampun Brook to allow for better infiltration and establish an ongoing maintenance program to keep the brook clean of trash and debris.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Mayor/Council, Borough Engineer	Municipal budget	\$200,000	3 years	Ongoing	The County has started to come and clean the brook every other year or two. If the County does not clean and desnag, the Borough will have to hire a contractor.
12-6	Relocate or Floodproof (with Floodgate) DPW Building	Relocate or floodproof the DPW building to ensure the Borough can properly operate during a flood event.	Flood	Medium	Mayor/Council, Borough Engineer	Municipal budget	\$8M	3 years	Ongoing	This is currently held up due to the anticipated Netflix development. Whenever serious flooding occurs, equipment is moved to the DPW building on Pinebrook Road.
12-7	Fix the gates at Wampum Dam.	Fixing the gates at Wampum dam to avoid breakage. If the gates fail it will affect Fort Monmouth down to Oceanport.	Dam Failure	High	Borough Engineer	Municipal budget	\$500,000	1 year	New	The dam is over sixty years old meaning the mechanics are aging. While the dam passed its recent inspection, the gates are broken. If a severe weather event occurs resulting in significant rainfall, dam operators will be unable to take the pressure off.

13 – BOROUGH OF ENGLISHTOWN

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Michael J. Garifalos	OEM Coordinator	12/13/24 municipal meeting

COMMUNITY PROFILE

Overview

Located in western Monmouth County, Englishtown is completely surrounded by the Township of Manalapan and encompasses 0.59 square miles. County Routes 522 and 527 traverse the borough. In addition to its historic and cultural resources, Englishtown provided an example of community resiliency during Superstorm Sandy by partially pumping water out of Lake Weamaconk in advance of the heavy rainfall expected during the storm.

Land Use, Development, & Growth

Englishtown is a predominantly residential community and home to substantial publicly owned and commercial land. As a result, in 2020, nearly 74 percent of its total area was urban or developed. Wetlands formed 16 percent of the Borough's area, while forested land and farmland made up the remaining 6 percent in the same year. This land use composition of the Borough has remained largely unchanged from 2015 through 2020.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	5.4	5.4	>0%
Barren Land	0.0	0.4	-
Forest	18.9	18.7	-1%
Urban	279.9	279.7	>0%
Water	12.1	12.1	>0%
Wetlands	62.2	62.2	>0%

NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

N/A

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

N/A

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Englishtown has a total estimated population of 2,129, with an estimated 3.7% of these residents under age 5 and 11.6% over age 65, a notable population which may require attention for aging populations when planning for

hazard mitigation. The borough experienced consistent population over the ACS estimate periods of 2013-2017 and 2018-2022, with -0.094% population change.

No areas within the Borough of Englishtown meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	2,129
Population Change since 2017	-0.1%
Percent of Population Age < 5	3.7%
Percent of Population > 65	11.6%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Dam Failure
	Hurricane/ Tropical Storm	Drought
	Tornado	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
Pandemic	Terrorism	Civil Unrest
	Cyber Attack	Power Failure
	Economic Collapse	

Note: Coastal Erosion, Landslide, Storm Surge, and Wave Action are ranked N/A.

Hazard Ranking Explanation

There is no change in hazard ranking since the last plan. The Borough of Englishtown continues to face various natural and human-made hazards, but the overall ranking of these hazards has remained consistent. This stability in hazard ranking indicates that the mitigation measures and preparedness strategies implemented in the previous plan have been effective in managing the risks. The Borough remains vigilant in monitoring and addressing potential hazards to ensure the safety and resilience of the community.

Significant Hazard Events Since Last Plan Update

No significant hazard events have occurred within the last five years. However, there is localized flooding that occurs along Main Street from the McGellairds Brook. This area is particularly prone to flooding due to its proximity to the brook and the existing drainage infrastructure. The Borough has been actively working on mitigation measures to address this issue, including regular maintenance and cleaning of the drainage systems to prevent blockages and improve water flow. Additionally, the Borough is exploring long-term solutions to enhance flood resilience and protect properties in the affected areas.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Englishtown Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and heavy rainfall are likely to increase. This will exacerbate existing vulnerabilities, particularly in areas prone to flooding and coastal erosion. The current drainage system, which already struggles to handle severe storms, may become even more overwhelmed, leading to more frequent and severe flooding events. Rising sea levels will also contribute to coastal erosion, further threatening the Borough's coastline and infrastructure. Additionally, higher temperatures and prolonged heatwaves could increase the risk of wildfires, which may become more frequent and harder to manage. The aging infrastructure, already causing power failures, could be further strained by more severe storms, leading to prolonged outages.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Englishtown Borough	
Number of Policies In-Force:	21
Total Losses:	35
Total Payments:	\$664,375.60
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	14
RL – Total Paid:	\$223,980.88
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

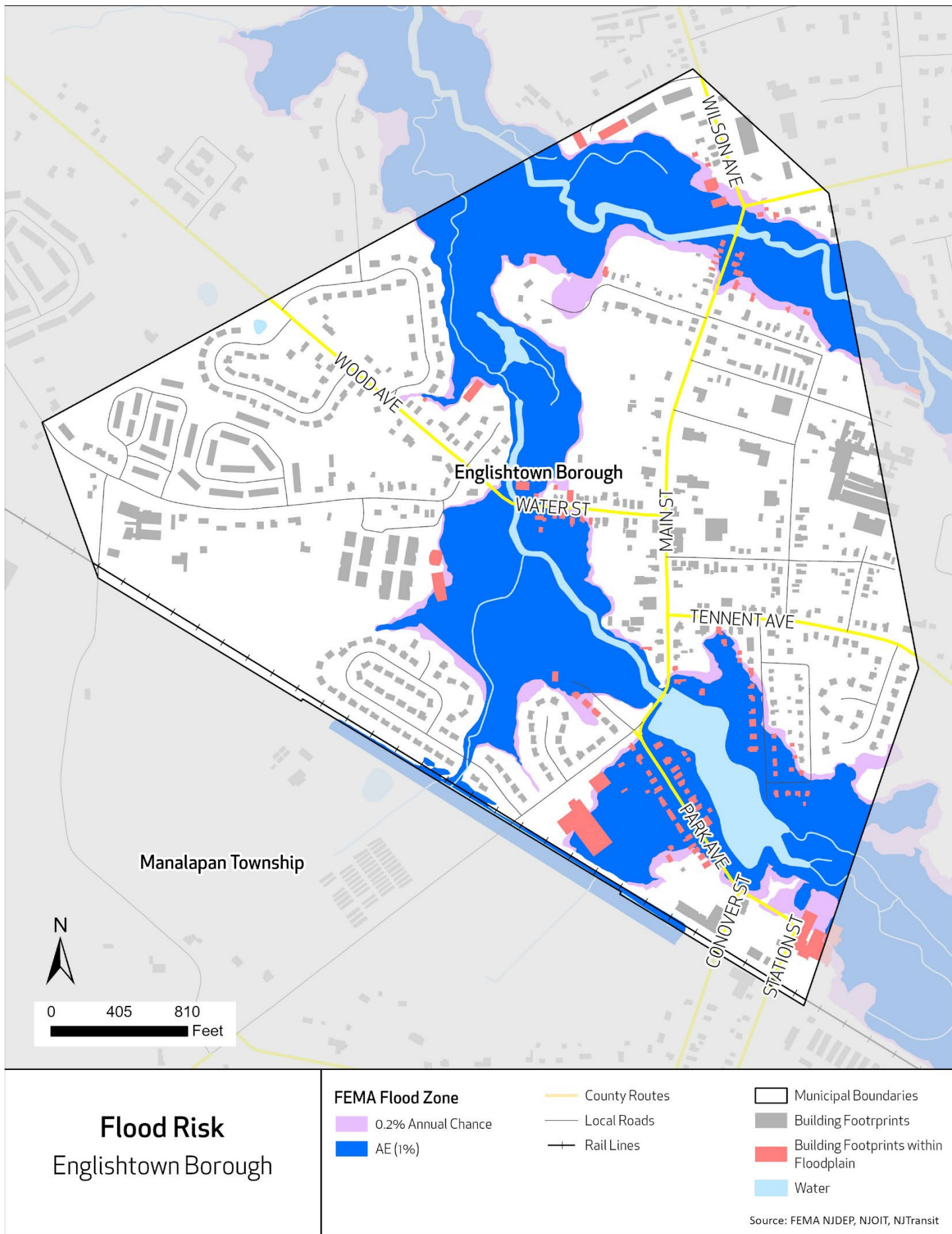
The Special Flood Hazard Area (SFHA) in the Borough of Englishtown is primarily located adjacent to the waterbodies of the borough: Matchaponix and McGellaids Brooks and Lake Weamaconk. Approximately 28.3 percent of the total area of Englishtown lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.1 percent of the area of the municipality is in the 0.2% annual chance flood zone.

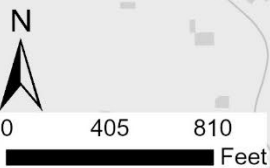
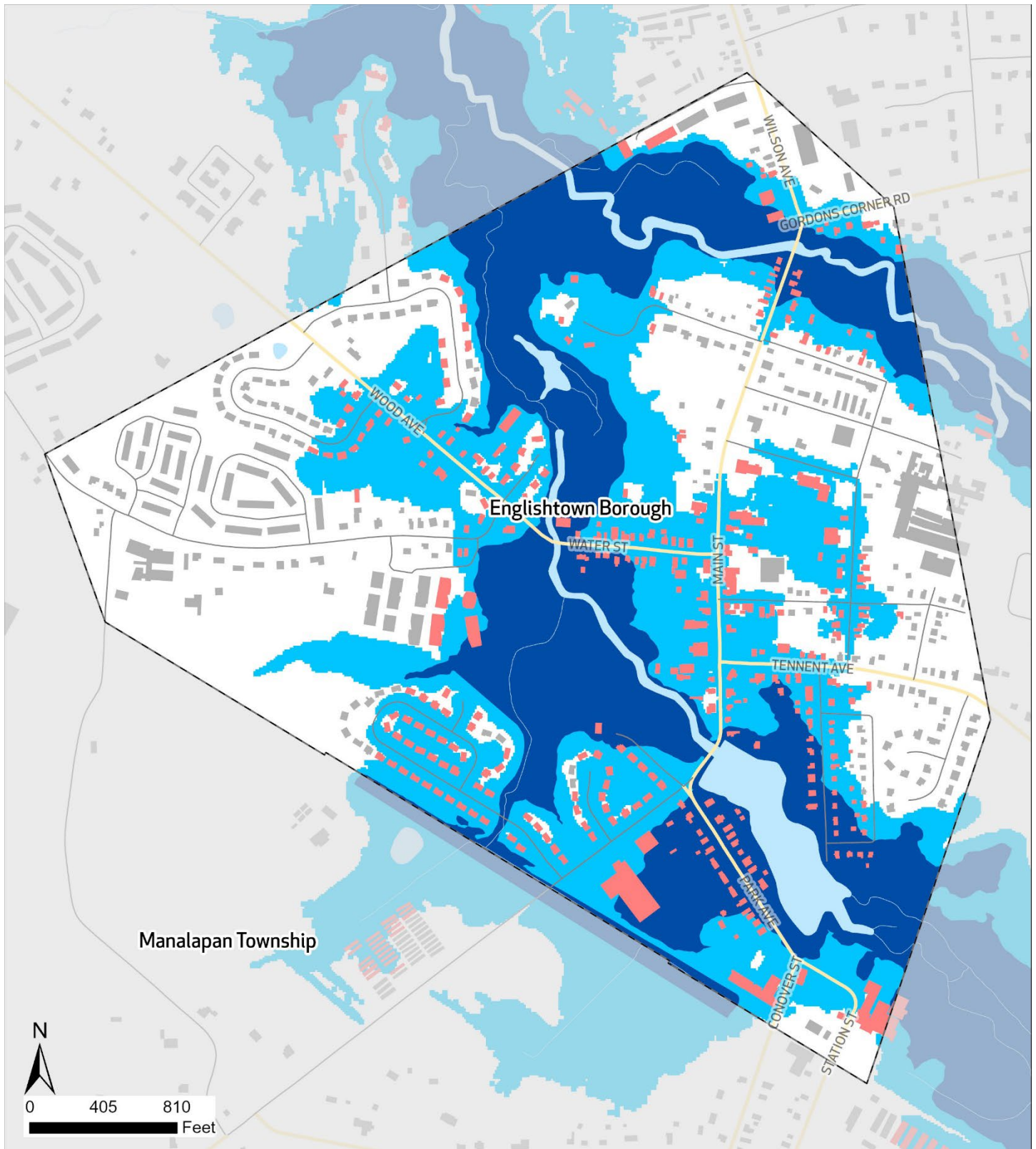
About 77.4 percent of Eatontown is considered developed. Of the developed parcels of the town, 21.2 percent fall within the 1% annual chance flood zone and 2.8 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet of Sea Level Rise
Developed Parcels	21.9%	2.9%	NA
Exposed Land Area	28.3%	4.1%	NA

During the planning process, Englishtown identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified nine total facilities. Of these facilities, two are located in the floodplain. These facilities fall under the Safety and Security and Water Systems community lifeline types.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	-	1	NA
Water Systems	1	-	NA





NJ Inland Design Flood Elevation Englishtown Borough

- FEMA Flood Zone**
- Current Base Flood Elevation (1%)
- NJ Inland Design Flood Elevation**
- FEMA BFE (1%) plus 3 Feet

- County Routes
- Local Roads

- Municipal Boundaries
- Water
- Building Footprints
- Building Footprints within IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Englishtown Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Englishtown Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2025	
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2017	
Floodplain Development Ordinance		X		
Floodplain Management Plan		X		
Stormwater Management Ordinance	X			
Stormwater Management Plan	X			
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X		2025	
Community Wildfire Protection Plan				
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Englishtown Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer		X	
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	x		
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Englishtown Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		
StormReady	x		
Firewise USA	x		
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Englishtown Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance		x	
FEMA HMGP		x	
Non-FEMA Federal Funding Programs		x	
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs		x	
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Please provide an introduction statement (2-3 sentences) on your overall mitigation action strategy, including what you have prioritized since the last plan update in 2021 and your priorities for the next five years and why (e.g. we plan to prioritize roadway elevations along evacuation routes due to residents being stranded before and during a storm event).

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	There are no completed or withdrawn actions.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
13-1	Clean and De-snag Weamaconk Creek and McGellaids Brook	Use stream restoration to ensure adequate drainage and diversion of stormwater. Conduct routine stream maintenance to remove sediment, debris, and fallen trees. Coordinate with County Engineering and Mosquito Control Commission to perform stream cleaning	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Borough Engineer	Municipal budget	\$20,000	1 year	Ongoing	
13-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	New Jersey is committed to continuing the reduction of RL and SRL properties in the State; in turn, they have assigned a high priority to mitigating SRL and RL properties in the State Hazard Mitigation Plan. We are committed to supporting these projects as interested homeowners come forward and will support such homeowners, despite the loss in tax revenue, because we recognize the	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Construction Official and Borough Administrator	FEMA HMA		3 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		importance of making our community more disaster-resistant and reducing the financial burden of repetitive flooding in our community.								
13-3	Repair Dam and Bulkhead at Lake Weamaconk	The dam and bulkhead located under Main Street are in poor condition and need significant repairs. There is also stream erosion 50 feet from the dam and bulkhead along the banks of Lake Weamaconk.	Dam Failure, Flood, Nor'easter, Hurricane and Tropical Storm	High	Monmouth County and the Borough of Englishtown	FEMA HMA, County grants, NJDEP Bureau of Dam Safety and Flood Control	\$1M	1 year	Ongoing	
13-4	Dredge Lake Weamaconk	Upstream development has caused a lot of sediment deposits in the lake.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough	Municipal budget		5 + years	Ongoing	
13-5	Increase Security at Borough Hall and the Water Treatment Plant	Upgrade the surveillance camera system at Borough Hall and install surveillance cameras at the Water Treatment Plant.	Terrorism	High	Borough and Private Water Company	Homeland Security grants		1 year	Ongoing	The cameras have been installed at Borough Hall but not at the Water Treatment Plant. However, the Water Treatment Plant is behind Borough Hall, and the Borough may surveil the Water Treatment Plant via the cameras at Borough Hall that face it.
13-6	Implement a Reverse 911 System	Currently, the Borough has a Nixle system set up to warn residents of any emergency, but a Reverse 911 system would improve community awareness.	All Hazards	Medium	Borough	Municipal budget		1 year	Ongoing	

14 – FAIR HAVEN BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Joseph P. McGovern	Chief of Police	Point of Contact, Individual meeting with Michael Baker
Nick Poruchynsky	DPW Superintendent	Reviewed appendix
Chris York	Borough Administrator	Reviewed appendix
Rich Gardella	DPW Engineer	Reviewed appendix

COMMUNITY PROFILE

The Borough of Fair Haven encompasses 1.55 square miles along the Navesink River and supports a small commercial area along CR10 (River Road). The primary land use in Fair Haven is residential. The borough is known for its large number of primary and middle school students who ride bicycles to school. It has a Safe Routes to School “Gold” rating.

Land Use, Development, & Growth

Fair Haven is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 70 percent of its total area. Although since 2015, the town’s barren land diminished by roughly 2 acres, as its developed land grew by 2 acres, its overall land use composition remained roughly the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	4.2	2.3	-45%
Forest	31.0	31.0	>0%
Urban	925.9	928.1	>0%
Water	326.0	326.0	>0%
Wetlands	49.1	48.7	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

New Jersey American Water invested \$4M in infrastructure (new water mains) throughout the Borough.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None. Borough is built out.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Fair Haven has a total population estimated at 6,221. Of these residents, an estimated 8.2% are under age 5, and 11.1% are over age 65. The borough experienced modest population growth over the ACS surveys between 2013-2017 and 2018-2022, with an estimated 3.4% increase in residents over this period.

No parts of the borough meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	6,221
Population Change since 2017	3.4%
Percent of Population Age < 5	8.2%
Percent of Population > 65	11.1%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Landslide
Storm Surge	Tornado	Drought
	Winter Storm	Earthquake
	Coastal Erosion	
	Flood	
	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Pandemic	
	Power Failure	

Hazard Ranking Explanation

Most hazard rankings remained the same as in 2021. Flooding moved from high to medium, as the Borough does not experience much flooding and is elevated higher than the surrounding municipalities. Landslides also moved from medium to low, as there are no large hills in the Borough. Extreme temperatures remained the same; however, the Borough noted that the only time the warming or cooling centers are used is when there is a power failure. The only hazard that increased in ranking was power failure, moving from low to medium. The Borough stated that this is the hazard of most concern.

Significant Hazard Events Since Last Plan Update

The Borough has not experienced any significant hazard events within the last five years. The only area that experienced flash flooding was near Brown Lane. The Borough repaired the outfall pipes, and the area no longer floods.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is not expected to significantly impact the risks and hazards faced by Fair Haven Borough. The municipality will experience increased intensity of extreme weather events such as hurricanes and heavy rainfall, which may result in

increased flood exposure. Additionally, more frequent and severe heatwaves may pose health risks and increased strain on power infrastructure could lead to more frequent power failures.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Fair Haven Borough	
Initial FIRM	10/16/1979
Effective FIRM	6/15/2022
Number of Policies In-Force:	0
Total Losses:	0
Total Payments:	\$0
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	\$0
SRL – Total Paid:	0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

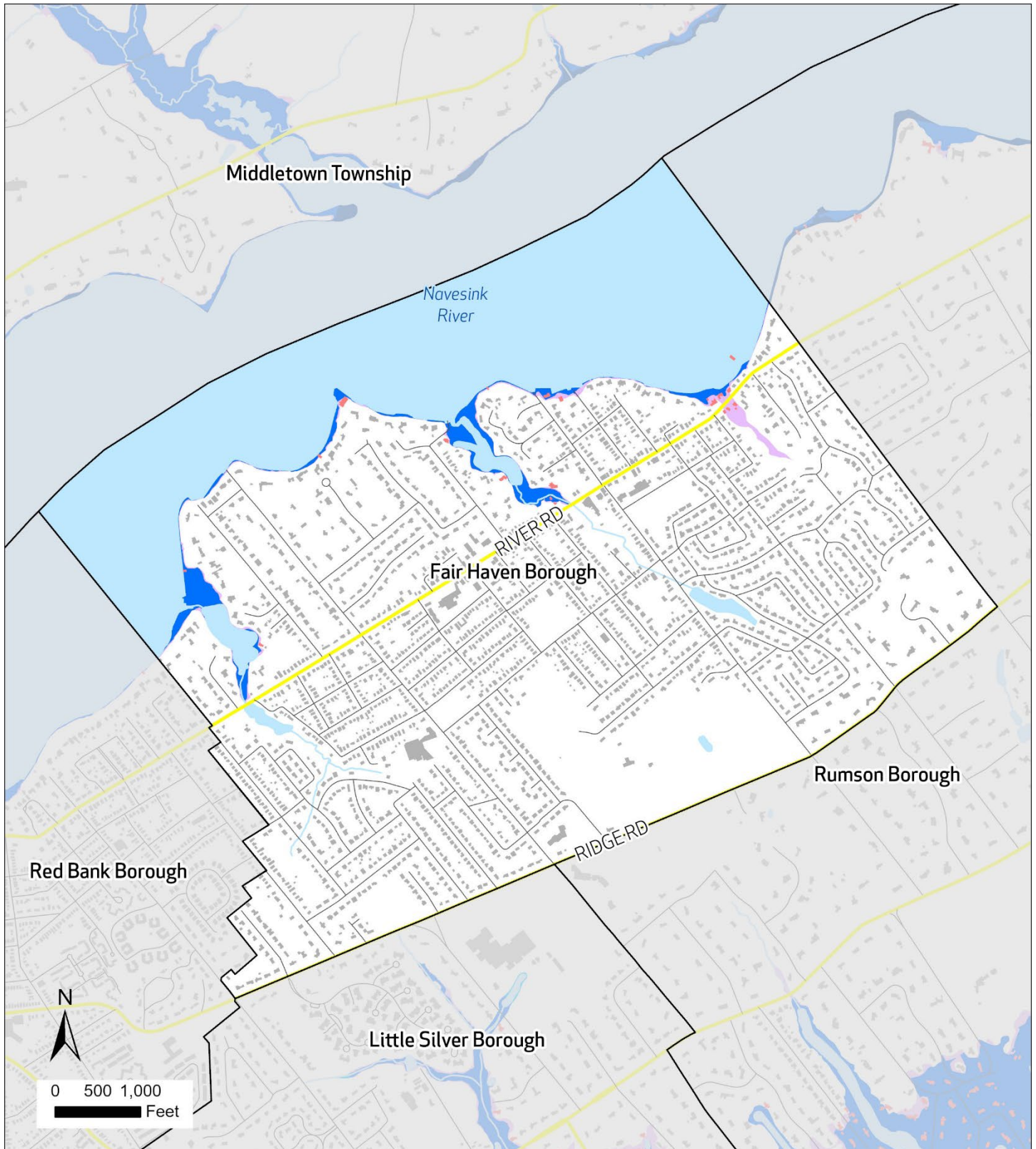
The Borough has a total area of nearly 1,024 acres of land area, of which roughly 30 acres lies within the 1% floodplain. An additional 0.6 percent of the borough (8 acres) is designated as a 0.2% floodplain. In total, nearly 3.5 percent of the borough sits within one of these two floodplain designations.

The borough's share of residential land is 62.5% of its total acreage – within residential acreage, 1.5% (12.6 acres) sits within a 1% floodplain, and 0.62% (5.2 acres) sits within a .2% floodplain. Within the 1,845 residential parcels in Fair Haven (97% of all parcels in the borough), 96 (5.2% of all residential parcels) sit within a 1% floodplain, and 104 (5.6% of all residential parcels) are located within a 0.2% floodplain.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	5.0 %	1.0%	4.7%
Exposed Land Area	2.8 %	0.6%	2.6%

During the planning process, Fair Haven identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 12 total facilities. Of these facilities, none are within the floodplain or areas projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk

Fair Haven Borough

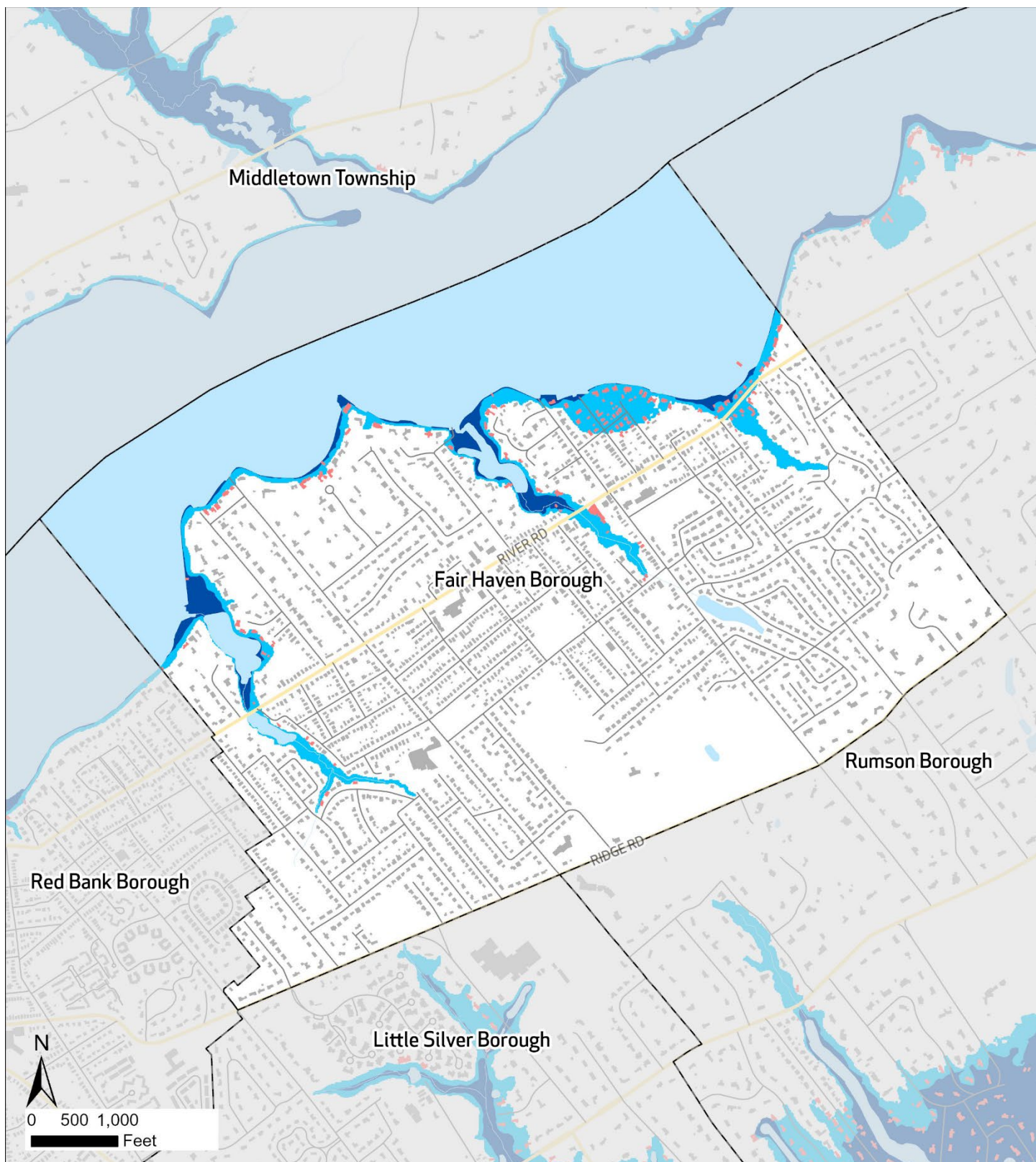
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Fair Haven Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

County Routes

Local Roads

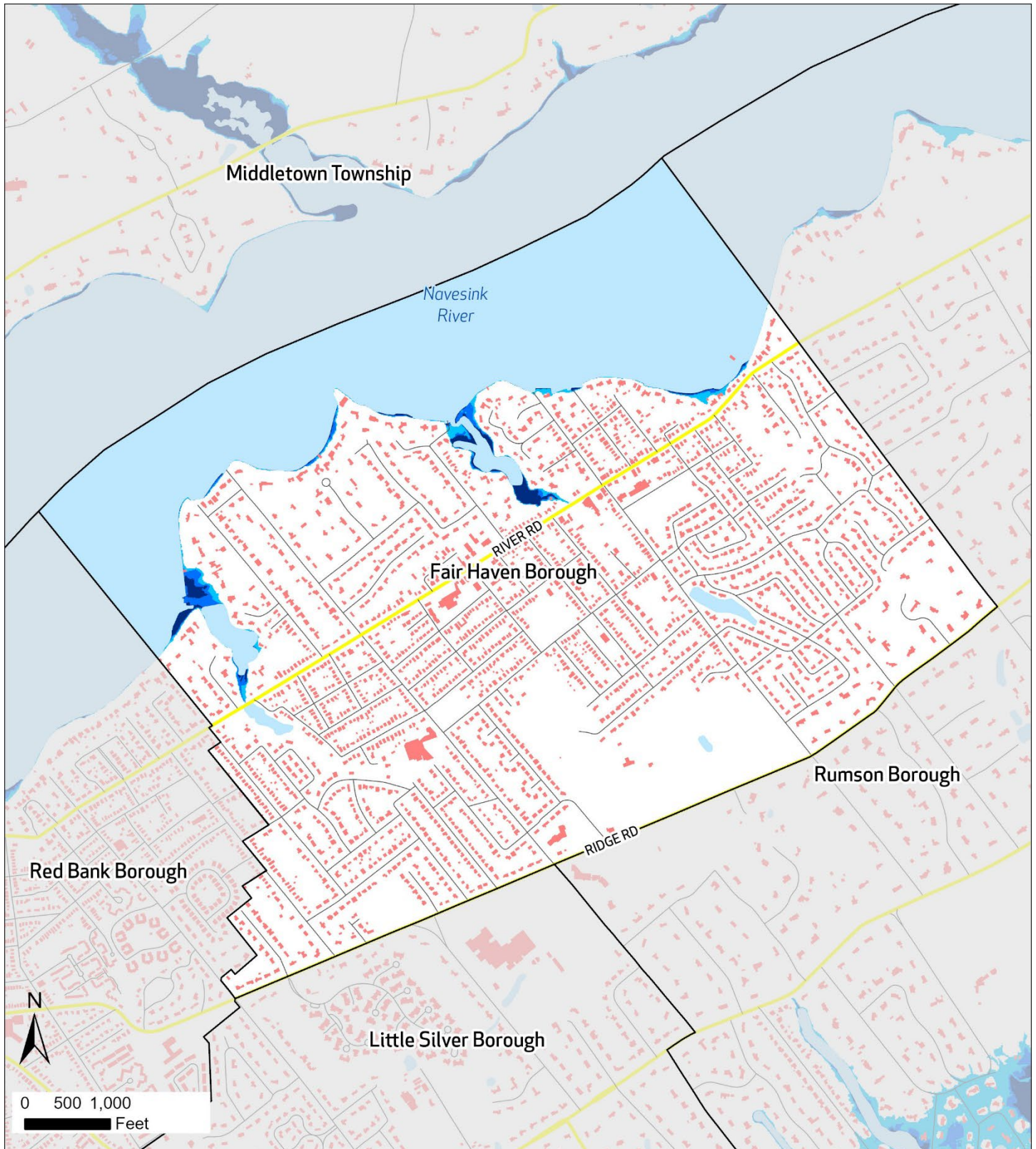
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



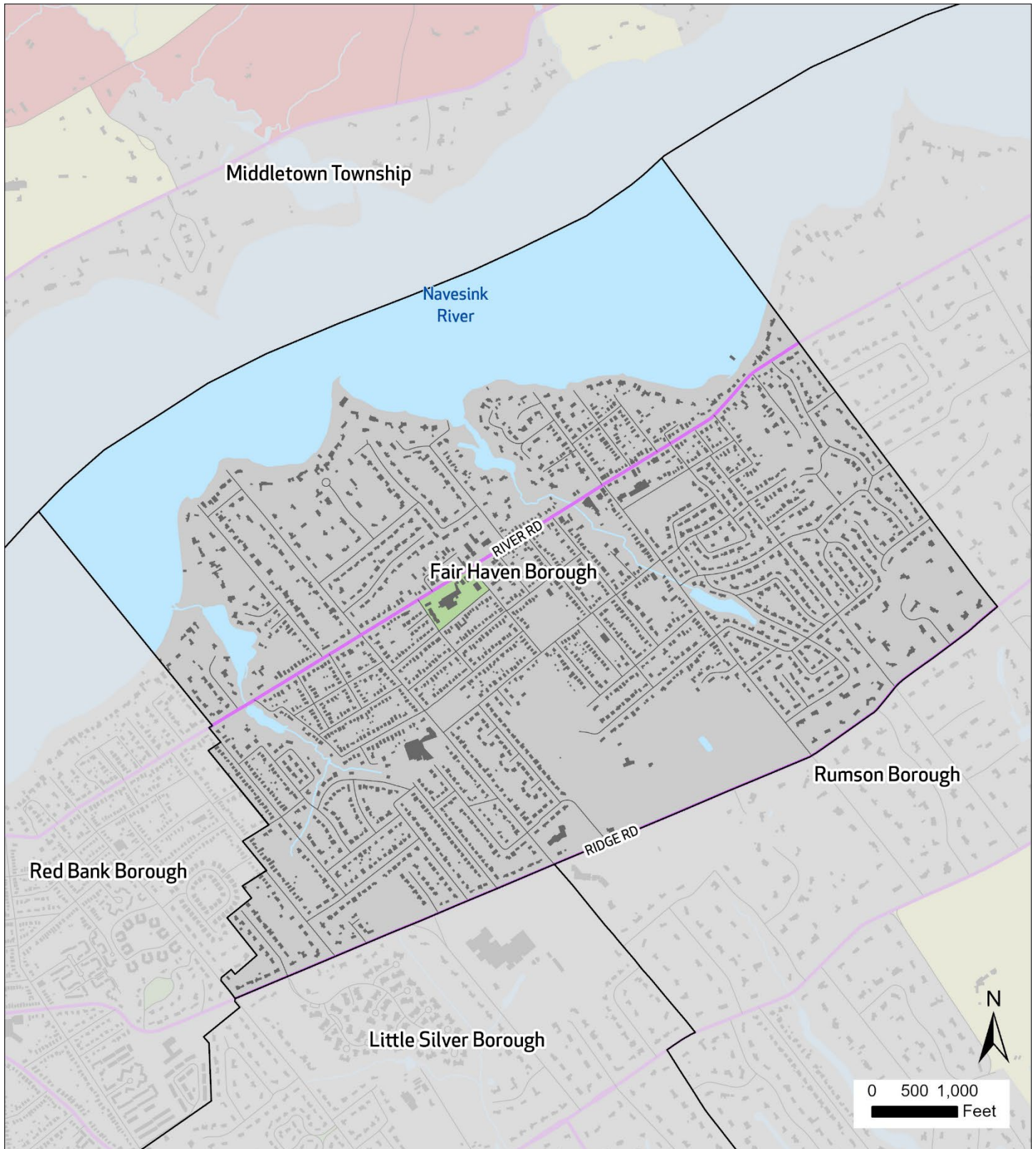
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Fair Haven Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Fair Haven Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

Capability Assessment

Planning & Regulatory Capabilities

Fair Haven Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x			The 2005 Master Plan Reexamination called for the development of specific programs for the stewardship of the public parks, active recreation areas, cultural and historic sites that would include dedicated funding. This remains valid.
Capital Improvement Plan	x			
Local Emergency Operations Plan/Continuity of Operations Plan	x			In process of waiting for State approval
Floodplain Development Ordinance	x			Adopted 2022 2022-06
Floodplain Management Plan	x			
Stormwater Management Ordinance	x			Adopted 2024 2024-07
Stormwater Management Plan	x			
Watershed Management Plan		x		Pending
Sheltering Plan	x			In EOP
Evacuation Plan	x			In EOP
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan		x		
Disaster Debris Management Plan	x			DEP Approved 2020
Tracking elevation certificates and/or Letter of Map Change		x		
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies		x		
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation	x		2022	Monmouth County Fair Haven Borough Healthy Community Planning Report
Other ordinance and regulation that mitigate the impacts of natural hazards	x			

Administrative and Technical Capabilities

Fair Haven Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		Nick Poruchynsky
Grant Writer	x		
Staff trained to support mitigation	x		Nick Poruchynsky
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		With Monmouth County OEM
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	
Organizations that work with socially vulnerable or underserved populations		x	

Education and Outreach Capabilities

Fair Haven Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Nixle Alerts
StormReady		x	
Firewise USA		x	
Severe Weather Awareness Week		x	
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Fair Haven Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance		x	
FEMA HMGP		x	
Non-FEMA Federal Funding Programs	x		NJ DEP Stormwater Management Grant
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs	X		The Borough acquired the Fair Haven Rd. property through DEP Open Space funds.
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Update

Since the 2020 plan update The Borough of Fair Haven has focused on rebuilding the Department of Public Works Building, installing a generator for all borough buildings and acquired a flood prone house at the end of Fair Haven Road. We will continue to improve our storm sewer infrastructure to reduce flooding and will work with utility companies for better maintenance of trees prone to damaging wires during a storm. These efforts underscore The Borough of Fair Haven's commitment to safeguarding residents and promoting sustainable growth in the face of evolving hazards.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
Action 14-1	Purchase and Install a Natural Gas Generator Borough Hall/DPW Building	Purchase and install a natural gas generator Borough Hall/DPW building for loss of power in buildings.	All Hazards	N/A	Borough	Borough budget	\$72,000	N/A	Completed	The Borough completed this action. Cost was \$72,000.
Action 14-2	Acquire Two Flood-prone Properties and Convert to Open Space	Purchase property the end of Fair Haven Rd and two properties along the Navesink Rd. Demolish each house (two are vacant since Superstorm Sandy) and convert to open space.	Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough	DEP	\$1.5 million	N/A	Completed	The Borough acquired the Fair Haven Rd. property through DEP Open Space funds. The other two properties are not vacant. One property no longer flooded since the outfall pipe was repaired (Action 14-3).
Action 14-3	Repair or Enlarge Outfall Pipes along the Navesink River	The outfall pipes at the end of Haddon Park, Lewis Ln, Gillespie Ave, and River Road (county-owned) are failing and need repaired.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough	Borough budget	\$50,000	N/A	Completed	The Borough repaired the outfall pipes near Brown Lane, where flash flooding occurred. Cost \$50,000 and funded through municipal funds.
Action 14-4	Rebuild the DPW Building and Upgrade Fuel Pumps for Continuity of Operations	The DPW building needs to be rebuilt with upgraded fuel pumps. During Superstorm Sandy, the DPW building supplied fuel to Sandy Hook	All Hazards	N/A	Borough	Borough budget	\$4M	N/A	Completed	This action is almost complete (expected to be complete in December 2024). The cost was \$4.4M and was paid for by the Borough.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri-ority	Responsib le Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 14-5	Remove Overhead Transmission Lines and Place Underground	Remove poles and bury overhead power transmission lines underground in the area of town that has the most potential for power line failure.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Low	Chief Joseph McGovern , Fair Haven	Municipal budget	\$2M	5+ years	Ongoing	No progress but would like to keep this action in case the Borough pursues funding to complete.
Action 14-6	Remove or Trim Trees Near Power Transmission Lines	Remove or trim large borough trees near power transmission lines.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Medium	JCP&L and the Borough	Municipal Budget, JCP&L	\$20,000 per year	5+ years	Ongoing	This action is in progress and ongoing.
Action 14-7	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	There are currently no RL or SRL properties in the Borough; however, the Borough realizes the floodplain changes over time and the risk is always present. If in the next five years properties become RL/SRL, the Borough will coordinate with residents to mitigate properties through structure elevation, demolition to open space, or another type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Borough and Property Owners	FEMA HMA	TBD	5+ years	Ongoing	No progress but would like to keep this action because Borough realizes the floodplain changes over time and the risk is always present.
Action 14-8	Construct Flood Measure (e.g. floodwalls or berms) along Fourth Creek	Use minor structural projects that are smaller and more localized (e.g., floodwalls or small berms) along Fourth Creek, which causes flooding in the Borough.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough	FEMA HMA	\$100,000	5 years	Ongoing	The Borough does not flood often. Keeping this action in case the project is needed but low priority. Cost estimated updated to \$100,000.
Action 14-9	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	Low	Borough	Borough budget	TBD	5 years	Ongoing	There is a low risk of landslides in the Borough.

15 – FARMINGDALE BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Nicholas Borrillo	OEM Coordinator	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
James A. Daly	Mayor & Manager	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Robert Lewis	Fire Company Chief	Reviewer – First Responder - OEM
Matt Shafai	Borough Engineer	Reviewer

COMMUNITY PROFILE

Overview

The Borough of Farmingdale's motto is "Today's Town...with Yesterday's Touch," symbolizing a historical and well-maintained community that has modernized its development and planning issues by zoning for affordable housing, developing mixed-use buildings, and planning for stormwater management. In 2023, The Delaware & Raritan River Railroad completed the "F&S Connection," a 5-mile track between Freehold Borough and Farmingdale, which now carries cargo trains for the first time since 1985.

Land Use, Development, & Growth

Farmingdale is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 72 percent of its total area, and wetlands making up 27 percent. Although since 2015, the Borough's barren land disappeared completely, while its developed land grew by roughly 8.4 acres, its overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	4.3	2.5	-42%
Barren Land	5.7	0.0	-100%
Forest	3.1	3.1	>0%
Urban	233.4	241.8	4%
Water	-	-	-
Wetlands	90.5	89.5	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Farmingdale received a 2020 NJDOT grant along with guidance from Monmouth County Engineering to construct lighted pedestrian crosswalks and a stamped paver crosswalk section in the center of town on Main Street (County Route 524) to improve pedestrian safety and vehicular/pedestrian awareness.

Four County roads go through Farmingdale Borough. Development in the surrounding community is increasing traffic and stress on the Borough's infrastructure. Within the Borough, only a small level of development is being seen with about 22 new units having been constructed, not within floodprone areas.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

There is one development project coming through the pipeline that proposes 34 total units. This is still under developer review as the location proposed and increased vehicular movement would create traffic difficulties that need to be

addressed. Planning Board & Council discussing the potential of future redevelopment of Main Street Business District. Neither of these areas has known hazard risks.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Farmingdale Borough’s population, estimated at 1,326 residents, is estimated to be 2.19% under 5 years old, and 15.31% over age 65. The borough lost residents in the survey periods between 2013-2017 and 2018-2022, with an estimated -9.8% population shift. This notable population loss may pose challenges for mitigation planning in the face of changing residential density, but may change with recent and proposed development of new residential units described above.

The borough has one block group making up its southern half, which is identified through New Jersey’s OBC program as potentially overburdened based on criteria of Low-Income populations. There are no parts of the Borough meeting criteria for identification under CDRZ or CEJST programs.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,326
Population Change since 2017	-9.8%
Percent of Population Age < 5	2.2%
Percent of Population > 65	15.3%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor’easter	Extreme Temperature	Lightning
Flood	Extreme Wind	Landslide
	Hurricane/Tropical Storm	Drought
	Tornado	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
Power Failure	Cyber Attack	Civil Unrest
	Economic Disruption	

High	Medium	Low
Natural Hazards		
	Pandemic	
	Terrorism	

The Borough ranked Coastal Erosion, Dam Failure, Storm Surge, and Wave Action as N/A.

Hazard Ranking Explanation

Landslide has moved from not applicable in the last HMP update to low, as there are a couple of steep slopes within the Borough. Power failure also saw an increase from low in the last plan update to high due to the infrastructure. Storm surge, coastal erosion, and wave action remain not applicable because Farmingdale is not a coastal municipality. Dam failure is also not applicable due to the lack of dams. Nor'easter continues to be a high hazard. Nor'easter remains higher than hurricanes, as hurricane damage isn't severe due to the location, but large snowfalls cover cars and infrastructure. Cyber-attack, economic disruption, and terrorism remain medium hazards, as the threat of demonstration and action is always present and would be detrimental to municipal operations.

Significant Hazard Events Since Last Plan Update

The most significant hazard in the past five years has been the persistent flooding associated with rainwater runoff. However, many projects are in place to protect Farmingdale from any serious flooding.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Farmingdale Borough. Rising temperatures and shifting precipitation patterns will likely increase the frequency and intensity of extreme weather events such as heavy rainfall, hurricanes, and Nor'easters. This will exacerbate existing flooding issues, particularly in areas adjacent to Marsh and Mingamahone Brooks, which already experience occasional flooding. The increased flooding risk will necessitate more robust flood management and mitigation strategies to protect residential properties, critical infrastructure, and community lifelines.

Additionally, the increased frequency of extreme weather events, such as hurricanes and Nor'easters, will likely lead to more power failures, which have already been identified as a high hazard due to their ability to worsen the effects of other hazards. The Borough's infrastructure, including critical facilities and developed parcels, is at risk, with approximately 22.4% of the total area lying within the 1% annual chance flood zone.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Farmingdale Borough	
Initial FIRM	11/26/1982
Effective FIRM	9/25/2009
Number of Policies In-Force:	3
Total Losses:	28
Total Payments:	\$1,068,444.43
Number of RL Properties:	7
Number of Mitigated RL Properties:	0
RL – Total Losses:	15
RL – Total Paid:	\$922,182.89
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0

Farmingdale Borough	
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

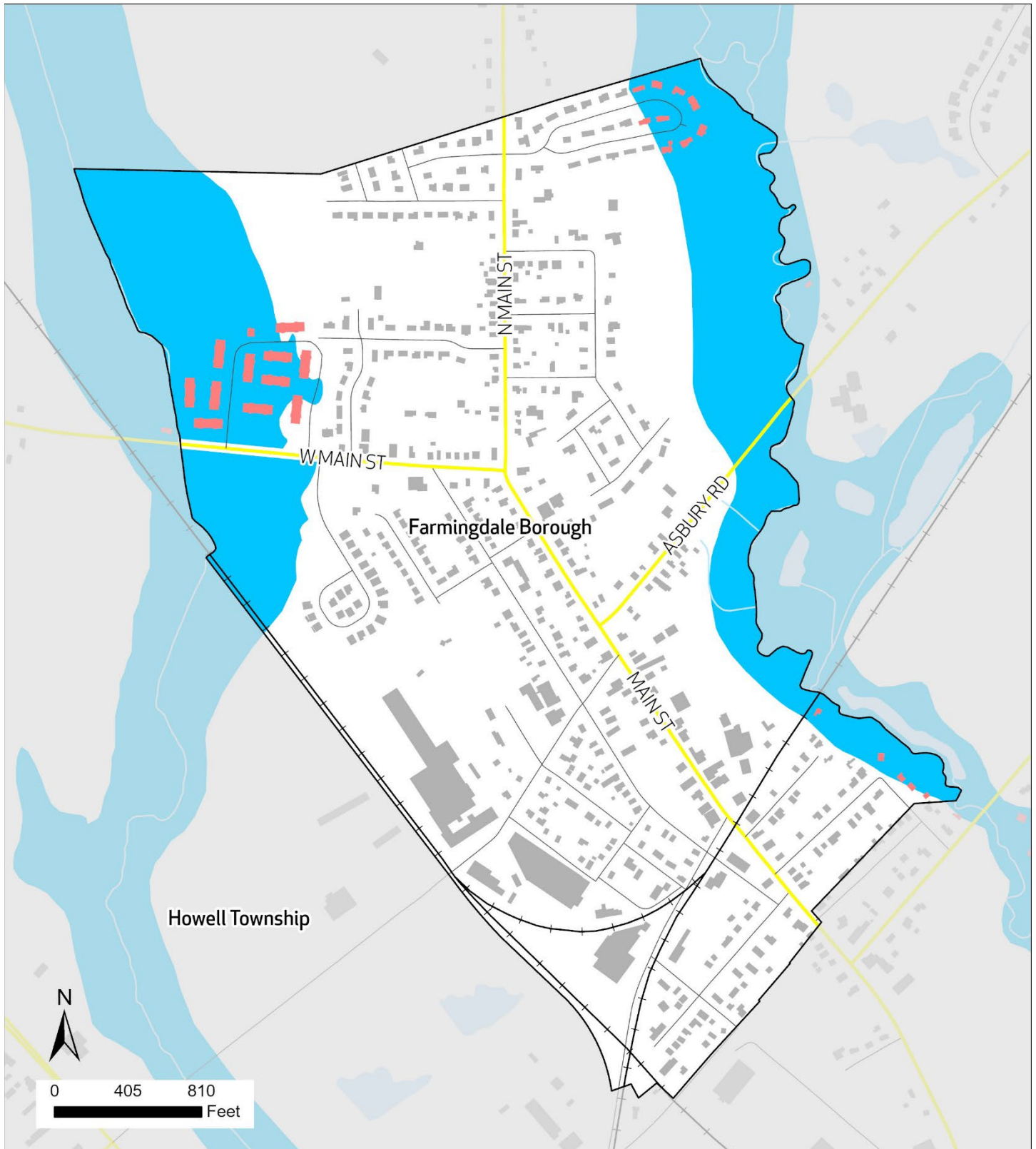
The Special Flood Hazard Area (SFHA) in the Borough of Farmingdale is primarily located adjacent to the waterbodies of the borough: Marsh and Mingamahone Brooks. Approximately 22.4 percent of the total area of Farmingdale lies within the 1% annual chance flood zone as defined by FEMA. An additional 0 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 91.4 percent of Farmingdale is considered developed. Of the developed parcels of the town, 6.9 percent fall within the 1% annual chance flood zone and none are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	6.9%	NA	NA
Exposed Land Area	22.4%	NA	NA

During the planning process, Farmingdale identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified five total facilities. Of these facilities, none are within the floodplain or areas projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	NA	NA



Flood Risk

Farmingdale Borough

FEMA Flood Zone

■ A (1%)

— County Routes

— Local Roads

— Rail Lines

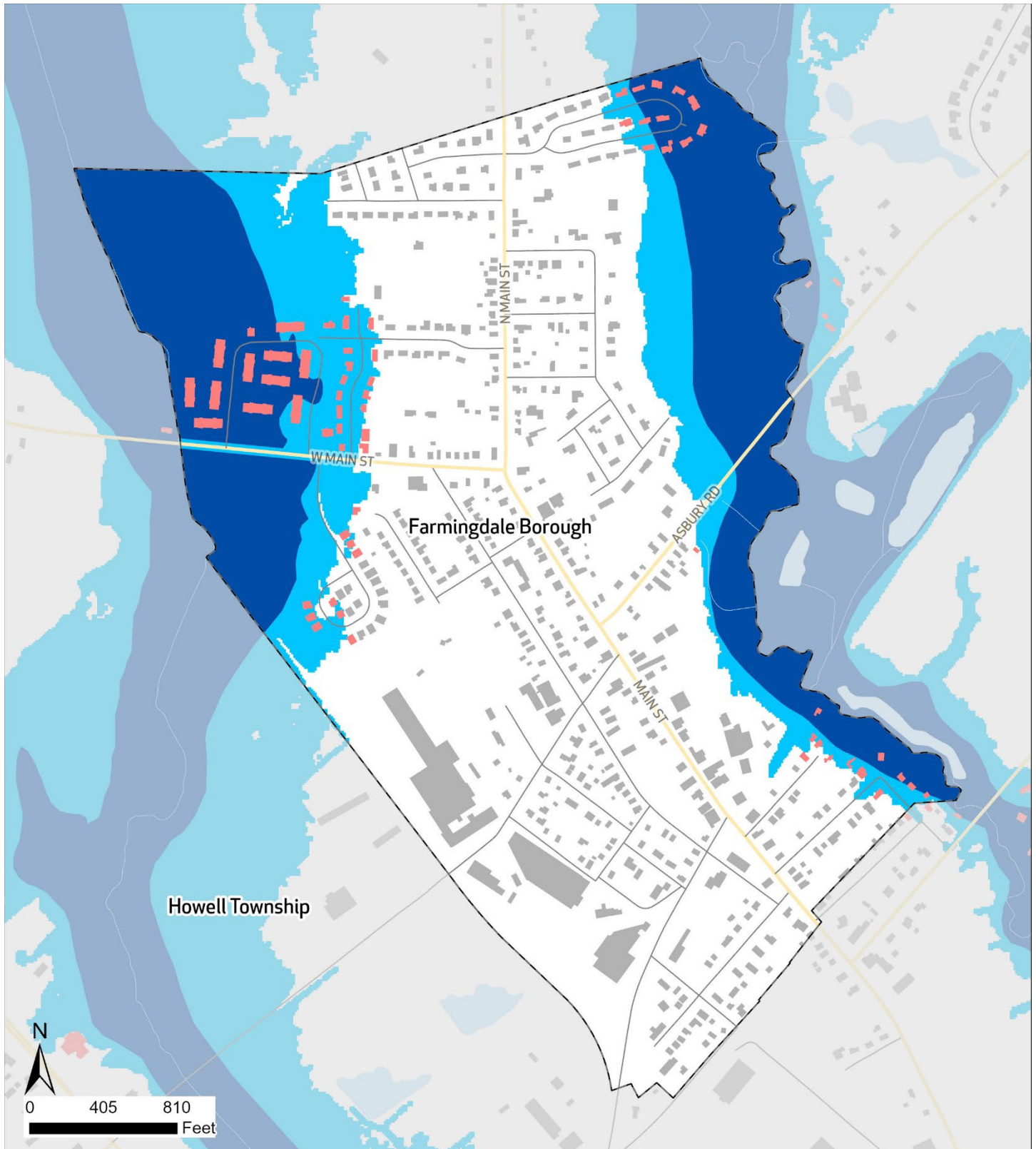
 Municipal Boundaries

 Building Footprints

 Building Footprints within Floodplain

 Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Farmingdale Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

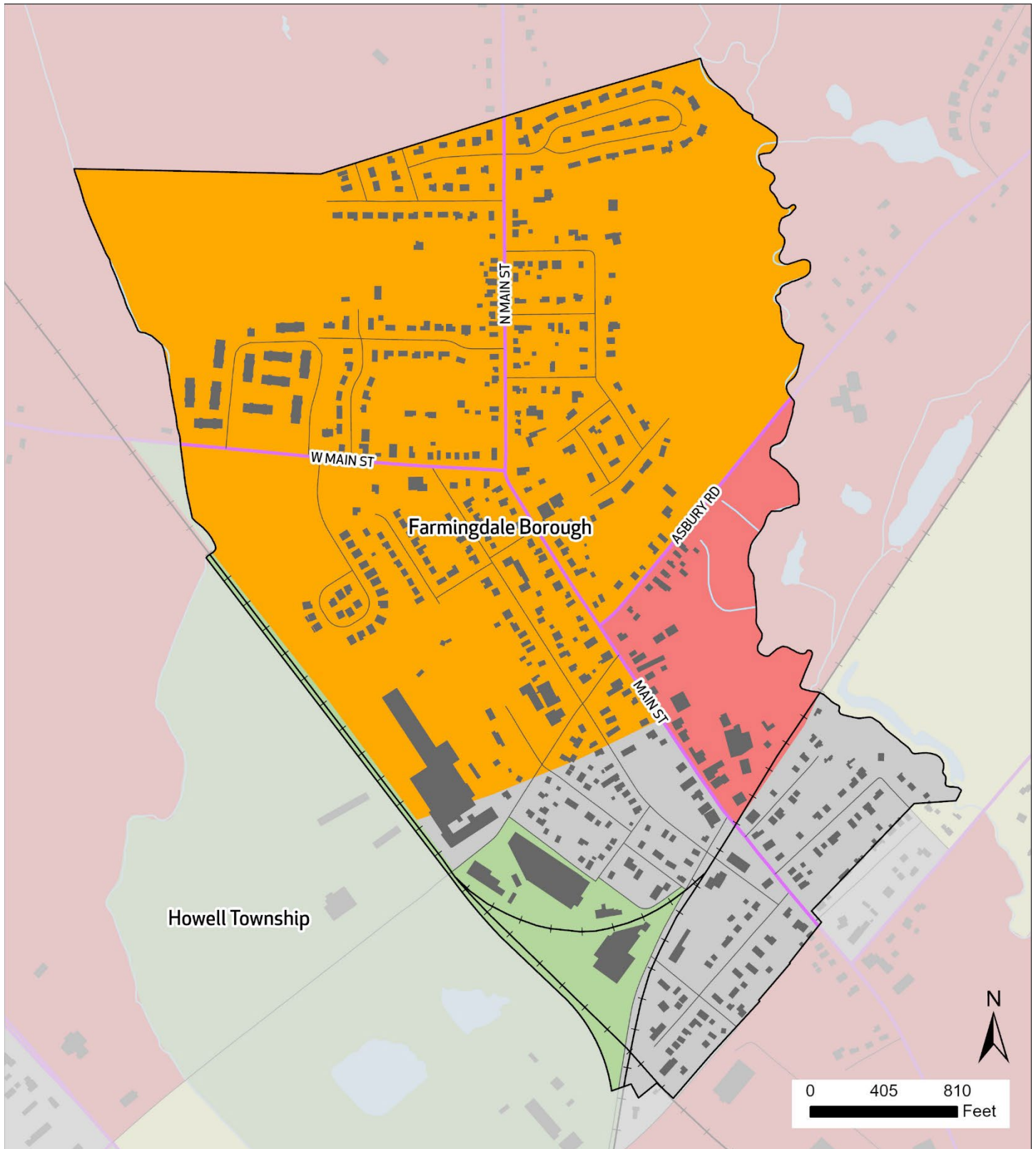
— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Farmingdale Borough

- | | | |
|---|--|--|
| Interface | County Routes | Municipal Boundaries |
| Intermix | Local Roads | Building Footprint |
| High or Medium Density Housing | Rail Lines | Water |
| Low or Very Low Density Housing | | |
| No Housing | | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Farmingdale Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2009	Identifying hazard-prone areas
Capital Improvement Plan		X		By strategically allocating resources and prioritizing resilient infrastructure, a borough's Capital Improvement Plan can significantly enhance its ability to mitigate hazards and protect its residents
Local Emergency Operations Plan/Continuity of Operations Plan		X	2024	Recreating upon Shared Service dissolution in 2024, EOP Completed and being submitted to County Mar 2025
Floodplain Development Ordinance	X		Jan 2022	Engineer completes this on the required timelines
Floodplain Management Plan	X		Jan 2022	Engineer completes this on the required timelines
Stormwater Management Ordinance	X		2024	Engineer completes this on the required timelines
Stormwater Management Plan	X		2024	Engineer completes this on the required timelines
Watershed Management Plan		X		N/A
Sheltering Plan	X			As Outlined in the EOP – Upgrades to Community Center and School will help develop additional capabilities.
Evacuation Plan	X		2023	Because we are a .5sq mi community, Evacuation in necessary situations is includes the whole community, offsite locations selected dependent on the location of the emergency. A plan was developed in the event of necessity involving Howell Township & Wall Township facilities and locations.
Substantial Damage/Improved Structures Response	X			As part of the Boro EOP
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			As part of the Boro EOP
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X			As part of the Boro EOP
Current/recent redevelopment plans or studies	X			Under Review with Planner & Engineer Planning Chair & Mayor
Community Wildfire Protection Plan		X		N/A
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Farmingdale Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		P/T – Engineers Office
Grant Writer	X		P/T – Engineers Office
Staff trained to support mitigation	X		OEM
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners		X	

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Farmingdale Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Use of the Municipal Web Site to communicate received Educational materials to the surrounding Community and Utility service area.
StormReady		X	Rebuilding our OEM to better communicate, currently rely on County communication services
Firewise USA		X	Farmingdale Fire Company does outreach in the school community pertaining to fire safety
Severe Weather Awareness Week	X		Adding immediate communication functions to the Borough Website for automated updates to registered users.
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Farmingdale Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	X		Mon Cty CDBG/HUD funding for Fire House Upgrades
Other FEMA resources		X	
NJ Infrastructure Bank	X		Water Plant Rehab as well as Distribution Valve replacement, including fortification
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough has most recently focused on hardening its Emergency Services for the community. The prior shared service with Howell Township has been dissolved and we have been focusing on building an OEM that directly serves the residents of Farmingdale. This encompasses all services from disaster planning and recovery to immediate emergent services. We are focused on “hardening” the borough to do what we can to insulate its citizenry from disaster. This includes office upgrades for Boro staff, mitigating issues brought on by natural occurrences while making public buildings more available to the community in times of need. We are also undergoing an overhaul to our Water Utility, having completed a total rehab of the Water plant and Water Tower 2 years ago, and currently upgrading all the water meter stock to a remote read system. Not only allowing for ease of meter reads, removing for the need for staff contact with residents, but allowing us to more accurately and quickly pinpoint when and where breaks may occur, reducing the waste of natural resources. These efforts underscore the Borough of Farmingdale’s commitment to safeguarding residents and promoting continuity in the face of evolving hazards.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
15-1	Purchase and Install Generator for Borough Wells	The Borough Wells need backup power in the case of power failure.	All Hazards	Medium	HTOEM, Health	FEMA HMA	\$120,000.00	1 year	Completed	Complete.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
15-2	Increase Hazard Education and Risk Awareness	Mass Digital communication to all residents to obtain contact info of all residents (email list & text messaging) for constant contact, updates, and education of Borough operations regarding emergencies.	All Hazards	Med	OEM Coordinator	FEMA HMA	\$15,000.00	1 year	Ongoing	Continuous. Continually upgrading to increase hazard awareness. Borough currently is managing a list of residents who signed up for emergency notifications. All hazards benefit from this continuous effort. Increased efforts in upgrades allows for accurate and immediate outreach to full population including homebound residents. Climate change will not affect this outcome.
15-3	Purchase and Install a Generator for School (Shelter)	Farmingdale Elementary School needs a backup generator.	All Hazards	High	Borough	FEMA HMA	\$150,000.00	1-2 year	Ongoing	Ongoing, under Engineering Review. This reduces the risk of environmental hazards, the elementary school is a critical facility.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
										Adding the redundancy allow for better services to the student population and the whole community as warming facility in the need of emergency.
15-4	Purchase and Install Generator for Borough Hall/ Community Center/ State Police Annex.	The Borough will be moving all Borough offices to the current Community Center location, relocating from the house it currently occupies. A backup generator is needed at this location. This Facility also houses the State Police Annex.	All Hazards	High	Borough	FEMA HMA	\$155,000.00	1-2 year	Ongoing	Ongoing still need to purchase. All risks are reduced if complete as Borough Hall is a critical facility. Adding redundancy will allow for better services to the community, short-term shelter, warming & charging facility in the need of emergency, and operations facility for OEM services in the need for same.
15-5	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	There are currently no RL or SRL properties in the Borough; however, the Borough realizes the floodplain changes over time and the risk is always present. If in the next five years properties become RL/SRL, the Borough will coordinate with residents to mi	Flood, Nor'easter, Hurricane and Tropical Storm	Med	Borough and Property Owners	FEMA HMA		5 + years	Ongoing	Ongoing. Reduces risk of flood, nor'easter, hurricane, and tropical storm.
15-6	Protect Critical Facilities from Wind Damage and Flooding	Physically harden shelters by shielding windows, adding sand bags, adding embankments. Internally will add communication capabilities, add additional emergency supplies (first aid, water, cots, MREs, etc.). Additionally, a backup generator for the Borough	All Hazards	Med	Borough Administrator/Mayor	FEMA HMA	\$120,000.00	1 year	Ongoing	The Borough offices are moving into the existing community center facility, utilizing a secure & hardened building, which includes a hardened shelter in the basement.

16 – FREEHOLD BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Henry Stryker III	OEM Coordinator	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2
Stephen Gallo	Borough Administrator	Reviewed appendix
Michael Sweetman	Deputy OEM Coordinator	Reviewed appendix
Robert Lithgow	Engineering Aide	Reviewed appendix
Robert Cosgrove	Borough Attorney	Reviewed appendix
Anthony Maltese	Borough Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

Completely surrounded by the Township of Freehold, the Borough of Freehold is in the western part of Monmouth County and encompasses 1.9 square miles. The borough has a vibrant downtown with county and court offices, professional services, restaurants, shops, and churches. The Monmouth County Park System (MCPS) acquired the “Freehold Hub Site” on Railroad Avenue. MCPS began construction to extend the existing Henry Hudson Trail to this park in the Fall of 2023. Future plans include the development of recreational facilities, and the potential for an extension of the trail along the active rail line towards Farmingdale.

Land Use, Development, & Growth

Freehold is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 96 percent of its total area, and forested land and wetlands making up the remaining 3 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	-	-	-
Forest	30.6	30.4	-1%
Urban	1192.0	1192.3	>0%
Water	1.4	1.4	>0%
Wetlands	11.8	11.8	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2023, the Chesapeake and Delaware Railroad began a construction and restoration project that included “25,000 track-feet of relayed rail and 12,500 new crossties, of which more than 8,000 are environmentally sustainable.” In October of the same year, the stretch of railroad between Freehold Borough and Farmingdale was reactivated after many years of being dormant.

The Borough of Freehold adopted its Core Center Rehabilitation Plan in 2019 and subsequently amended it in 2020. The Plan builds on the borough’s 2018 Downtown Vision Plan, which outlines the key changes the Borough seeks to implement at and around the downtown bus station and the Courthouse building (Hall of Records). Changes proposed for the area surrounding the bus station include revitalizing the bus station, enhancing development opportunities for up to 70 residential units and 85,000 square feet of office space, and establishing a borough green, as well as redesigning the layout

of parking areas and street crossings. The Borough achieved one of the Plan’s goals in 2020 when a mid-block pedestrian crosswalk was established on East Main Street.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The entirety of the Borough of Freehold has been designated in need of rehabilitation, and several redevelopment initiatives are in progress. The most significant and furthest along in the process is called Hometown Development, including the old Freehold Borough Hall and ten additional lots. The project is planned to include up to 400 residential units over retail wrapped around structured parking. A redeveloper has recently been designated for this site. There are other projects as well, including 57 units on Park Avenue, 17 units designated for people with development disabilities over retail on Main Street, and 32 units on the corner of Broad and Court Streets. There is also a four-acre site on Park Avenue in the early planning stages. With the closures of the Nestle factory and the racetrack, there is potential for redevelopment in those areas.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Freehold Borough’s total estimated population is 12,498 – an estimated 4.5% of which is under 5 years old, and 13.3% of which is over age 65. The Borough saw an estimated population growth of 4.7% between the ACS survey periods of 2013-2017 and 2018-2022. Both a notable older population and a notable population growth of nearly 5.0% will direct hazard mitigation actions toward planning for aging populations as well and for increasing population.

Nearly all of Freehold Borough’s area qualifies for overburden (OBC) designation, as seven block groups meet OBC criteria identifying *Minority* population vulnerability (three block groups) and *Low Income and Minority* population vulnerability (four block groups). There are two census tracts in Freehold Borough’s southwest which meet CEJST criteria for designation under *Workforce Development*, *Housing*, and *Water and Wastewater* indicators. No parts of the Borough meet designation criteria for CDRZ identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	12,498
Population Change since 2017	4.7%
Percent of Population Age < 5	4.5%
Percent of Population > 65	13.3%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
	Extreme Wind	Drought
	Hurricane/ Tropical Storm	Flood
	Tornado	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Extreme temperatures remain a medium level of concern. Hotels are no longer offered in the event of a Code Blue, so those in need of shelter now stay in the warming center overnight. Floods are now a low level of concern, while they were not applicable in 2021. There is localized flooding due to poor drainage. Civil unrest remains at a low level of concern; there are periodic protests in front of Borough Hall. Economic disruption remains at a medium level of concern. Both the Nestle factory and the racetrack are closing. Power failure has increased from a low to a medium level of concern due to downed branches caused by storms that have taken out the power.

Significant Hazard Events Since Last Plan Update

In July 2020, Tropical Storm Fay caused heavy rain and strong winds, leading to power outages that left 1,097 customers in Freehold Borough without power.

With less than 2 inches of rainfall recorded, Freehold Borough was spared the worst of Hurricane Ida in September 2021, with no extensive flooding or damage noted. During a nor'easter in October 2021, the borough recorded 3.68 inches of rainfall.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change may increase the flood risk in Freehold Borough from heavy runoff and/or extending the floodplains in the surrounding Freehold Township. Other impacts are anticipated to be minimal at this time.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Freehold Borough	
Initial FIRM	9/25/2009
Effective FIRM	No SFHA
Number of Policies In-Force:	0
Total Losses:	0
Total Payments:	\$0
Number of RL Properties:	0
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

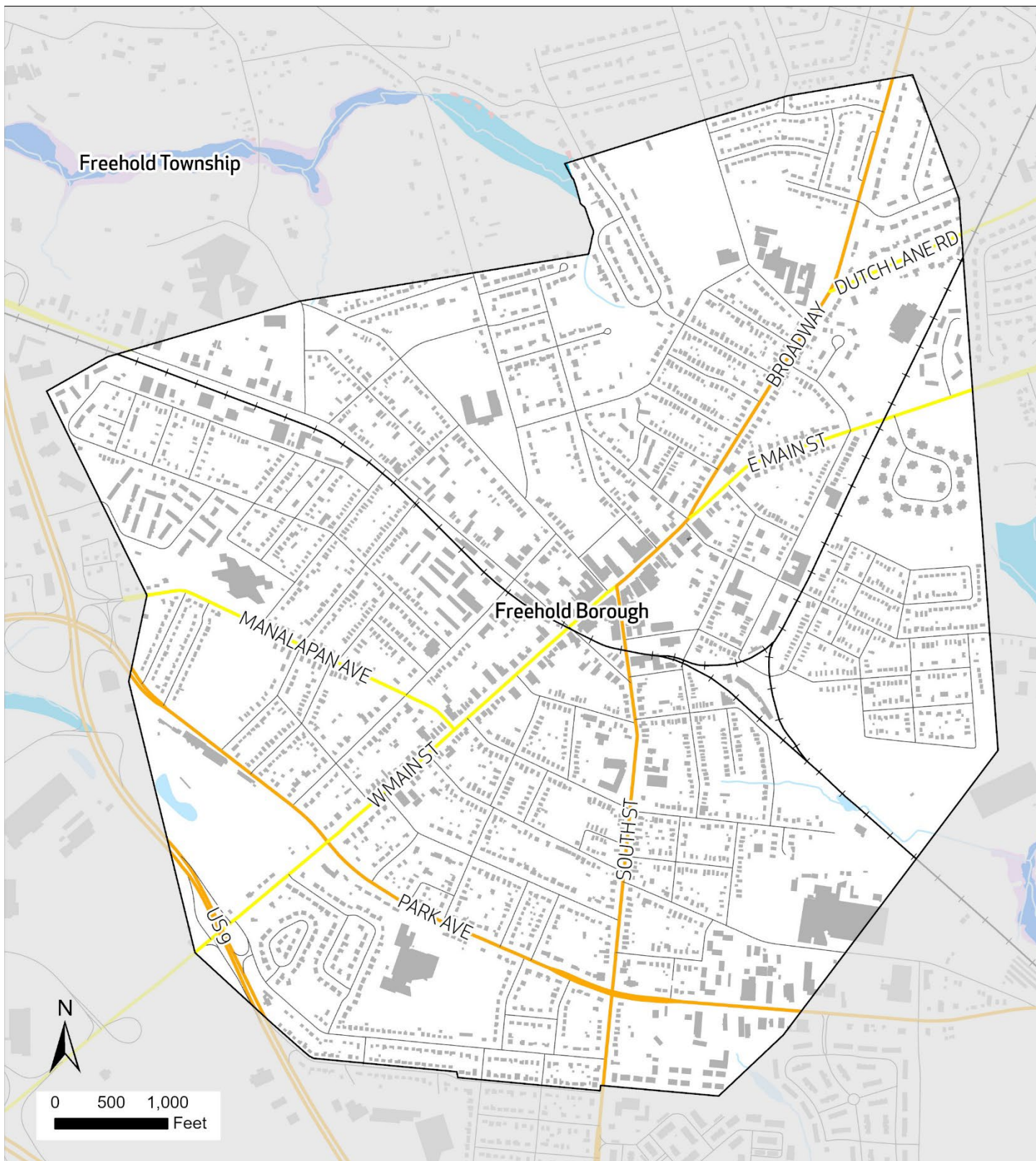
Freehold Borough contains no area within the Special Hazard Flood Area (SFHA). A small amount of floodplain in Freehold Township, within the 1% annual chance flood zone as defined by FEMA, located near Weamaconk Creek in the north of town is close to the Borough's border. The municipality contains no 0.2% annual chance flood zone.

About 91.5 percent of Freehold Borough is considered developed. Of the developed parcels of the town, 0.2 percent fall within the 1% annual chance flood zone and none are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	0.2%	NA	NA
Exposed Land Area	<0.1%	NA	NA

During the planning process, Freehold Borough identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 31 total facilities. Of these facilities, none are within the floodplain or areas projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	NA	NA	NA



Flood Risk

Freehold Borough

FEMA Flood Zone

■ A (1%)

— State Routes

— County Routes

— Local Roads

— Rail Lines

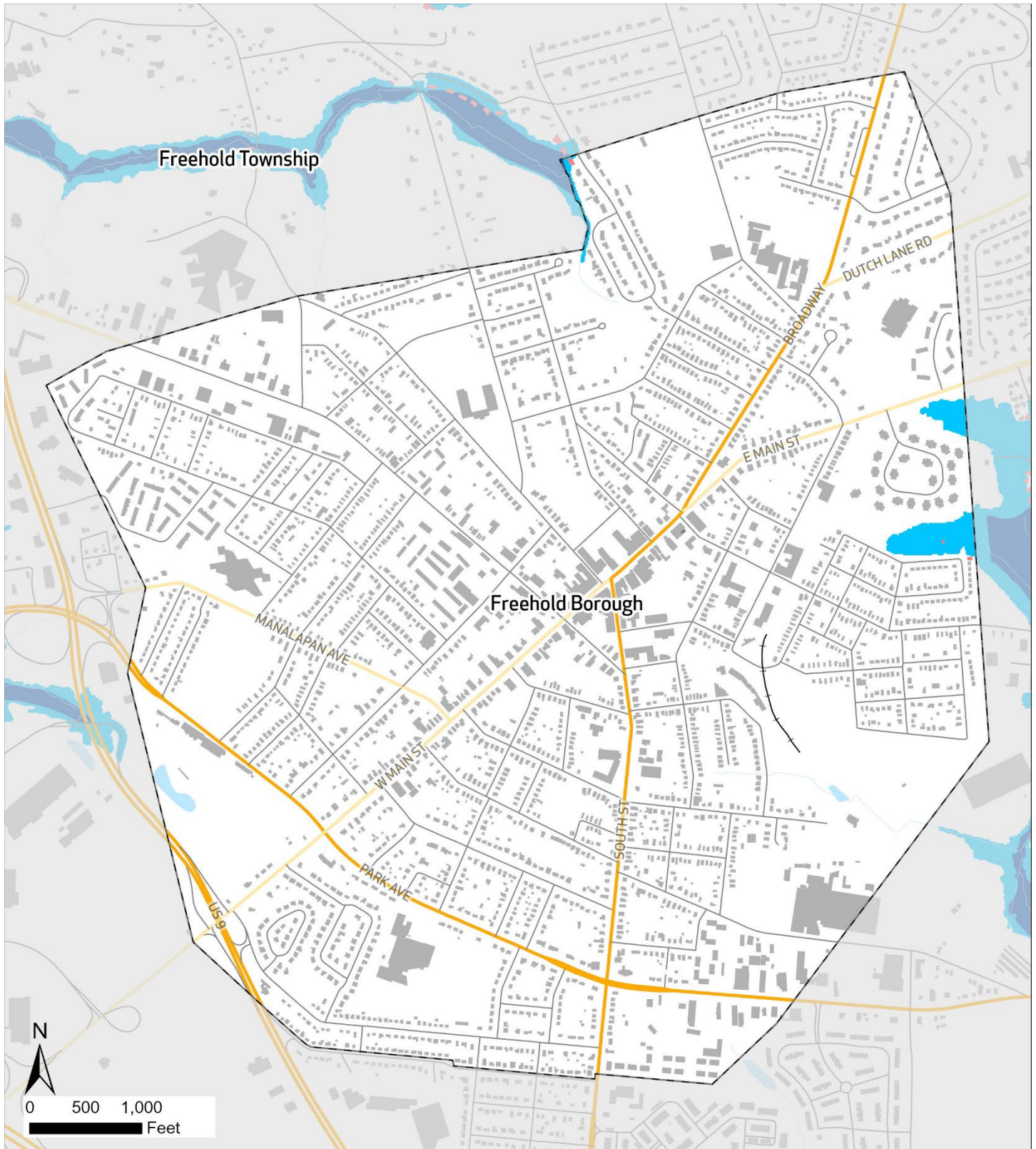
Municipal Boundaries

Building Footprints

Building Footprints within Floodplain

Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Freehold Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Freehold Borough

- | | |
|--|--|
| Intermix | State Routes |
| High or Medium Density Housing | County Routes |
| Low or Very Low Density Housing | Local Roads |
| No Housing | <div style="position: absolute; left: 5px; top: 5px; width: 2px; height: 2px; background-color: black;"></div><div style="position: absolute; left: 15px; top: 5px; width: 2px; height: 2px; background-color: black;"></div> Rail Lines |

- | |
|---|
| Municipal Boundaries |
| Building Footprint |
| Water |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Freehold Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		April 2017	
Capital Improvement Plan	x		2024	
Local Emergency Operations Plan/Continuity of Operations Plan	x		May 2023	
Floodplain Development Ordinance	x		2014	
Floodplain Management Plan	x		2014	
Stormwater Management Ordinance	x		2024	
Stormwater Management Plan	x		2024	
Watershed Management Plan	x		2024	
Sheltering Plan	x		2023	
Evacuation Plan	x		2023	
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan		x		
Disaster Debris Management Plan	x		2023	
Tracking elevation certificates and/or Letter of Map Change		x		
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies	x		2023	
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discuss hazard mitigation	x		2017	
Other ordinance and regulation that mitigate the impacts of natural hazards	x		2017	

Administrative and Technical Capabilities

Freehold Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer	x		Millennium Strategies
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	x		Red Cross
Organizations that work with socially vulnerable or underserved populations	x		Casa Freehold, CARC, Open Door

Education and Outreach Capabilities

Freehold Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Everbridge Reverse 911
StormReady	x		
Firewise USA	x		
Severe Weather Awareness Week		x	
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Freehold Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance	x		Covid reimbursement
FEMA HMGP		x	
Non-FEMA Federal Funding Programs	x		Road Hazard Mitigation
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs	x		NJ Infrastructure, Lead Water Service Line Replacement
Evaluation process on the prioritization of risk reduction projects against other local activities	x		
Other ongoing efforts to build additional financial capabilities	x		Applying for Grants

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Update

The Borough of Freehold is an older town with many large trees. Some of these trees are located between the sidewalk and the curb making them a hazard as the mature in age. These trees are easily uprooted during times of storms and heavy winds. The Borough of Freehold Shade tree Program will continue to identify these trees and dead trees and remove them so they do not fall on structures, take down power lines and block streets. The Borough also works with the Power Company, Jersey Central Power & Light and allows them to trim the trees so they are less likely to take down power lines and create power outages throughout the Borough of Freehold. The Borough of Freehold also, when it is possible, replaces trees that have been removed, the replacement trees that are used are ones that are less likely to uproot sidewalks and curbs and only grow to a height which are below the power lines so in the future there will be less large trees that could fall on and damage structures and take down power lines. The Borough of Freehold will continue to investigate funding to install backup electrical generators as stated in the below new actions.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
16_01	Update Generator for Firehouse Emergency Operations Center (EOC)	Upgrade the current and outdated generator at the firehouse which houses the Emergency Operations Center for OEM, Fire Department, Police Department, and EMS.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	N/A	N/A	N/A	\$95,000		Completed	
16_02	Upgrade Generator for Shelter	Upgrade of current generator at the Freehold Learning Center used as an evacuation center.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	N/A	N/A	N/A	\$50,000		Completed	
16_03	Install Surveillance Cameras at Water Plant	Add security cameras to the new water plant, which is currently in the design phase.	Terrorism	N/A	N/A	N/A			Completed	

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
16_04	Improve Emergency Notification System	System that is presently in place will lose grant funding and will be continued for notification of first responders and public in emergencies.	All Hazards	Medium	Borough Administrator and OEM	Municipal budget	\$10,000	1 year	Ongoing	Ongoing. Using Everbridge and the Borough is funding themselves. For fire, the Borough uses "I am Responding".
16_05	Continue Tree Maintenance to Reduce Risk of Power Outages and Property/Human Harm	The Shade Tree Program is removing trees and limbs that are dead or hazardous in the area where they could fall on power lines, houses, or people.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Low	Borough Administrator and OEM, Shade Tree Commission	Municipal budget	\$50,000	1 year	Ongoing	Ongoing. There is a contractor who has been coming in, but funding is getting light.
16_06	Purchase and Install Generator for The Continental at Freehold	The Continental at Freehold (Family and Senior Apartments) houses low-income and senior citizens, in addition to a police station and needs backup power in case of a power outage.	All Hazards	Low	Borough Administration	FEMA HMA	\$200,000	1 year	Ongoing	Ongoing. Still need to purchase.
16_07	Purchase and Install Backup Generators for Lights at High-volume Intersections	Coordination with the State, County, and Freehold Township on backup generators for traffic signals at the intersections of Route 79 & Route 537, E. Main St. & South St., Dutch Ln. & Route 79, Route 9 & Route 79, Jackson St. & E. Main St.	All Hazards	Medium	State, County, and Freehold Township, Freehold Borough	Homeland Security, Municipal budget, County budget	\$100,000	1 year	Ongoing	Ongoing waiting on NJ DOT to install the electrical connections at these traffic lights, so the Borough could at least hook up temporary generators during power outages
16_08	Target Harden Critical Facilities by Installing Surveillance Cameras, an Access Control System, Security	Install surveillance cameras, an Access Control System, security personnel, and/or bulletproof glass at the Borough facility in Freehold Township, DPW,	Terrorism	Medium	Borough Administration	Homeland Security grants	\$50,000	2 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Personnel, and/or Bulletproof Glass	and the Municipal Building to target harden against terrorist attack.								
16_09	Mitigate Flooding at Veterans Park and Liberty Street Park Through New Pipelines	Structure of inlet is gone; need new piping by railroad track.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Township	FEMA HMA, Municipal budget	\$200,000	1 year	Ongoing	Veterans Park has been completed. New drainage pipes were put in. Liberty Street Park still needs work. The work at Liberty Street is scheduled to start in Spring 2025
16_10	Acquire, elevate, or relocate buildings and infrastructure in flood-prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	There are currently no RL or SRL properties in the Borough; however, the Borough realizes the floodplain changes over time and the risk is always present. If in the next five years, properties become RL/SRL, the Borough will coordinate with residents to mitigate properties through structure elevation, demolition to open space, or another type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA		5 + years	Ongoing	Ongoing, at the present time no structures have been identified that require this mitigation.
16_11	Purchase generator for municipal building	The municipal building is home to municipal departments and is a critical facility. Needs backup power in case of a power outage.	All Hazards	Low	Borough Administration	FEMA HMA	\$200,00	1 year	New	Investigating funding for this project.

17 – FREEHOLD TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
George Baumann	Chief of Police/OEM Coordinator	Primary Point of Contact, Municipal Meeting #1
Matthew Bryant, PE, CME, CFM	Township Engineer	Coordination of projects and mitigation needs.
Todd Brown, PP, AICP	Township Planner and Zoning Officer	Coordination of any required Master Plan updates, etc.
Kristin Bartolomeo	Executive Assistant	Appendix coordination and review

COMMUNITY PROFILE

Overview

The current Township of Freehold encompasses 37 square miles. Until the mid-1950s, the township was a primarily rural, agricultural community surrounding the more intensely developed Borough of Freehold. With the expansion of transportation infrastructure, the character of development began to change as suburban growth began to extend from both Freehold Borough and northern urban centers. Freehold began to grow into a residential and commercial center, with the Freehold Raceway Mall opening in 1990. By the late 20th century, commercial and industrial land use patterns extended along County Route 537 (east-west) and State Route 9 (north-south).

The Township continues to preserve open space and farms, most recently approving the acquisition of a 151.7-acre tract along Ely-Harmony Road in 2022. Freehold has 14 parks that include two showcase parks (Michael J. Tighe Park and Opatut Park), pocket parks with playgrounds, open space in nearly every development, as well as an arboretum. In 2015 the Township completed its first “universally integrated” playground at Michael J. Tighe Park designed to enable children with special needs to access and enjoy a playground and play with children of all ability levels. In 2019, Freehold was awarded funding from the Monmouth County Open Space Trust Fund to construct a second integrated playground in Opatut Park, which was completed and opened in December 2021.

Since 2022, the Chesapeake & Delaware Railroad has taken over operation of the Jamesburg to Freehold rail line that connects to the Red Bank to Lakewood rail line in Farmingdale. In 2023, the Railroad began a construction and restoration project that included “25,000 track-feet of relayed rail and 12,500 new crossties, of which more than 8,000 are environmentally sustainable.”

Land Use, Development, & Growth

Although a large portion of the land in Freehold Township is developed and dedicated to residential and public, considerable land is covered by wetlands, forests and agriculture. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 42 percent of its total area, and wetlands, forested land and agricultural land making up 28 percent, 20 percent, and 8 percent, respectively. Although since 2015, the Borough’s agricultural land, forested land, and wetlands, diminished marginally, while its urban or developed land experienced a slight increase, its overall land use composition remained roughly the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	2082.7	2006.3	-4%
Barren Land	170.1	169.4	>0%
Forest	5135.8	5083.5	-1%
Urban	10407.3	10553.1	1%
Water	158.0	160.7	2%
Wetlands	6932.2	6913.1	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2021-2022, redevelopment plans were adopted by the Township Committee for the Freehold Mall (Burlington Coat Factory), the Lone Pine Landfill, and the former 3M property on Willowbrook Road. In an effort to maintain the Freehold Raceway Mall as a regional shopping mall and destination, the Township Committee recently worked with Mall ownership to fine-tune zoning district requirements and provide alternative permitted uses.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Recent development proposals include a new site plan for the property known as the Bellemead tract, a 77-acre parcel opposite the Trotters Way entrance to the Freehold Raceway Mall. Currently used as farmland, in 2022 Township officials approved a General Development Plan that includes an extension of Trotters Way extension from W. Main Street to U.S. Route 9. An application for development of the site, seeking subdivision and site plan approval of a mixed-use residential and commercial project is currently under review by the County and Township planning boards. The project is intended to satisfy part of the Township's affordable housing obligation.

Additionally, a development known the Estates at Brock Farms which includes the subdivision of a 128.4-acre parcel at 267 Monmouth Road located at the southeast corner of the intersection of Monmouth Road (Monmouth County Rte 537) and Siloam Road (Monmouth County Rte. 527). The subdivision consists of approximately 171 lots for the construction of 128 single family detached dwellings, 16 duplex buildings for 32 affordable units with the remainder of the lots dedicated to open space, stormwater management, roadways etc. This parcel was rezoned previously to the ML-10 (Moderate- and Low-Income Housing Zone – 10,000 square feet) Zone and will also satisfy part of the Township's affordable housing obligation.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Freehold has a total estimated population of 35,548. Of this population, an estimated 3.3% is under age 5, and 17.8% is over age 65. The Township's population remained consistent over the ACS survey periods between 2013-2017 and 2018-2022, with an estimated 0.34% change. Most impacting hazard mitigation planning for the township is an aging population, for which targeted outreach, plans inclusive of potential mobility limitations, and robust resource network will aid in hazard response and preparedness in Freehold.

There is one block group in central Freehold Township which is identified as potentially overburdened (OBC) due to criteria of *Minority* population vulnerabilities. There are no parts of the township meeting designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	35,548
Population Change since 2017	0.3%
Percent of Population Age < 5	3.3%
Percent of Population > 65	17.8%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flood	Extreme Temperature	Lightning
	Extreme Wind	Tornado
	Hurricane / Tropical Storm	Dam Failure
	Nor'easter	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
	Economic Disruption	Civil Unrest
	Terrorism	Power Failure
	Cyber Attack	
	Pandemic	

The Township ranked Coastal Erosion, Landslide, Storm Surge, and Wave Action as N/A.

Hazard Ranking Explanation

Floods, cyber-attacks, and pandemics all remain high hazards for the Township. Township facilities have been the victim of cyber-attacks within the past year. The police station was affected, and Center State Healthcare also had a massive data breach which resulted in the loss of a significant amount of data. Wildfires were moved from a high-risk hazard to a low-risk hazard. There was one small two-acre fire in October 2024. Tornadoes were moved down to low from medium in the last HMP plan update. There have been no significant tornadoes or damage from tornadoes in the past five years. Coastal erosion, landslides, storm surges, and wave action are all not applicable due to the Township's general topography and geography.

Significant Hazard Events Since Last Plan Update

With just over 2.5 inches of rainfall recorded, Freehold Township was spared the worst of Hurricane Ida in September 2021. A utility pole was hit by lightning, resulting in a minor power outage, but no extensive flooding or damage was reported. Heavy rain in December 2023 caused power outages across Monmouth County, including in Freehold Township. Heavy winds and rain again left Freehold residents without power in January 2024. Additionally, there was a significant cyber-attack that affected the Township police in 2024.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Freehold Township. As global temperatures continue to rise, the frequency and intensity of extreme weather events such as hurricanes, floods, and

heatwaves are likely to increase. This will exacerbate existing vulnerabilities in the township, particularly in areas prone to flooding. The Special Flood Hazard Area (SFHA) in Freehold Township, which includes the Manasquan and Metedeconk Rivers and their tributaries, is already at risk, with approximately 5.5 percent of the township's total area lying within the 1% annual chance flood zone. With climate change, these flood zones may expand, leading to more frequent and severe flooding events that could damage infrastructure, homes, and critical facilities.

The aging population in Freehold Township, with 17.8% of residents over the age of 65, is particularly vulnerable to the impacts of climate change. Older adults are more susceptible to heat-related illnesses and may face mobility challenges during evacuations in extreme weather events. Additionally, the township's infrastructure, including water systems and transportation networks, may be strained by increased demand for cooling during heatwaves and the need for repairs following severe storms.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Freehold Township	
Initial FIRM	9/25/2009
Effective FIRM	7/16/1976
Number of Policies In-Force:	69
Total Losses:	52
Total Payments:	\$333,612.62
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	12
RL – Total Paid:	\$160,710.81
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

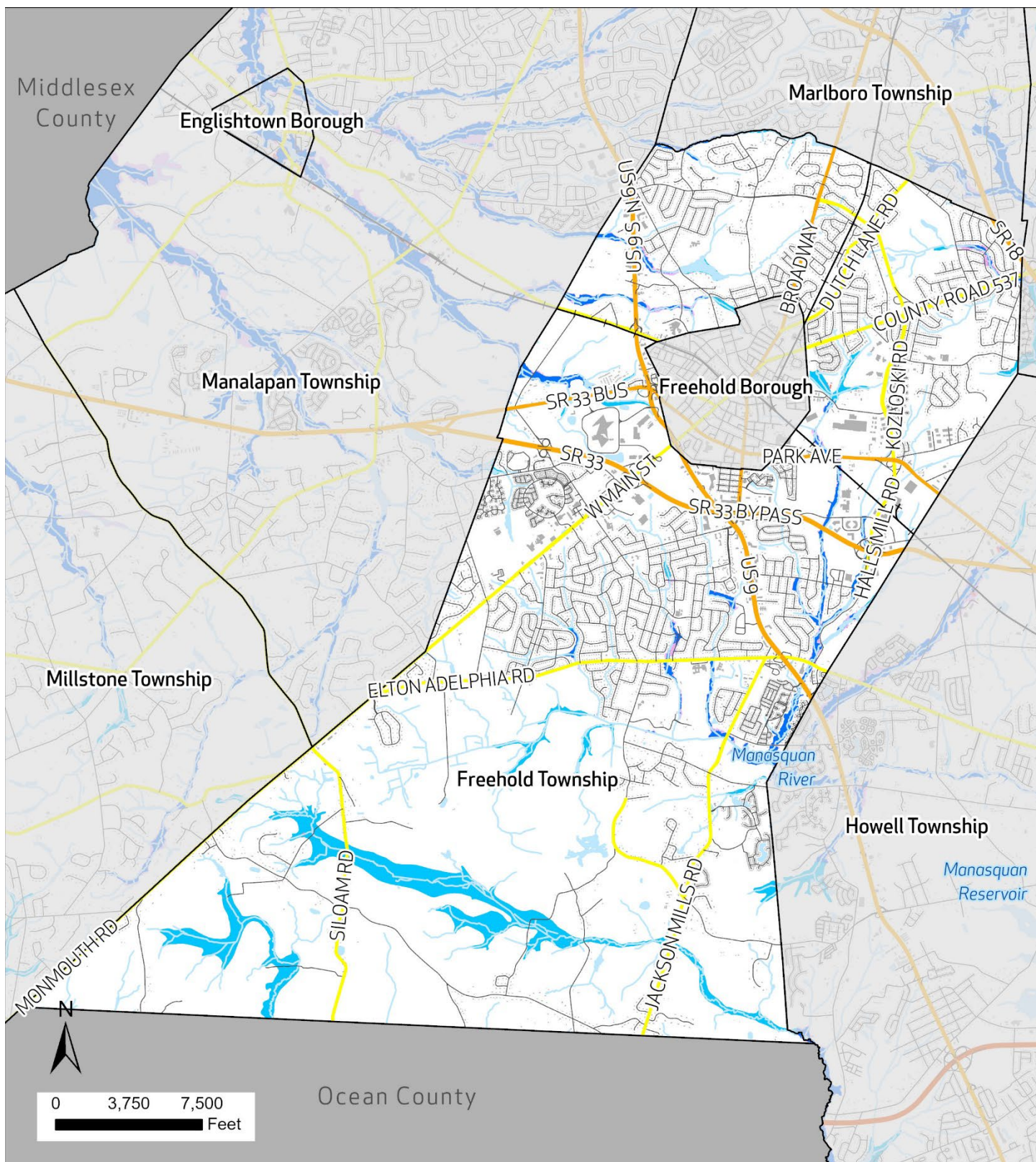
The Special Flood Hazard Area (SFHA) in the Township of Freehold is primarily located adjacent to the waterbodies of the borough: The Manasquan and Metedeconk Rivers and their tributaries, McGellairds, Wemrock, and Yellow Brooks, and Weamaconk Creek. Approximately 5.5 percent of the total area of Freehold lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 53.3 percent of Freehold Township is considered developed. Of the developed parcels of the town, 3.7 percent fall within the 1% annual chance flood zone and 0.3 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	3.7%	0.3%	NA
Exposed Land Area	5.5%	0.3%	NA

During the planning process, Freehold Township identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 68 total facilities. Of these facilities, three are within the floodplain. These three facilities fall within the Water Systems community lifeline type. Examples of Water Systems lifelines include dams or pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	3	-	NA



Flood Risk

Freehold Township

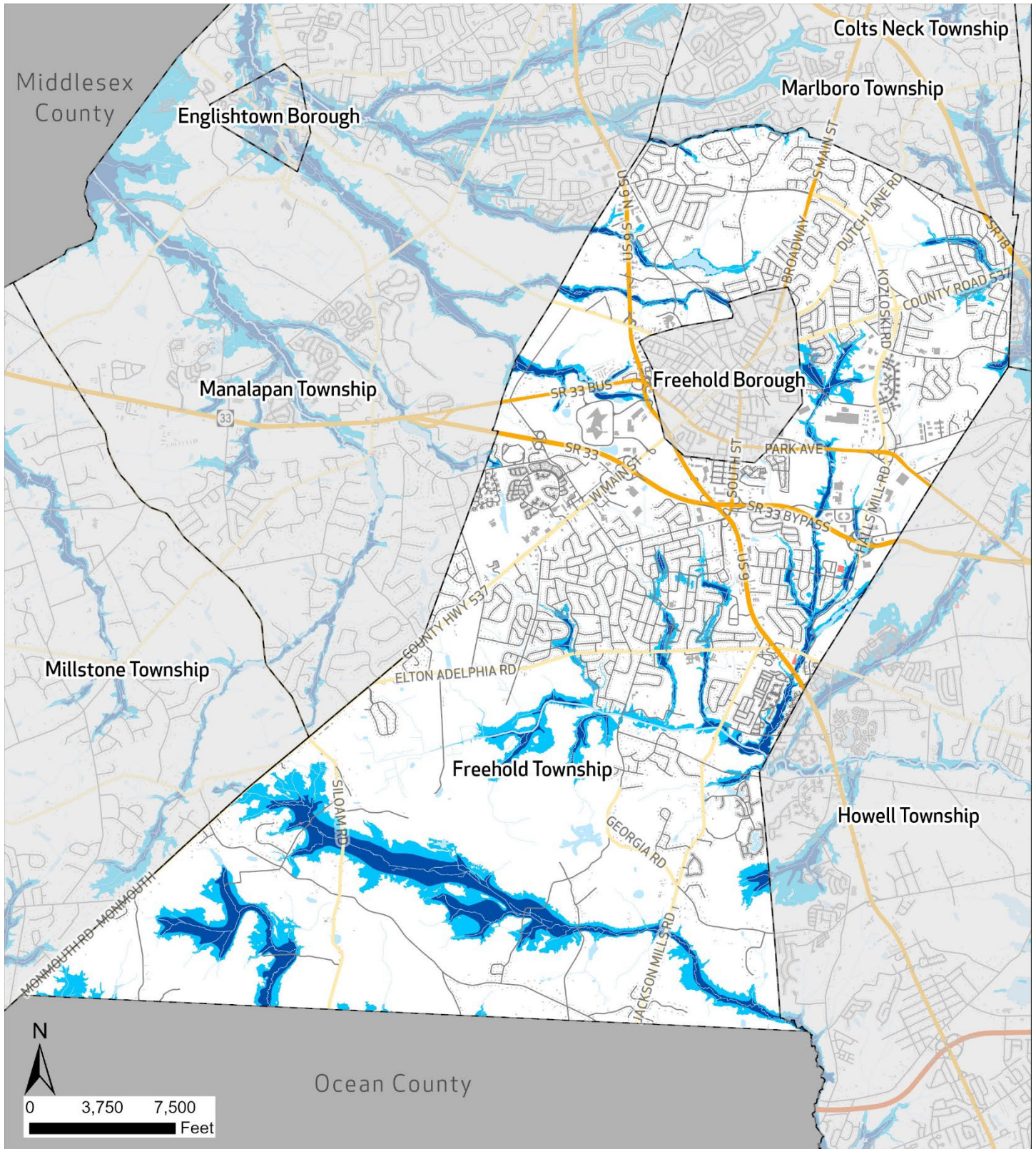
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Freehold Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Railroad

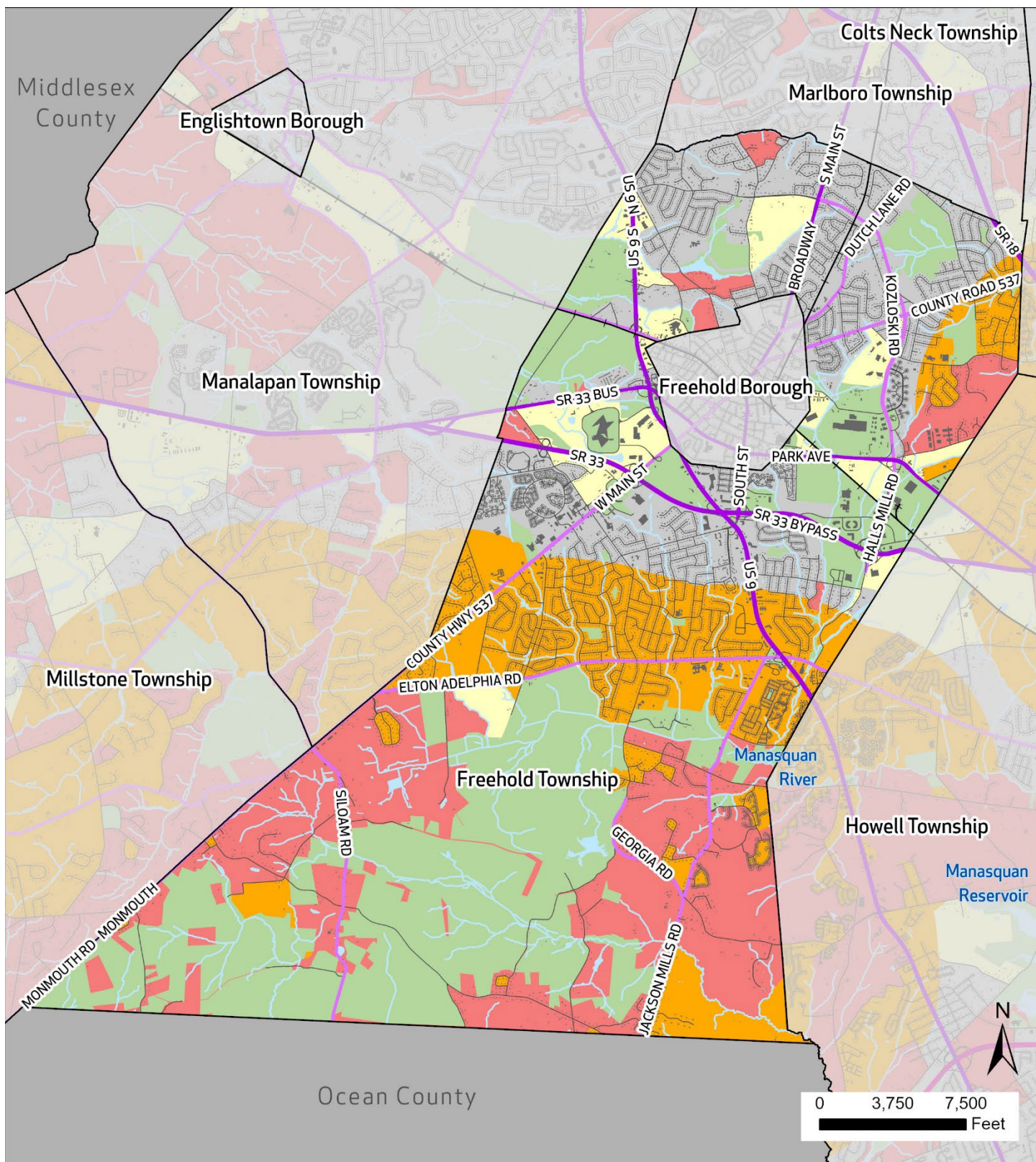
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Freehold Township

- | | | |
|--|---|---|
| Interface | State Hwy | Municipal Boundaries |
| Intermix | Interstate Highways | Building Footprint |
| High or Medium Density Housing | State Routes | Water |
| Low or Very Low Density Housing | County Routes | |
| No Housing | Local Roads | |
| | <div style="position: absolute; left: 5px; top: 5px; width: 2px; height: 2px; border: 1px solid black;"></div><div style="position: absolute; left: 15px; top: 5px; width: 2px; height: 2px; border: 1px solid black;"></div><div style="position: absolute; left: 25px; top: 5px; width: 2px; height: 2px; border: 1px solid black;"></div> Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Freehold Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		8/4/2024	Through identification of current and new hazards while planning for new patterns of development.
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan		X		
Floodplain Development Ordinance	X		6/28/22	Outlines flood plain management regulations and requirements for development and building.
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		2/9/21	Outlines the latest NJDEP regulations for stormwater management. Requires all development to reduce runoff, meet water quality standards, etc. in attempt to reduce flooding.
Stormwater Management Plan	X		8/2006 (currently in progress of update)	The stormwater management plan is currently being updated by a consultant (T&M Associates) of the Township of Freehold. The plan aims to provide requirements of development and overall stormwater management in the Township. The updated plan is expected to be complete in 2025.
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X		On-going	The Freehold Township Engineering Department keeps records of any elevation certificates and/or letters of map change provided to the Township.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Freehold Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		The floodplain administrator is the Township Engineer, Matthew J. Bryant who is also a certified floodplain manager (CFM).
Grant Writer	X		In addition to in-house staff working on grant applications, The township utilizes a grant writing consultant (Millennium Strategies) to assist in grant writing.
Staff trained to support mitigation	X		The Township Engineer is trained in mitigation and has prior career experience in that field.
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners		X	

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Freehold Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public		X	
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		x	The Township has minimal flood loss or NFIP claims and does not participate in the CRS.

Financial Capabilities

Within the last five years, Freehold Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance	X		Public Assistance was received for Tropical Storm Isaias in 2020. Additionally public assistance was received in 2020.
FEMA HMGP	X		The Township obtained a grant through HMGP 4597 for a generator project at the Township's Water Treatment Plant.
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		The township applies for and obtains grants the the NJDOT Municipal Aid grant programs for roadway infrastructure improvements.
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Update

The Township of Freehold has provided the below mitigation actions to prioritize mitigation measures to protect the health safety and welfare of the public. This includes but is not limited to improvements to the streams throughout the Township to minimize impacts of downstream erosion, upstream flooding, etc.; providing backup power to critical facilities and ensuring that Township infrastructure (both utilities and roadway infrastructure) can function and mitigate further damage during a disaster. As seen by the below table, several actions have been completed or are at the precipice of being completed in the near future and we intend to continuous our strategies in a similar fashion in the future.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
17-1	Excavate and Remove Existing Storm Pipe, Stabilize Stream Banks, Replace Storm Pipe, and Install New Drainage Structure along Rose Court	Stabilization and drainage improvement of Rose Court, at the end of the cul-de-sac. Remediation of this hazard will include excavation and removal of the existing storm drainage pipe and flared end section, and stabilization of stream banks.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	N/A	Township Engineer	FEMA HMA	\$2M	N/A	Completed	This action is complete
17-2	Reconstruct Culvert on Plymouth Drive	Rehabilitation of the structure number 1316X68 will include repairing the existing voids behind the side walls of the culvert with a concrete type material, lining the culvert with a high-density polyethylene elliptical pipe, and grouting the annular space.	Flood, Nor'easter, Hurricane and Tropical Storm	N/A	Township Engineer	FEMA HMA	\$330000	N/A	Completed	This action is complete
17-3	Purchase and Install a Generator for CentraState Hospital	Backup generator for CentraState Hospital.	All Hazards	N/A	Township, CentraState	FEMA HMA	\$200,000	N/A	Withdrawn	Action to be removed as hospital has undertaken installation of emergency generators on the property.
17-4	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	Low	Township	Municipal budget		3 years	Withdrawn	Remove action. No known landslide hazard areas

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
17-5	Reconstruct Culvert on Hampton Drive	Rehabilitation of the structure number 1316X57 will include repairing the existing voids behind the side walls of the culvert with a concrete type of material, lining the culvert with high-density polyethylene elliptical pipe, and grouting the annular space.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township Engineer	FEMA HMA	\$675,000	1 year	Ongoing	This project has been awarded to a contractor and is anticipated to be complete in 2025. This project aims to reduce both upstream flooding impacts and down stream erosion impacts.
17-6	Reconstruct Culvert on Medford Boulevard	Rehabilitation of the structure number 1316X64 will include repairing the existing voids behind the side walls of the culvert with a concrete type of material, lining the culvert with a high-density polyethylene elliptical pipe and grouting the annular space.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township Engineer	FEMA HMA	\$500,000	3 year	Ongoing	This project aims to reduce both upstream flooding impacts and down stream erosion impacts.
17-7	Clean and De-slag Streams Throughout the Township	Clean vegetative and manmade debris, logs, and other items that are contributing to erosion and localized flooding.	Flood, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm	Low	Township Engineer, Superintendent of Public Works	USDA	\$500,000	1 year	Ongoing	This project aims to reduce both upstream flooding impacts and down stream erosion impacts.
17-8	Provide Hazard Mitigation Information/ Training to Residents	Provide information and links to websites where residents can obtain more information about preparedness, education on water quality, and receive emergency alerts.	All Hazards	Medium	Multiple Township Departments	Municipal budget	\$10,000.00	5 + years	Ongoing	This project would aim to train residents to the impacts or improvements to properties to reduce risk.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
17-9	Create a Wildfire Mitigation Plan and Provide Public Outreach on the Hazard	Evaluate areas at risk of wildfire and provide create a plan to mitigate those areas while educating residents on wildfire risks and mitigation strategies.	Wildfire	Medium	Fire Department	Municipal budget	\$300,000	2 years	Ongoing	
17-10	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Assist homeowners with Repetitive Loss or Severe Repetitive Loss properties to elevate, acquire, and/or demolish their home.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Emergency Management	FEMA HMA		2 years	Ongoing	There are minimal NFIP claims and no apparent required elevation requirements.
17-11	Purchase and Install a Generator for Traffic Lights along the Route 9 and Route 537 Corridors	Purchase and install a hookup for generators along all major intersections along Route 9 and 537.	All Hazards	High	Township	FEMA HMA, DOT, Municipal budget, County budget	\$100,000	2 years	Ongoing	
17-12	Conduct a Microgrid Feasibility Study	Conduct a study on the feasibility of a microgrid for backup power at the hospital, police, municipal buildings, and fire house.	All Hazards	Medium	Township Public Works, Administration	Municipal budget, Sustainable energy grants	\$150,000	2 years	Ongoing	
17-13	Target Harden Police Headquarters by Installing Surveillance Cameras and Fencing	Increase security at Police Headquarters through a fence for the yard and surveillance equipment, such as cameras.	Terrorism	Medium	Township Police Department	Homeland Security grants, Municipal budget		1 year	Ongoing	
17-14	Repair, Remove, or Rehabilitate the Lake Topanemus Dam	Repair, remove, or rehabilitate Lake Topanemus Dam, a High-Hazard Potential Dam, located along Doctors Creek.	Dam Failure	High	Monmouth County, Freehold Township,	Municipal budget, NJDEP Bureau of Dam	\$0.00	3 years	Ongoing	The township is actively working with the County of Monmouth whom provides inspections of the dam to keep the dam in operation and

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
					Freehold Borough	Safety and Flood Control, FEMA HMA				functioning in the event of a disaster or excessive flooding.
17-15	Purchase and Install a Larger Generator for the Water Treatment Plant	Purchase and install a new larger generator for the Freehold Township Water Treatment Plant. In addition to the new generator, it is also proposed to retrofit the electric within the existing building so that the new generator supplies power.	All Hazards	High	The Freehold Township Superintendent of Facilities with assistance from the Freehold Township Engineering Department.	FEMA HMA	\$1.7M	1 year	Ongoing	This project is ongoing and is expected to be completed in 2025. This project aims to provide resilience and backup power to critical water lifeline utility throughout the Township and surrounding community.
17-16	Stream Erosion Study	Asses the rate and extent of erosion along streams throughout Freehold Township and Develop Recommendations for any warranted repairs	Flood	High	The Township of Freehold Engineering Department utilizing Engineering Consultants	FEMA HMGP or HMA	250000	1 year	New	This project would aim to identify areas of scouring and erosion along stream banks through Freehold Township to preserve the flood hazard areas and limit property loss in large rain events.
17-17	Stream Erosion Remediation	Remediate and areas of significant erosion identified in the stream erosion study	Flood	High	The Township of Freehold Engineering Department utilizing Engineering Consultants	FEMA HMGP or HMA	500000	1-3 years	New	This project would aim to remediate areas of scouring and erosion along stream banks through Freehold Township to preserve the flood hazard areas and limit property loss in large rain events.

18 – HAZLET TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Thomas Horner	Fire Chief	Municipal Workshops #1 and #2
Susan Catapano-Moore	CRS Coordinator	Municipal Workshop #1
Tim Belicose	Construction Official, Building Sub-Code Official	Municipal Workshop #1
Rob Bengivenga	Township Administrator	Municipal Workshops #1 and #2
Robert Mulligan	Police Chief	Reviewed appendix
Kenneth Kruk	DPW Superintendent	Reviewed appendix
Dennis Dayback	Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

Originally founded as Raritan Township in 1848, the Township of Hazlet encompasses a land area of 5.6 square miles in the county's Bayshore Region. The township is a suburban community in the northern part of the county and is within the Raritan Valley region. Hazlet residents have convenient rail and highway access to New York City and other North Jersey employment centers. The Route 35 and 36 corridors serve as the primary location of retail, office, and commercial enterprises. A notable feature of Hazlet is the 88.5-acre Veterans Park. It houses a community center, swim and tennis club, and the municipal building, and offers residents a wide variety of recreational and social activities.

In 2021, Hazlet initiated an effort to revitalize the 8th Street Park in the West Keansburg neighborhood by incorporating feedback from Hazlet's youth, a key project stakeholder. The project was awarded funding through NJDEP's Green Acres program as well as a grant from Monmouth County's Open Space program. Hazlet was awarded \$250,000 by the Monmouth County Open Space Grant and qualified for a \$600,000 Green Acres low-interest loan. The \$1.3 million park renovation project will include a playground designed for all children, a multi-purpose ball court, shaded picnic tables, a pavilion, an open field for sports and entertainment events, and an exercise loop for walking, jogging, or pushing a stroller. Furthermore, Hazlet was included in Monmouth County's Raritan/Sandy Hook Coastal Resilience Planning Study.

Land Use, Development, & Growth

Hazlet is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 76 percent of its total area, and wetlands making up 13 percent. Although since 2015, the Borough's forested land declined by roughly 10 acres while its developed land grew by 13 acres, its overall land use composition remained roughly the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	30.7	30.7	>0%
Barren Land	9.1	8.2	-10%
Forest	328.9	318.5	-3%
Urban	2737.4	2750.0	>0%
Water	44.8	44.1	-2%
Wetlands	478.3	477.8	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2021, Hazlet initiated an effort to revitalize the 8th Street Park in the West Keansburg neighborhood by incorporating feedback from Hazlet's youth, a key project stakeholder. The project was awarded funding through NJDEP's Green Acres program as well as a grant from Monmouth County's Open Space program. The site falls under FEMA's 1% annual chance floodplain (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Hazlet was awarded \$250,000 by the Monmouth County Open Space Grant and qualified for a \$600,000 Green Acres low-interest loan to renovate Natco Park. The \$1.3 million park renovation project will include a playground designed for all children, a multi-purpose ball court, shaded picnic tables, a pavilion, an open field for sports and entertainment events, and an exercise loop for walking, jogging, or pushing a stroller. A good portion of the park falls within several FEMA flood zones, including 1% and 0.2% annual chance floodplain, and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Grenada Estates Garden Homes (312 units including 12 affordable) – in progress. The project is in a flood zone and will be built to the state’s and Township’s higher standards.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Hazlet Township, with a total estimated population of 20,249, had consistent population between the ACS survey periods of 2013-2017 and 2018-2022, with an estimated .83% change. Hazlet’s current population is made up of 5.6% of residents under age 5, and 19.5% of residents over age 65 (estimated). With an aging population making up nearly twenty percent of their total community, Hazlet may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

The township has one block group identified as potentially vulnerable due to overburden (OBC), meeting criteria for vulnerable *Low-Income* populations. There are no areas of the Township meeting designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	20,249
Population Change since 2017	0.8%
Percent of Population Age < 5	5.6%
Percent of Population > 65	19.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperatures	Lightning
Nor-easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge		Wildfire
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Power Failure	
	Pandemic	

Hazard Ranking Explanation

Power failures in 2024 have significantly impacted the township's hazard ranking, raising it from low to medium. This adjustment reflects the growing concern over the reliability of the electrical grid and the increasing frequency of outages. The township is taking steps to enhance infrastructure resilience and prevent future disruptions.

Significant Hazard Events Since Last Plan Update

The Township noted that since the last plan update, the creek frequently overflows. County, municipal, and private efforts have been made for de-snagging, but the creek needs to be dredged in conjunction with Holmdel and Union Beach. Furthermore, there have been issues with overflowing drains in the municipality. The drain along Route 35 (property address: 3206 Highway 35) overflows because of the presence of a pipeline under it. The drain by the hotel at Holly Hill also overflows because the pipeline connecting the drain is too small and is located under a highway. Similarly, the drain near the business on Moak Drive Basin overflows because the connecting pipeline is under an NJ Transit railway line, making it difficult to access. Flooding is also an issue on Union Ave. The township needs to coordinate with Union Beach to address flooding in this particular area.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is poised to significantly impact the risks and hazards faced by Hazlet Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and nor'easters are expected to increase. This will exacerbate flooding, particularly in areas already prone to such events, like the area seaward of Route 36.

The future conditions mapping provided by Rutgers that shows FEMA BFE +3 indicates the Township make experience expansion of floodprone areas in the western area, just north of Route 35. The township has reported issues with flooding from heavy rainfall and the water not moving through the drainage system effectively, resulting in more localized flooding. This will likely be exacerbated by increased volume and intensity of rainfall during events.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Hazlet Township	
Initial FIRM	12/1/1982
Effective FIRM	9/25/2009
Number of Policies In-Force:	354
Total Losses:	119
Total Payments:	\$1,810,420.54
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	5
RL – Total Paid:	\$1,23,653.54
Number of SRL Properties:	3
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	24
SRL – Total Paid:	\$4,36,596.28

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

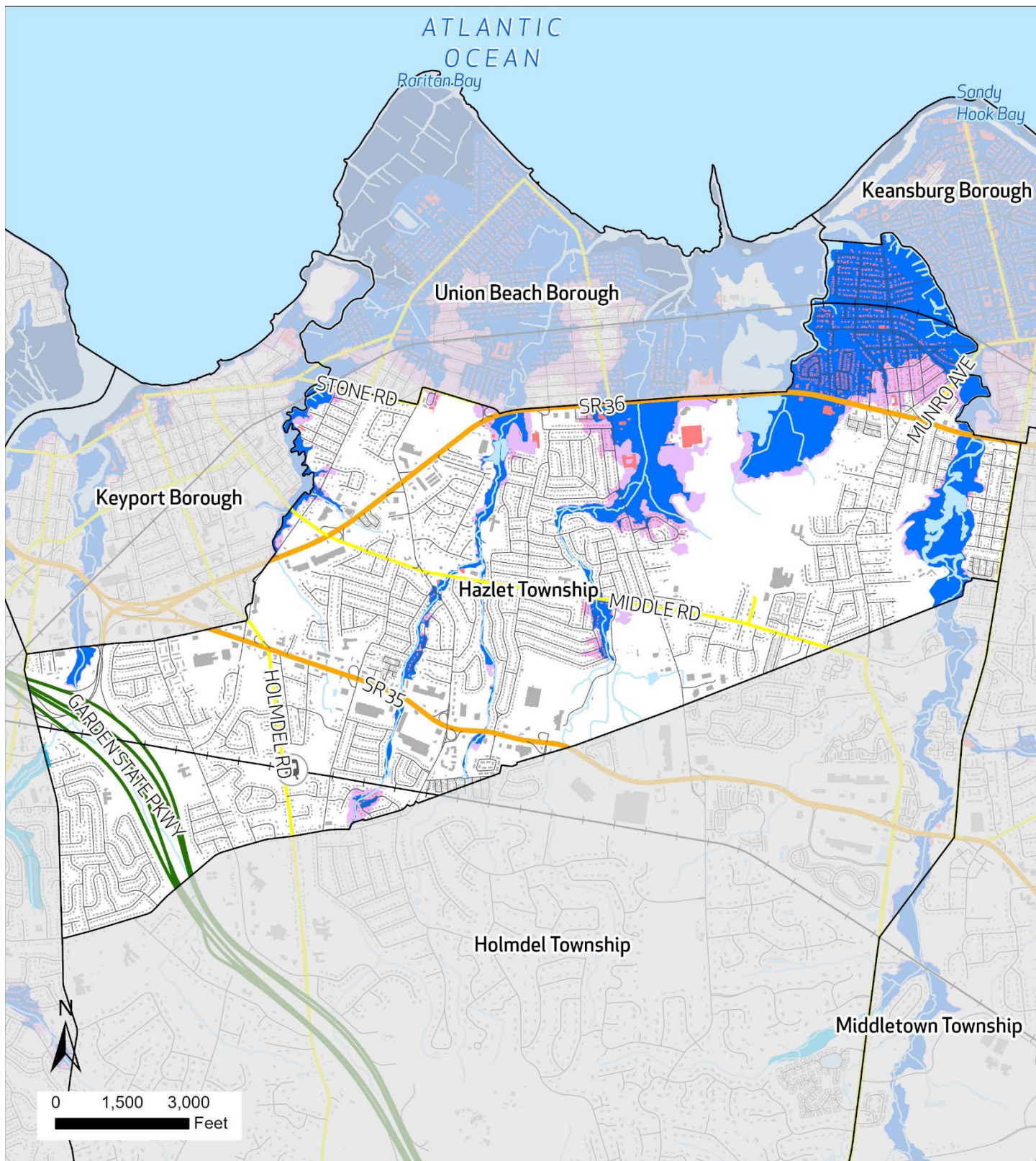
The Special Flood Hazard Area (SFHA) in the Township of Hazlet I is primarily centered adjacent to the waterbodies of the borough; East, Flat, Lappatong, Thrones, and Waackaack Creeks. Approximately 15.3 percent of the total area of Hazlet lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.6 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 77.9 percent of Hazlet is considered developed. Of the developed parcels of the town, 13.3 percent fall within the 1% annual chance flood zone and 4.5 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	13.3%	4.5%	6.2%
Exposed Land Area	15.3%	4.6%	5.1%

During the planning process, Hazlet identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 26 total facilities. Of these facilities, four are located within the floodplain. This includes facilities under the Safety and Security community lifeline as well as the Transportation lifeline.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	2	-
Transportation	1	-	-



Flood Risk Hazlet Township

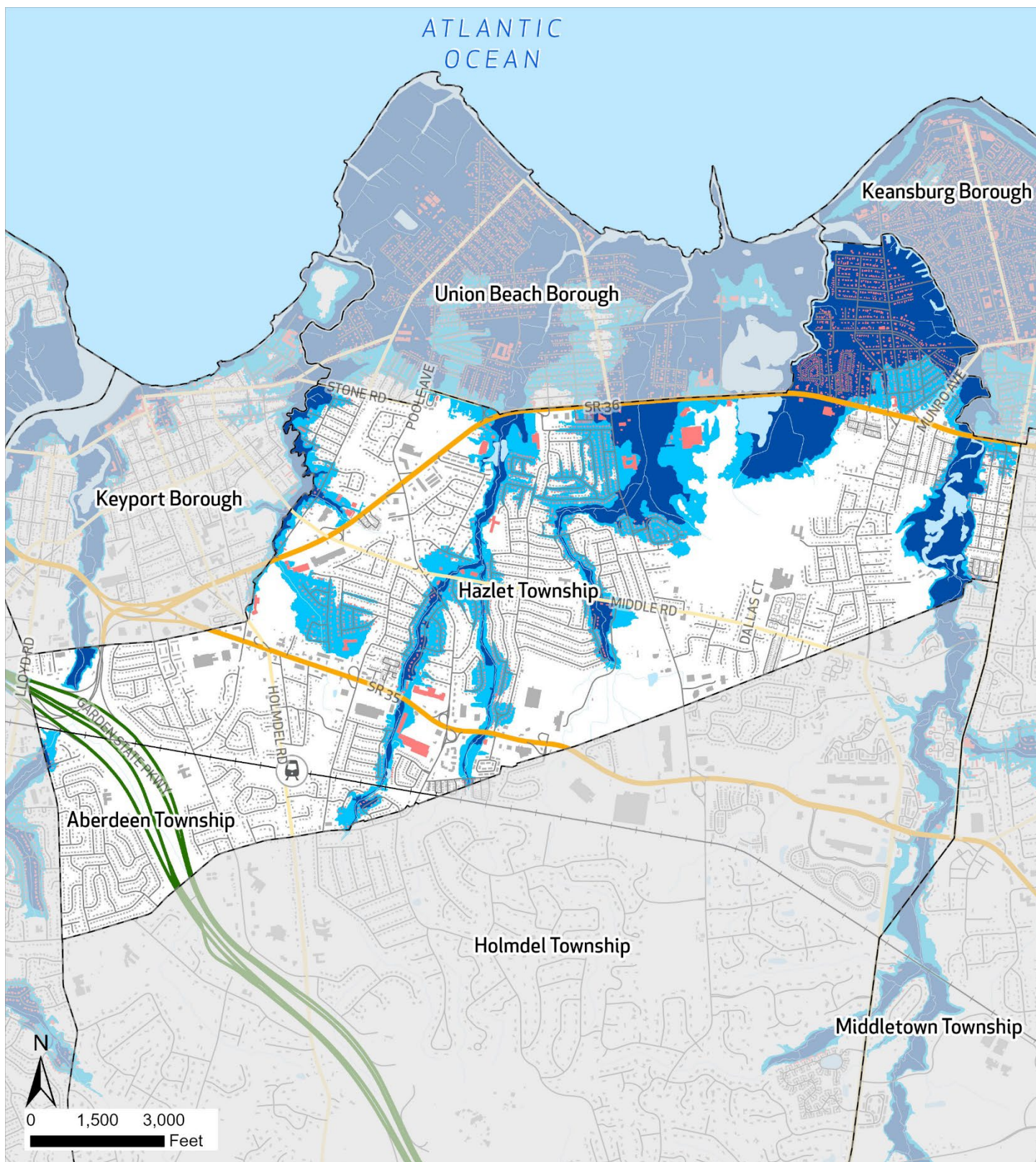
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Hazlet Township

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— Interstate Highways

— State Routes

— County Routes

— Local Roads

— Garden State Parkway

— Railroad

○ NJ Transit Rail Station

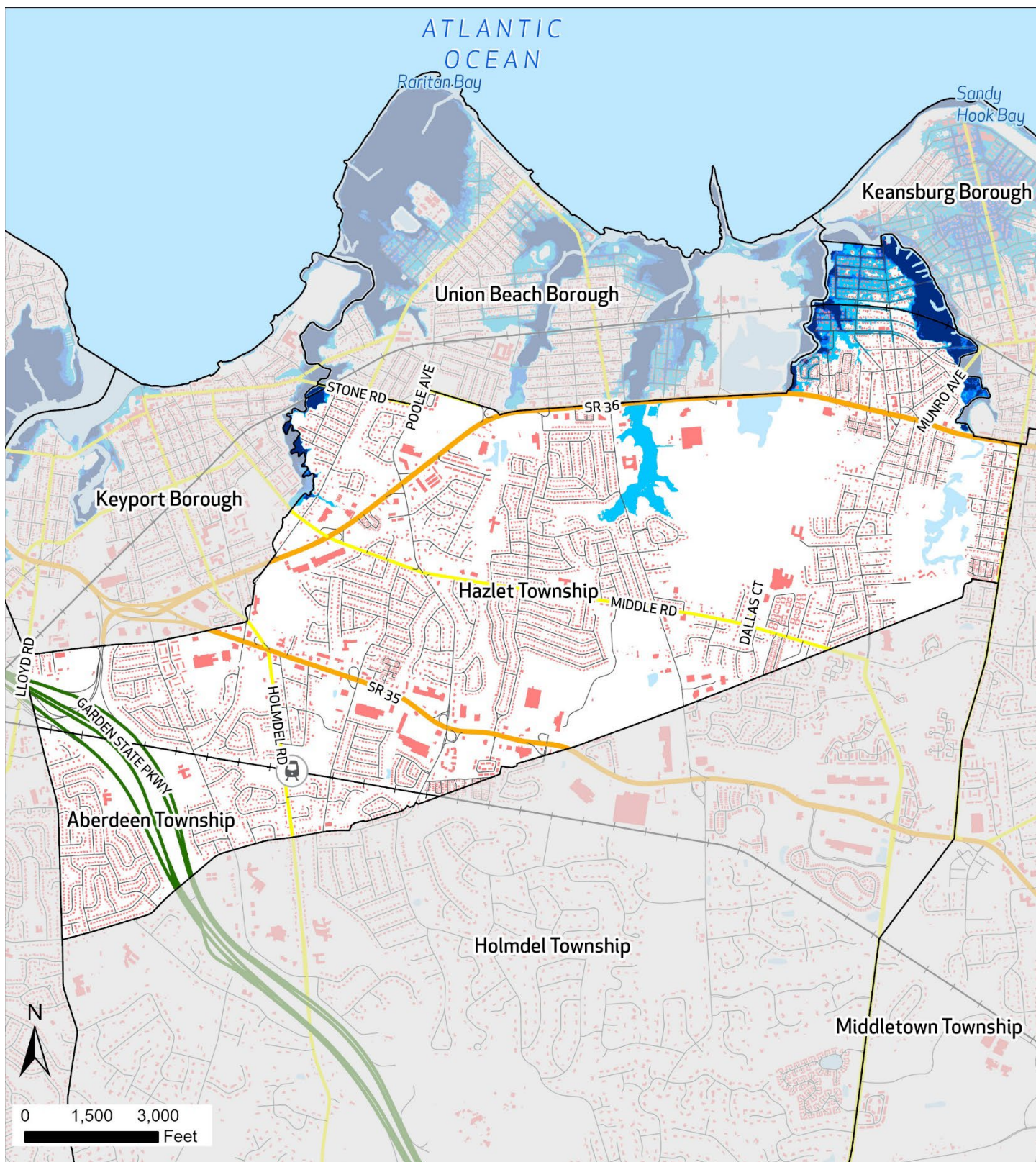
— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

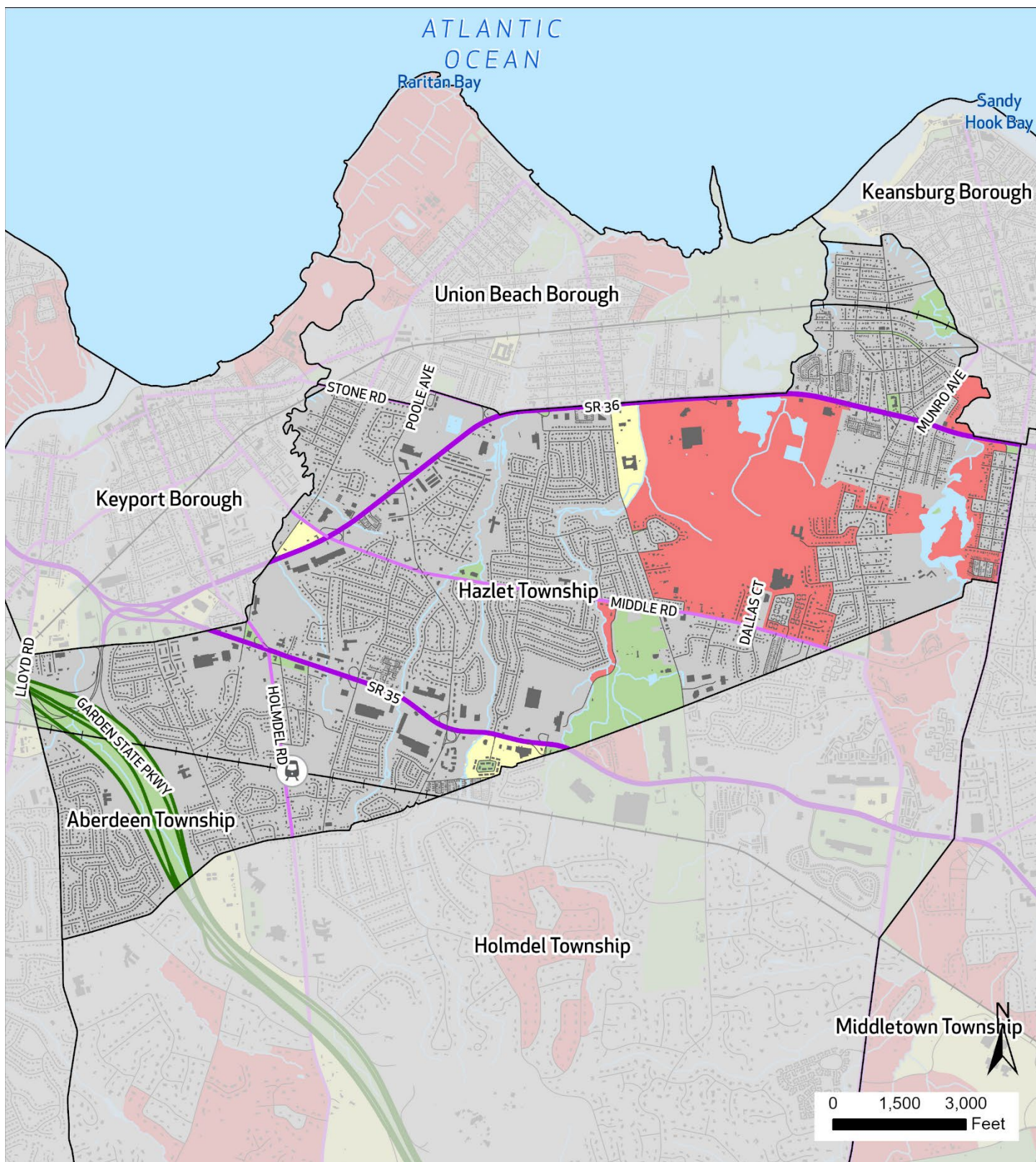
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Hazlet Township

- | | | |
|-----------------------------------|-------------------------|------------------------|
| ■ Area Inundated Under 2 Feet SLR | — Garden State Parkway | □ Municipal Boundaries |
| ■ Area Inundated Under 3 Feet SLR | — Interstate Highways | ■ Building Footprint |
| ■ Area Inundated Under 5 Feet SLR | — State Routes | ■ Water |
| | — County Routes | |
| | — Local Roads | |
| | — Rail Lines | |
| | NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Hazlet Township

- | | | |
|---|--|--|
| ■ Intermix | ■ Garden State Parkway | □ Municipal Boundaries |
| ■ High or Medium Density Housing | ■ Interstate Highways | ■ Building Footprint |
| ■ Low or Very Low Density Housing | ■ State Routes | ■ Water |
| ■ No Housing | ■ County Routes | |
| | — Local Roads | |
| | + Rail Lines | |
| | NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Hazlet Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017 updating in 2025	We look at the zoning of each area as to build in accordance with FEMA and state regulations
Capital Improvement Plan	x		2024	Sanitary and storm water upgrades reduce run off and flooding
Local Emergency Operations Plan/Continuity of Operations Plan	x		9/2023 and will be updated in 2025	
Floodplain Development Ordinance	x		2/2024	To help comply with state regulations and minimize flood damage
Floodplain Management Plan	X		2/2024	Same as above
Stormwater Management Ordinance	X		6/2024	Same as above
Stormwater Management Plan	X		6/2024	Same as above
Watershed Management Plan		x		
Sheltering Plan	x		9/2023	OEM operations to help residents in need.
Evacuation Plan	x		9/2023	OEM operations to help residents in need.
Substantial Damage/Improved Structures Response	x		2/2024	OEM operations to help residents in need.
Repetitive Loss Plan		x		
Disaster Debris Management Plan	x		4/2023	OEM operations to help residents in need.
Tracking elevation certificates and/or Letter of Map Change	x		Year round through forerunner	Assist in resident building to the fema regulations so that they minimize any damage during events.
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies		x		
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation	X			Hazlet was included in the county's Naval Weapons Station Earle Joint Land Use Study, completed in 2019. Hazlet received an environmental assessment report for Natco Lake Park that provides pertinent information to help guide conservation management and enhancement of the park, as well as potential solutions for the heavy tick population along park trails. The report released in February 2022 will help guide the renovation of Natco Park's trails this year.
Other ordinance and regulation that mitigate the impacts of natural hazards		x		

Administrative and Technical Capabilities

Hazlet Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer		x	
Staff trained to support mitigation		x	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		County oem
Non-governmental organizations/other partners		x	

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		x	

Education and Outreach Capabilities

Hazlet Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		
StormReady	x		
Firewise USA	x		
Severe Weather Awareness Week		x	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Hazlet Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	x		Arpa money used for generator
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Hazlet Township is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Township.
- Community Rating System (CRS) Classification:** 6
- Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

As we improve roadways in the floodplain, we plan to install drainage to help mitigate localized flooding.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 18-1	Acquire Flood-prone Property for Open Space	Purchase of McNamy Property in Partnership with Port Authority to preserve floodways and mitigate flood losses.	Flood, Nor'easter, Hurricane and Tropical Storm	N/A	N/A	N/A	\$450,000	N/A	Withdrawn	No longer interested
Action 18-2	Purchase and Install Generators for Critical Facilities	Purchase, install and maintain generators for First Aid, two generator upgrades and one new generator for fire houses, and a generator upgrade for the police station.	All Hazards	N/A	N/A	N/A	\$500,000	N/A	Completed	Two generators installed for fire houses. All installations and upgrades cost \$350,000 in total.
Action 18-3	Purchase Police Protective Gear	Purchase additional police protective gear, such as helmets, outer vest carriers, ballistic vest to mitigate against the rise in terrorism.	Terrorism	N/A	N/A	N/A	\$100,000	N/A	Completed	Funded by: local county and state funds
Action 18-4	Upgrade Communication System between Fire and Police	Upgrade communications police and fire department by increasing the number of portable and mobile phones and having a base station.	All Hazards	N/A	N/A	N/A		N/A	Withdrawn	Switched to County – used to be separate system.
Action 18-5	Join FEMA's CRS Program	Join CRS program to complete pro-active floodplain management and assist residents with flood insurance costs.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A		N/A	Completed	Class 6

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 18-6	Continue to Clear Debris and Sediment from Stream Corridors to Mitigate Flooding	The Mosquito Commission is clearing debris and sediment from many creeks and waterways at the Township's request to improve carrying capacity of flood flows and reduce overbank flooding.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Township Administrator	Municipal budget, County budget	\$450,000	2 years	Ongoing	Most recently completed removing debris from flat creek.
Action 18-7	Clean, Televis, and Replace Stormwater Inlets and Catch Basins	Improve inspection and maintenance of stormwater drainage by cleaning all lines, televising, and replacing inlets and catch basins throughout the entire system township wide.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Public Works Department	Municipal budget	100,000	1 year	Ongoing	Ongoing throughout the year with our road program
Action 18-8	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SLR) properties	Support resident applications and prove assistance to the fullest extent possible in regard to the elevation of existing properties within the flood zone and under the known elevations.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township Administrator	FEMA HMA	TBD	1 year	Ongoing	Substantial Damages improvements or new home have been elevated. No other residents have shown interest in home elevations or home acquisitions.
Action 18-9	Develop a Natco Park Wildlife Protection Plan	Coordinate with NJ Division of Fire Safety to develop and implement a community-wide protection plan for Natco Park. Examine paths to clear, emergency paths, and equipment needed to mitigate wildfire.	Extreme Wind, Wildfire	Medium	Township Fire and Planning Departments	FEMA HMA	\$100,000	2 years	Ongoing	Working State Fire Forest. Feedback from Environmental Commission.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 18-10	Upgrade Surveillance System Software for the Township	Upgrade the surveillance system software to be able see a live feed of all municipality-owned critical facilities and commercial corridors.	Terrorism	High	Township Police	Homeland Security Grants	\$20,000	1 year	Ongoing	Want to install in all parks - \$300,000 is the cost estimate.
Action 18-11	Construct Flood Control Measures (e.g., floodwalls and small berms) along Thomas Creek and Waackaack Creek to Mitigate Flooding in the West Keansburg Neighborhood	Use minor structural projects that are smaller and more localized (e.g., flood walls or small berms) in areas that cannot be mitigated through non-structural activities or where structural activities are not feasible due to low densities.	Flood, Wave Action, Nor-easter, Hurricane and Tropical Storm, Storm Surge	High	Township of Hazlet	FEMA HMA	\$250,000	3 years	New	Mosquito Commission de-snags the creek.
Action 18-12	Increase size of Drainage Pipe Under Route 35 to reduce risk of flooding on emergency evacuation route	Pipe that drains the flood plain behind 3206 Route 35 in connection with the Chingarora Creek needs to be increased in size to enable it to drain into the larger pipe under route 35.	Flood, Nor-easter, Hurricane and Tropical Storm	High	Township of Hazlet	FEMA/State	\$150,000	2	New	Pipe is often clogged
Action 18-13	Elevate the Union Ave. culvert and bridge over East Creek that serves as an evacuation route and school access	Union Ave. culvert/bridge that goes over the east creek by Appleton need to be raised to prevent flooding and blocking off an evacuation route and school access	Flood, Nor-easter, Hurricane and Tropical Storm,	high	Township of Hazlet	FEMA/state/local	\$500,000	3	New	Trying to obtain state grants for pedestrian safety

19 – HIGHLANDS BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Michael Muscillo	Borough Administrator	Point of Contact
Tony Flores	OEM Director (as of 1/1/2025)	Reviewed Municipal Appendix
Steven Winters	CO/CFM Floodplain Administrator	Completed Capability Assessment
Kathaleen Shaw	CRS Coordinator	Completed Capability Assessment
William Kane	OEM Coordinator in 2024	Municipal Workshop #1, Municipal Workshop #2

COMMUNITY PROFILE

Overview

The Borough of Highlands is 1.3 square miles and located just to the south and west of Sandy Hook. It is one of the highest points of land along the Eastern Seaboard. A majority of the Borough's commercial development and marina is in the low-lying lands at the base of the bluff. The Borough has a longstanding fishing, clamming, and boating industry, and breathtaking views of New York City. Highlands has a ferry terminal (currently operated by Seastreak) which passengers can use to commute to New York City.

The Highlands bluff is home to the historic Twin Lights, the first lighthouse to use kerosene, electricity, and the French Fresnel lens, built in 1862. This gave the lighthouse the ability to illuminate 22 miles into the ocean. In 1962, the State of New Jersey acquired the lighthouse, and converted it into a museum facility, which it remains to this day.

Land Use, Development, & Growth

Highlands is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 70 percent of its total area, and water and forested land respectively making up 17 percent and 11 percent. Although since 2015, the Borough's barren land declined by 7 acres while its developed land grew by 8.2 acres, its overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	12.4	5.5	-56%
Forest	62.0	60.8	-2%
Urban	376.6	384.8	2%
Water	95.4	95.4	>0%
Wetlands	1.4	1.4	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2020, Highlands was awarded a \$179,605 Community Development Block Grant for its Marine Place Walkway project, which involves constructing an elevated pedestrian walkway with amenities at Marine Place West's bulkhead, one of the last unimproved public waterfront locations in the Borough. The surveying and base mapping were completed in May of 2023. The Borough will be receiving another grant to complete the next phase of the project.

The Borough was granted funding from the NJDEP Green Acres program and Monmouth County to improve the skate park adjacent to Snug Harbor Park. Construction began early 2023, and a ribbon cutting ceremony was held in July of 2023 to welcome the community to their new and improved skate park.

The Borough purchased a property on Navesink Avenue from the Our Lady of Perpetual Help parish to serve as the future site of the Highlands Municipal Complex, replacing municipal structures that were damaged or destroyed by Superstorm Sandy. Funding for the construction project was secured through a \$5 million FEMA reimbursement, the sale of bonds, and Borough funds. Construction was completed in July of 2023.

The Borough adopted a Central Business District Redevelopment Plan in May of 2022. The Plan outlines the Borough's ongoing efforts to improve its Bay Avenue corridor and adjacent areas in order to attract additional public and private investment in the redevelopment area. As of 2024, redevelopment is still underway, with Bay Avenue and connecting roads being paved April through August.

Marine Place Walkway, Snug Harbor skate park, and sections of Bay Avenue fall under FEMA's 1% annual chance floodplain (NJFloodMapper). Bay Avenue also has certain parts that are within 0.2% annual chance floodplain, and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Highlands submitted an application to FEMA's BRIC program requesting funding for the Highlands and Monmouth Hills Flood Mitigation Project, which seeks to convert Kavookjian Field into a stormwater retention center and construct a pump station at the corner of Snug Harbor and Bay avenues to mitigate the high frequency of flooding in the area.

Recently, the U.S. Army Corps of Engineers and state officials put forth a proposal to build a \$148 million floodwall, with an initial cost to Highlands taxpayers of \$13 million to build and an annual cost of \$452,000 to maintain. The reinforced concrete structure would be about 14 feet high and extend over a mile across nearly the entire waterfront. The Borough voted on the proposal during the 2024 election. The ballot measure failed to pass, only garnering 33% support amongst Highlands voters. However, this does not necessarily foreclose on the Borough's ability to pursue the project at a later date.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Highlands Borough has a total population estimated at 4,646, a -4.8% decline since the 2013-2017 ACS survey period. The Borough has a population with an estimated 4.9% of residents under 5 and 21.4% of residents over age 65. With an aging population making up over twenty percent of their total community, Highlands Borough may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There is one block group in Highland's northwest which is identified as potentially overburdened (OBC) due to indicators of Low-Income populations. No parts of the Borough meet criteria for CDRZ or CEJST designations.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,646
Population Change since 2017	-4.8%
Percent of Population Age < 5	4.9%
Percent of Population > 65	21.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flood	Coastal Erosion	Drought
Hurricane/Tropical Storm	Extreme Temperature	Earthquake
Landslide	Extreme Wind	Wildfire
Nor'easter	Tornado	
Storm Surge	Wave Action	
Winter Storm		
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
Power Failure	Economic Disruption	
	Terrorism	

Note: Dam failure was ranked N/A by the Borough Planning Team

Hazard Ranking Explanation

Wave Action is ranked as medium. The Borough stated that Sandy Hook protects the town from the worst of this hazard. Power Failure was changed from medium in the prior HMP update to high concern for the Borough. Most occurrences of this hazard result from extreme heat or heavy rain. Terrorism is ranked medium, as the town explained that it is always a concern due to the presence of the ferry service. Dam Failure is ranked as not applicable to Highlands as there are no dams located within the municipality or nearby that would threaten the town in case of failure.

Significant Hazard Events Since Last Plan Update

The most significant hazard event since Superstorm Sandy was a coastal storm on December 24, 2022. The tide rose three feet throughout the town, from Gravelly Point Road to Atlantic Street. Although not a hazard event, heavy rainfall in the Monmouth Hills area of Middletown Township causes soil to fill Snug Harbor Creek (see picture below).



Soil in Snug Harbor Creek



Christmas Eve storm in 2022

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Highlands Borough. As global temperatures rise, the frequency and intensity of extreme weather events like hurricanes, tropical storms, and coastal flooding are likely to increase. Highlands Borough, with its low-lying areas and proximity to water bodies like the Shrewsbury River and Sandy Hook Bay, is particularly vulnerable. Approximately 50.3 percent of the Borough lies within the 1% annual chance flood zone, and an additional 0.8 percent is in the 0.2% annual chance flood zone. This means a significant portion of the Borough's developed land and critical facilities are at risk of flooding, which could lead to substantial damage to infrastructure, homes, and businesses.

Moreover, climate change is expected to exacerbate coastal erosion and storm surge impacts, further threatening the Borough's coastline and protective features such as bulkheads. The increased frequency of extreme weather events will also strain the Borough's emergency response and recovery capabilities, making it more challenging to protect vulnerable populations, particularly the elderly and those with mobility issues.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Highlands Borough	
Initial FIRM	9/3/1971
Effective FIRM	6/15/2022
Number of Policies In-Force:	636
Total Losses:	1739
Total Payments:	\$79,530,975.36
Number of RL Properties:	163

Highlands Borough	
Number of Mitigated RL Properties:	0
RL – Total Losses:	416
RL – Total Paid:	\$16,534,644.90
Number of SRL Properties:	13
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	45
SRL – Total Paid:	\$2,678,059.28

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

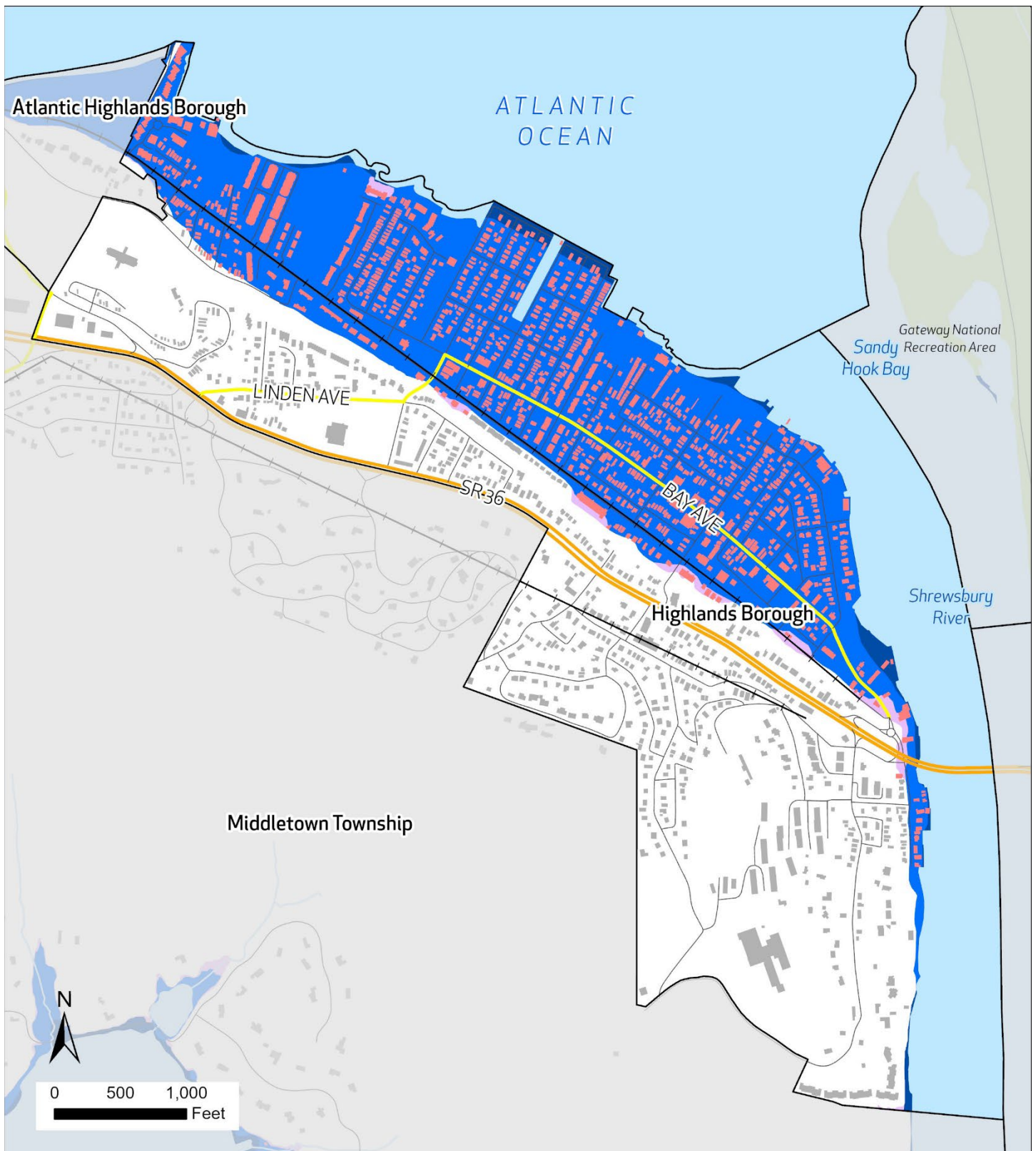
The Special Flood Hazard Area (SFHA) in the Borough of Highlands is primarily centered in the low-lying areas of town adjacent to the waterbodies of the Borough: the Shrewsbury River and Sandy Hook Bay. Approximately 50.3 percent of the total area of Highlands lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.8 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 84.1 percent of Highlands is considered developed. Of the developed parcels of the town, 52.1 percent fall within the 1% annual chance flood zone and 0.4 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	52.1%	0.4%	45.7%
Exposed Land Area	50.3%	0.8%	42.4%

During the planning process, Highlands identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 8 total facilities. Of these facilities, four are within the floodplain. Of these four, three are also in the area projected to be inundated under sea level rise. These facilities include facilities under the Health and Medical, Safety and Security and Transportation community lifeline categories.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Health and Medical	2	-	1
Safety and Security	1	-	1
Transportation	1	-	1



Flood Risk Highlands Borough

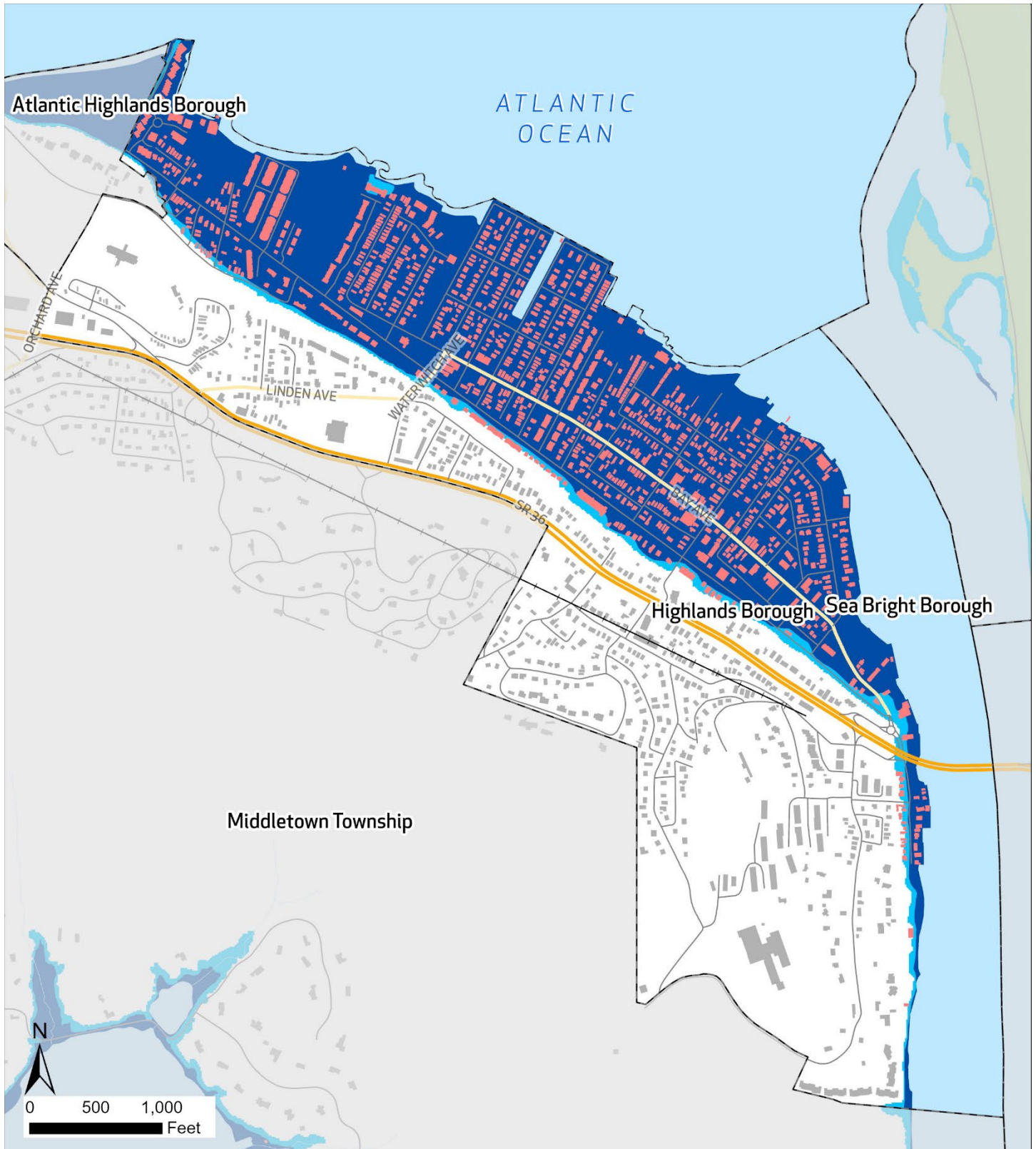
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Highlands Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

Municipal Boundaries

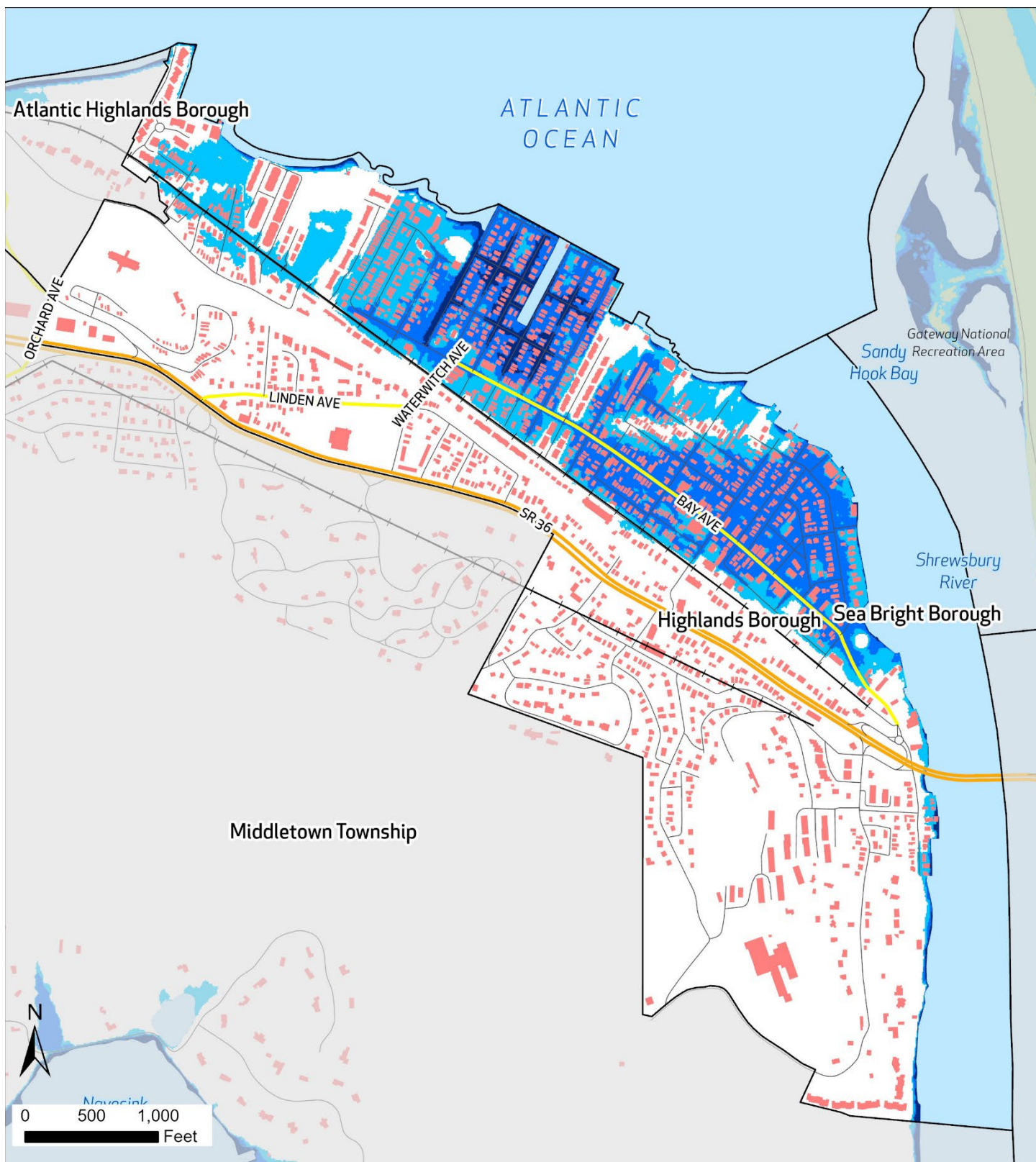
Water

National Park Service

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



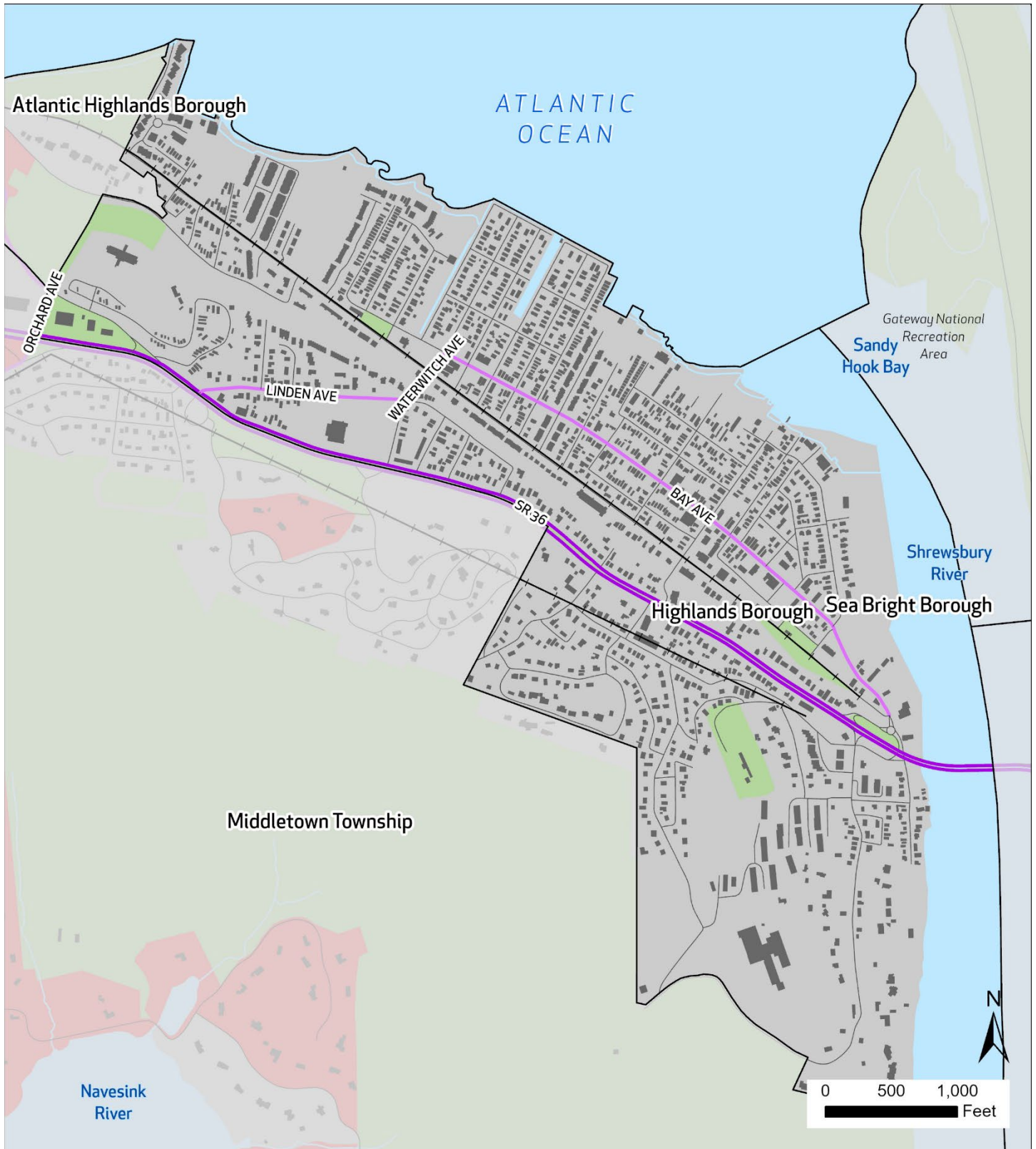
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Highlands Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water
- National Park Service

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Highlands Borough

- | | | |
|---|---|---|
| Intermix | State Routes | Municipal Boundaries |
| High or Medium Density Housing | County Routes | Building Footprint |
| No Housing | Local Roads | Water |
| | <div style="position: absolute; left: 5px; top: 5px; width: 2px; height: 2px; background-color: black;"></div><div style="position: absolute; left: 10px; top: 5px; width: 2px; height: 2px; background-color: black;"></div><div style="position: absolute; left: 15px; top: 5px; width: 2px; height: 2px; background-color: black;"></div> Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Highlands Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		12/2016	master-plan-re-examination-report-12-27-16.pdf
Capital Improvement Plan	X		2024	
Local Emergency Operations Plan/Continuity of Operations Plan	X		5/17/2023	753071291.pdf
Floodplain Development Ordinance	X		6/15/2022	Borough of Highlands, NJ FLOOD DAMAGE PREVENTION
Floodplain Management Plan	X		6/15/2022	Borough of Highlands, NJ FLOOD DAMAGE PREVENTION
Stormwater Management Ordinance	X		6/5/2024	O-24-09-Stormwater-Management.pdf
Stormwater Management Plan	X		6/5/2024	O-24-09-Stormwater-Management.pdf
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response	X		6/15/2022	O-22-11-Ordinance-Repealing-Flood-Damage-Prevention-and-Replacing-it-with-Floodplain-Management-Regulations.pdf
Repetitive Loss Plan				
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X		2023	Through Forerunner: Flood Information Highlands Borough, NJ
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X		9/18/2024	O-24-15-Adopting-Amended-CBD-Redevelopment-Plan.pdf
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Highlands Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Created Highlands Borough Department of Buildings & Housing Start-up January 1/ 2024. Fully staffed with CRS Coordinator reporting to this department. Prior to Highlands Department of Buildings & Housing Middletown Twp. managed the Construction Office through a shared service agreement 2019-2023. CME Engineering was designated as Floodplain Administrator. Highlands's transition left 4,000 open permits in the SFHA and town wide.
Grant Writer	X		
Staff trained to support mitigation	X		Several municipal staff have attended NFIP review course sponsored by NJDEP or have attended NJAFM Conference floodplain training
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations	X		

Education and Outreach Capabilities

Highlands Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Meeting, online portal (Forerunner)
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		Kathy Shaw – CRS Coordinator

Financial Capabilities

Within the last five years, Highlands Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources	X		FEMA grant award (Monmouth Hills Flooding \$12 million)
NJ Infrastructure Bank	X		Sewer Rehabilitation program
Other state municipal assistance or grant programs	X		State grants
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities	X		Capital program

Additional Capability Assessment Information:

- Highlands Borough is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- Sustainable Jersey Participation Status:** Bronze
- The Borough was included in the study areas for two regional flood resilience projects: NJ FRAMES (Fostering Regional Adaptation through Municipal Economic Scenarios) and the NWSE JLUS (Naval Weapons Station Earle Joint Land Use Study).
- The NJ FRAMES study identifies some of the main challenges of Highlands Borough as eroding beaches, constant flooding, unprotected ferry terminals, and vulnerable sewer and sanitary pump stations. The study suggests retrofitting the marinas with hardened infrastructure for storm-surge protection as well as raising vulnerable homes and roads.
- The NWSE JLUS study suggests that Highlands, along with other nearby municipalities, should recognize the 3,000 ft. buffer from NWS Earle boundaries in planning documents and encourage compatible land development within this buffer. Incompatible uses include new medium to high density residential development, which would be inappropriate within the buffer.

MITIGATION STRATEGY

Overview and Progress Since the Last Plan Update

Since 2020 Highlands Borough has adopted August 2022 the NJDEP Model Floodplain Ordinance and invested in a new 2024 Department of Buildings and Housing with technical staff to dovetail the UCC and Floodplain Compliance required to create a comprehensive Floodplain Permitting Process that will facilitate efforts to remove National Violation Tracker NVT properties from FEMA Region 2. Additionally, this investment promotes floodplain compliance through education and compliance action with our residents – creating a resilient place to live, work and invest. Investment in Forerunner Platform August 2023 to manage, track and maintain all Floodplain documentation demonstrates Highlands’ commitment to floodplain management. Highlands continues working closely with Monmouth County CRS to attain CRS certification and is awaiting a CAV visit to be scheduled since June 2024.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
There are no completed or removed actions										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 19-1	Elevate and Floodproof Downtown District	Thorough plan review and guidance to property owners in the downtown area to elevate residences and floodproofing of multifamily and commercial structures.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Highlands	FEMA HMA	\$100,000	1 year	Ongoing	No progress has been made since last update. Bay Avenue CBD Redevelopment Plan ensures that New projects and substantial improvements comply with Floodplain Management Regulations Chapter 21.
Action 19-2	Build More Stormwater Pump Stations and Provide Stormwater Infrastructure Improvements along Route 36	This project proposes additional stormwater pump stations to help direct excess water into Sandy Hook Bay. Stormwater infrastructure improvements are proposed along the Route 36 Roadway and in Veterans Memorial Park to capture runoff from higher elevations to the south. The proposed concept further suggests clearing sediment from the Jones Creek channel to help accommodate the increased water volume from Route 36. These stormwater improvements will help reduce flooding in	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Highlands	FEMA Hazard Mitigation Assistance (HMA), NJDEP Blue Acres, Environmental Protection Agency	\$1.3 million	1 year	Ongoing	North Street storm sewer and pump redid electric and elevated. Valley Street is complete (13-20 years ago). Veterans Park and Jones Creek/Huddy Park still need to be addressed.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		downtown Highlands and on Route 36, which provides access to the NWS Earle Pier Complex.								
Action 19-3	Protect and Restore Existing Natural Protective Features (the coastline) and Flood Control Infrastructure (i.e. bulkheads)	Routine visual inspection of coastlines and bulkheads, identification of areas of concern, and prompt repairs of troubled areas, with mitigation as needed, to ensure levels of protection afforded by the Borough's beach and bulkhead system.	Wave Action, Coastal Erosion, Nor'easter Hurricane and Tropical Storm	High	Borough of Highlands	FEMA HMA	\$3 million	1 year	Ongoing	No progress has been made since last update.
Action 19-4	Implement No-Build Ordinances along Landslide-prone Areas and Implement Soil Stabilization Measures	Borough Ordinances have been revised over recent years to make disturbance on or near a steep slope prohibited without seeking variance relief. Implement monitoring mechanisms for areas of concern and apply soil stabilization measures, as needed to prevent impacts to improved property and infrastructure. Revise Ordinances as necessary. Prohibit slope disturbances within specific areas.	Landslide	High	Borough of Highlands	FEMA HMA	\$2 million	1 year	Ongoing	No progress has been made since last update.
Action 19-5	Improve Electrical and Telecommunication Systems at Critical Facilities	Improvements to electrical and telecommunication systems at critical facilities including EOC and local shelters to minimize future damage and system failures, and maximize the Borough's ability to perform and maintain critical functions during emergencies. These improvements will include generators and mitigation measures of various features.	All Hazards	Medium	Borough of Highlands	FEMA HMA	\$250,000	1 year	Ongoing	New buildings include Police Department, Borough Hall, and OEM.
Action 19-6	Improve Electrical and	Improvements to electrical and telecommunication systems at critical facilities including EOC and local shelters to	All Hazards	Medium	Borough of Highlands	FEMA HMA	\$250,000	1 year	Ongoing	New buildings with improved electrical and telecommunication systems include Police, Borough Hall, and OEM.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Telecommunication Systems at Critical Facilities	minimize future damage and system failures, and maximize the Borough's ability to perform and maintain critical functions during emergencies. These improvements will include generators and mitigation measures of various features.								
Action 19-7	Implement Wind Resistant Building Techniques	Installation of hurricane clips and wind shutters on existing Borough facilities including emergency facilities	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm, Tornado	Medium	Borough of Highlands	FEMA HMA	\$2 million	1 year	Ongoing	Town officials in charge now
Action 19-8	Conduct a Study on Borough Facilities and Seek Funding for Mitigation Projects	Conduct a study to determine the year built and level of protection for each Borough facility for various hazards (foremost: flooding). Then, seek funding for mitigation projects for those facilities that are not currently designed for an appropriate level of protection. This includes but is not limited to increasing interior drainage and adding an additional stormwater pump station at Jones Creek, rebuilding the North Street Stormwater Pump station to current codes and standards, constructing new Borough facilities to replace the storm damaged, flood prone facilities and/or flood proof existing facilities that can feasibly be repaired and mitigated.	Flood	Medium	Borough of Highlands	Municipal budget	\$12 million	1 year	Ongoing	Highlands Fire Department Shore Drive Block 53 Lot 1 substantial improvement 0% NVT List Low Floor. Need plan how to bring into compliance. Report submitted by CRS Coordinator March-April 2024.
Action 19-9	Install Movable Flood Gates along the Raritan Bay	Install movable flood gates to protect residential property and infrastructure.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Highlands, Army Corps of Engineers	FEMA HMA, Army Corp of Engineers	\$500 million	5+ years	Ongoing	Recently, the U.S. Army Corps of Engineers and state officials put forth a proposal to build the floodwall. The Borough voted on the proposal during the 2024 election. The ballot measure failed to pass; however, this does

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
										not necessarily foreclose on the Borough's ability to pursue the project at a later date.
Action 19-10	Reduce the Amount of Stormwater Flowing from Middletown, which Floods Route 36 and the Borough	Coordinate with NJDEP, DOT, Middletown Township, and the Monmouth Hills Association to mitigate the flooding caused by stormwater runoff.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Middletown, Highlands, DEP, DOT	FEMA HMA, DOT, County Funds	\$12.19 million	2 years	Ongoing	The Borough received \$12.19M in FEMA funding in 2023 for the Highlands and Monmouth Hills Flood Mitigation and Green Infrastructure Project. The project includes the installation of Monmouth Hills Headwalls, bio-swales and check dams to redirect stormwater and improve water quality. Additionally, underground stormwater storage systems and pump stations will be constructed at key locations. These structures will alleviate flooding and discharge excess water. Other elements of the project include new generators and bulkheads to increase resilience.
Action 19-11	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Work with residents to build to higher standards and elevation that will mitigate impact of flood related hazards while maintaining residents in community.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Highlands, residents	FEMA HMA	TBD	5+ years	Ongoing	The Borough website has a section titled "flood protection information" which includes information on regulations in the Borough and resources to aid in floodproofing building responsibly in the floodplain.
Action 19-12	Elevate First Aid Building and Fire House	Elevate first aid building and Fire house including 10.5" flood vents, and elevated generator.	Flood, Nor'easter, Hurricane, Storm Surge				TBD		New	

20 – HOLMDEL TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Frank Allocco	Chief of Police	Primary Point of Contact, Municipal Workshop #1, and Municipal Workshop #2
Jay Delaney	Township Administrator	Municipal Workshop #1
Eric Hernando	OEM Coordinator	Assisted in reviewing appendix
Barbara Kovelesky	Purchasing Director Grant Manager	Assisted in reviewing appendix
Brian Nagle	Holmdel Director of Infrastructure	Assisted in reviewing appendix
Bob Yuro	T&M Associates Twp Engineers	Assisted in reviewing appendix

COMMUNITY PROFILE

Overview

The Township of Holmdel encompasses a total land area of 7.90 square miles. Holmdel has a variety of land uses including farms, suburban residential development, as well as large corporate campuses, highway commercial retail on State Route 35, and the PNC Bank Arts Center, a premier outdoor entertainment venue.

Established in 1857, the Township was a farming community. The construction of the iconic Bell Labs in the early 1960s (supporting research already taking place on the site) triggered a rapid boost in the Township's population, increasing 107 percent between 1960 and 1970. The Township is well known for its contributions to science and technology, being the birthplace of countless innovations made at Bell Labs, and the confirmation of the Big Bang Theory by the operators of the Holmdel Horn Antenna. Unsurprisingly, Holmdel is home to several Nobel Prize recipients. In 2024, Holmdel completed the purchase of 35 acres of land including the Holmdel Horn Antenna. The property will be renamed as Dr. Robert Wilson Park in honor of the Holmdel resident scientist who helped make the discovery.

In 2021, Holmdel adopted a Complete Streets Policy, resolving to "provide safe access for all users by designing and operating a comprehensive, integrated, connected, multi-modal network of transportation options." The Township as Safe Routes to School "Silver" rating.

Land Use, Development, & Growth

In Holmdel, residential, publicly owned and farmland together constitute a large portion of its area. However, from 2015 to 2020, the Township lost nearly 98 acres and 58 acres of agricultural and forested land respectively, while gaining nearly 133 acres of urban or developed land. In 2020, developed land accounted for 58 percent of Holmdel's total area, while forested land, wetlands and agricultural land made up 16 percent, 15 percent, and 8 percent respectively of its total land base.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	1047.5	949.6	-9%
Barren Land	29.2	67.0	129%
Forest	1931.1	1872.8	-3%
Urban	6614.8	6747.9	2%
Water	136.4	138.8	2%
Wetlands	1804.2	1786.9	-1%

NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Recent major development in Holmdel includes the Cornerstone facility on Laurel Ave and Middle Road which has recently opened. The development contains 50 affordable units and is not located in the flood area. Brightview Senior Living facility is currently under construction on highway 35 between Union Ave and Laurel Ave. This development is not at risk for flooding and is located in a low wildfire risk area.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Like many suburban communities, Holmdel has an affordable housing obligation it is required to meet. The Township moved forward with rezoning numerous parcels in its northern section to allow higher density housing to meet the State mandate. Holmdel has a court-approved settlement agreement that calls for the construction of 280 new homes, with 93 of them set aside for families of low and moderate income.

A development has been proposed at 26 West Main Street (Route 520), west of Holmdel Village and just before Rte 34. It is across the road from the Prudential/Vonage property. named Heavenly Estates. The developer is seeking approval to subdivide two existing lots into 16 residential lots, three open space lots, and one large lot which will remain undeveloped. The property is within the Rural Conservation District (R-4R) Zone with its western, southern and eastern property lines bound by Willow Brook and its tributary.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Holmdel’s total estimated population is 17,369, a 4.3% population growth since the 2013-2017 ACS survey period estimate. This population is estimated to be 3.4% under 5 years old, and 21.2% over age 65. With an aging population making up over twenty percent of their total community, Holmdel may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

The community has two block groups identified as potentially overburdened (OBC) due to community characteristics of *Minority* populations. There are no parts of the Township designated as potentially vulnerable under CEJST or CDRZ criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	17,369
Population Change since 2017	4.3%
Percent of Population Age < 5	3.4%
Percent of Population > 65	21.2%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the

past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flood	Extreme Temperatures	Drought
Nor’easter	Extreme Wind	Earthquake
	Hurricane/Tropical Storm	Lightning
	Landslide	
	Tornado	
	Wildfire	
	Winter Storm	
Human-made Hazards		
Terrorism	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Pandemic	

Note: The Township ranked Coastal Erosion, Dam Failure, Wave Action, and Storm Surge as N/A.

Hazard Ranking Explanation

Landslide has been upgraded to a medium hazard ranking from the last plan update. The Township has many steep slopes and hilly areas. During wet periods there is potential for extensive damage. Terrorism has been upgraded to a hazard of high concern as well. Several locations including PNC Center and Bell Works are potential soft targets as well as the teleport satellite at the PNC Center due to its government usage. Extreme wind and hurricane/tropical storm are rated as “Medium +” by the Township.

Dam failure is ranked as not applicable to Holmdel as the community says are no dams located within the municipality or nearby which would threaten the town in the case of failure. Similarly, coastal erosion, wave action, and storm surge are ranked as not applicable because the Township is inland and away from the coast.

Significant Hazard Events Since Last Plan Update

The community reports that there has been some flooding in the north, the bridge across Middle Road near Palmer Ave on border with Middletown in recent years. The nearby creek (a tributary of Waackaack Creek) can’t handle all the runoff from the roadway. Additional areas of concern related to flooding include McCampbell Road in the south of town near the intersection with Everett Road. This areas floods during periods of heavy rain. So far there has been no damage, just the flooded roadway, which requires the township to divert cars away from the area with barricades until water runs off. Several major thunderstorms have caused power outages. Wind blowing down trees on power lines caused the outages. There has been landslide damage on Cat Bird Alley near Crawford’s Corner Road caused by heavy rain including trees which have been washed away.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Holmdel Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and extreme wind events are likely to increase. This will exacerbate existing hazards like flooding, which is already a concern in areas such as the bridge across Middle Road near Palmer Ave and McCampbell Road¹. The increased rainfall and storm surges associated with these events can lead to more severe and frequent flooding, putting additional strain on the Township's infrastructure and requiring more robust flood mitigation measures.

Moreover, climate change will likely lead to higher temperatures and prolonged heatwaves, which can increase the risk of droughts and wildfires. These conditions can also exacerbate landslide risks, particularly in areas with steep slopes and hilly terrain, such as Cat Bird Alley near Crawford's Corner Road. The Township's aging population, with over 21% of residents being over 65 years old, may face heightened vulnerabilities during.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Holmdel Township	
Initial FIRM Date	3/1/82
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	22
Total Losses:	12
Total Payments:	\$186,971.96
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$8,995.84
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

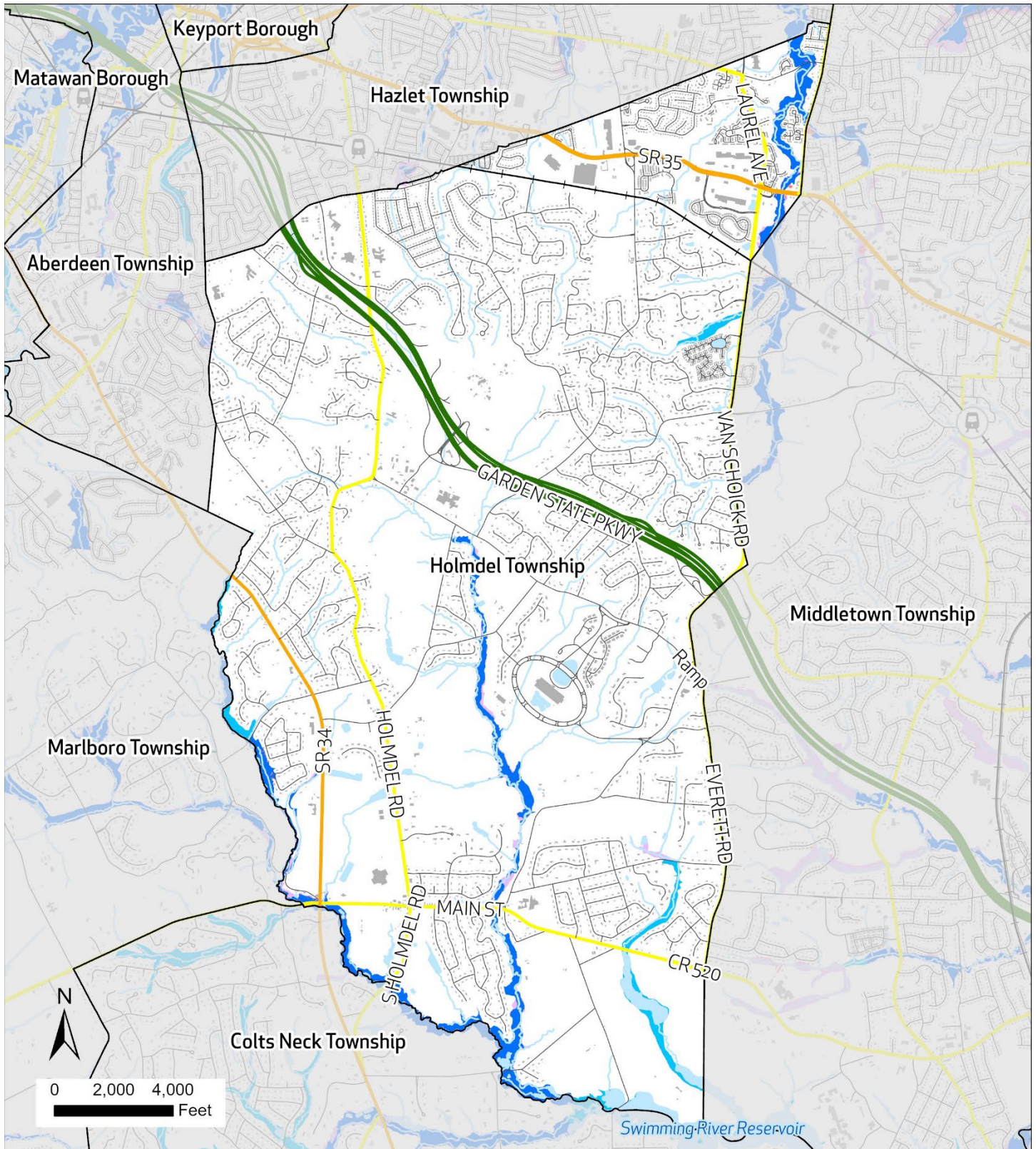
The Special Flood Hazard Area (SFHA) in the Township of Holmdel is primarily centered adjacent to the waterbodies of the borough; Hop and Willow Brooks, The Swimming River Reservoir, and Marlu Lake. Approximately 3.6 percent of the total area of Holmdel lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 69.0 percent of Holmdel is considered developed. Of the developed parcels of the town, 4.0 percent fall within the 1% annual chance flood zone and 0.2 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain
Developed Parcels	4%	0.2%
Community Lifelines and Critical Facilities	3.3%	0.0%
Exposed Land Area	3.6%	0.2%

During the planning process, Holmdel identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 33 total facilities. Of these facilities, 3 percent are within the 1% floodplain, and none are within the 0.2% floodplain.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	NA	NA	NA



Flood Risk Holmdel Township

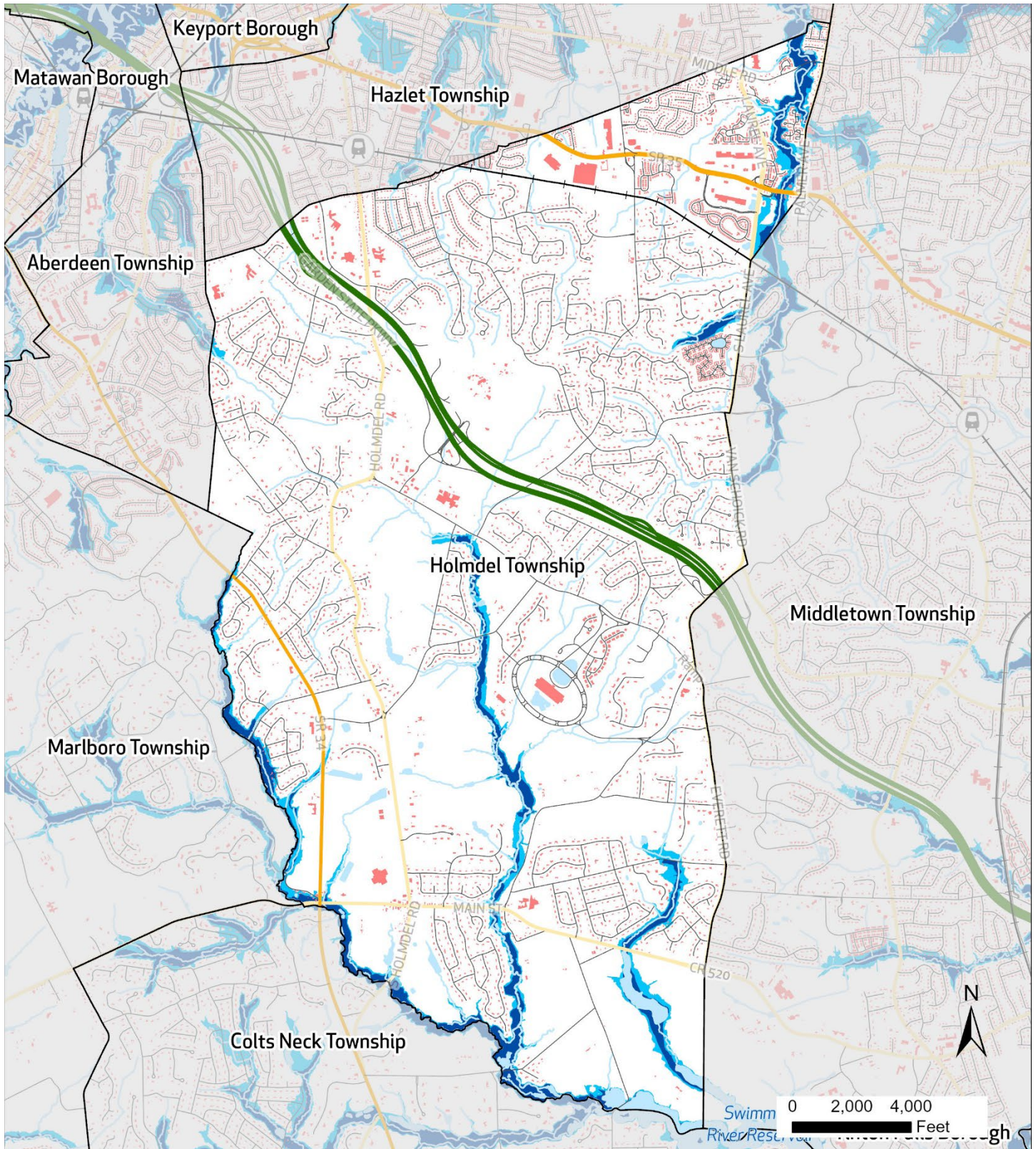
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Holmdel Township

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet



NJ Transit Rail Station



Rail Lines



Interstate Highways



State Routes



County Routes



Local Roads



Garden State Parkway



Municipal Boundaries

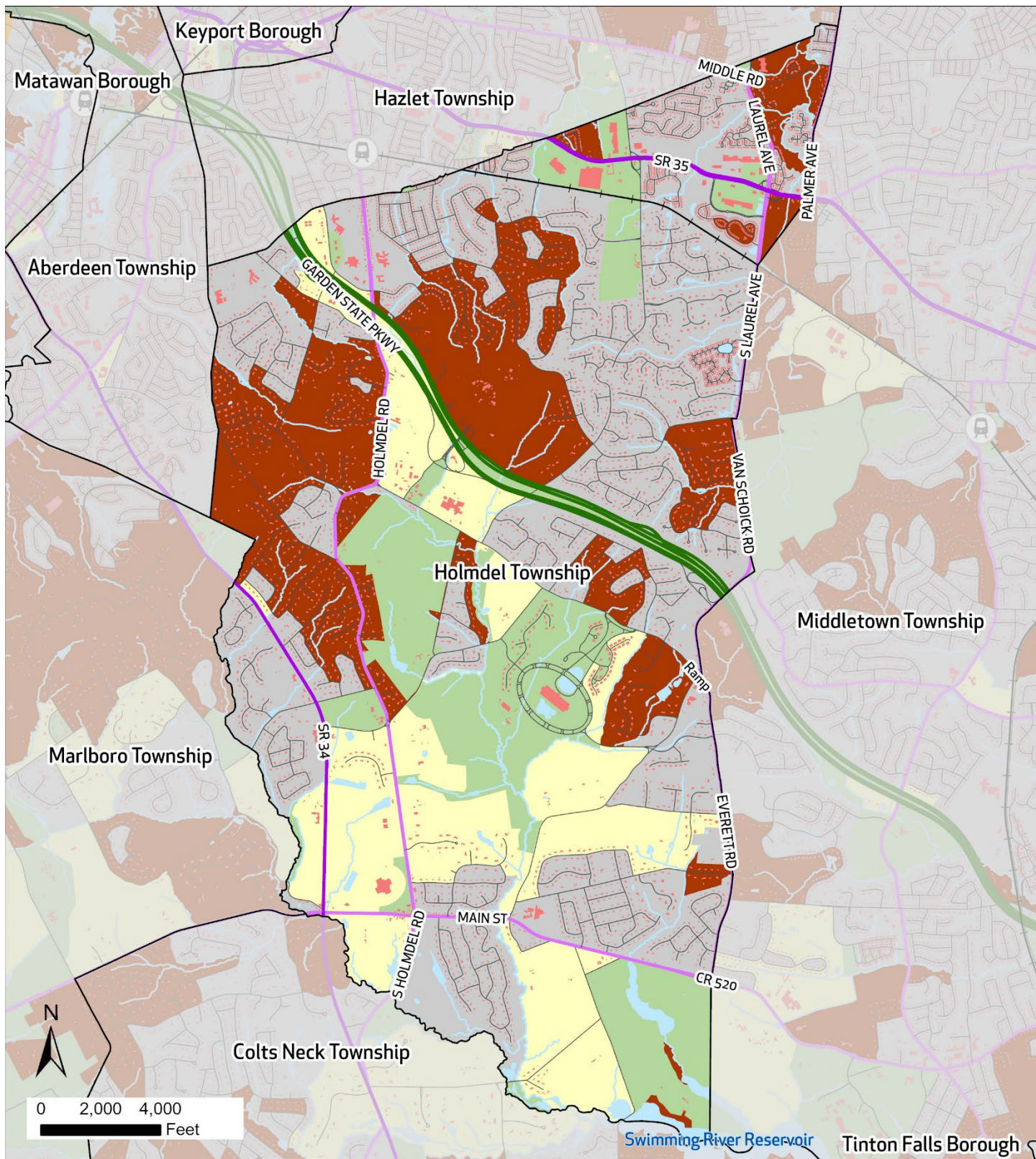


Building Footprint



Water

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification **Holmdel Township**

- | | | |
|--|--|--|
| Intermix | Garden State Parkway | Rail Lines |
| Medium and High Density Housing | Interstate Highways | NJTransit Rail Station |
| Low and Very Low Density Housing | State Routes | Municipal Boundaries |
| No Housing | County Routes | Building Footprint |
| | Local Roads | Water |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Holmdel Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2020	To be updated
Capital Improvement Plan	x		2024-2025	In progress
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024-2025	In progress
Floodplain Development Ordinance	X		2022	Handled by Community Development Office
Floodplain Management Plan	X		2022	Community Development Office
Stormwater Management Ordinance	X		2024	
Stormwater Management Plan	X		2024	Overseen by Township Engineers and Dept of Public Works
Watershed Management Plan		X	2024	Overseen by Township Engineers and Dept of Public Works
Sheltering Plan		X		Holmdel relies on Monmouth County
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			Dept of Public Works
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan				
Current/recent redevelopment plans or studies	X		2024	
Community Wildfire Protection Plan	X		2025	In progress
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Holmdel Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Community Development
Grant Writer	X		There are a number of Twp Employees task for grant writing
Staff trained to support mitigation	X		Construction, Fire Bureau, DPR and Police Department
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		FD / EMS, MRSSA, Gas Company, JCP&L
Organizations that work with socially vulnerable or underserved populations	X		CGP&H

Education and Outreach Capabilities

Holmdel Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Holmdel utilizes social media platforms and Code Red messaging
StormReady	X		Code Red
Firewise USA			
Severe Weather Awareness Week	X		Information disseminated through Holmdel OEM
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Holmdel Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance	X		Debris removal for Storm Isias 7/2020
FEMA HMGP		X	
Non-FEMA Federal Funding Programs			
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township of Holmdel is committed to becoming a community resilient to damage from natural disasters and climate concerns. The Township and its stakeholders have formed critical partnerships to develop plans and identify much-needed upgrades and changes. The Township recently completed a Stormwater Management survey and updated emergency response plans. We continue to prioritize areas for improvement and look for alternatives to achieve our goals. As the Township moves forward, we will maintain transparency with the community and will distribute plans as they are developed.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsib le Party	Potential Funding	Cost Estimate	Tim e- line	Action Status	Notes
Action 20-1	Purchase and Install Generators for Critical Facilities	Purchase and install generators for local gas stations and generators for traffic lights at high-traveled intersections.	All Hazards	N/A	Township Administration	FEMA HMA, DOT, Municipal budget	270,433	N/A	Completed	The Twp has generators at all critical sites
Action 20-2	Conduct a Fire Analysis Study	Develop a Fire Analysis Study to increase fire capabilities in southern Holmdel.	All Hazards	N/A	Township Planning and Fire	FEMA HMA, Municipal budget	3,805,545	N/A	Completed	New Firehouse was constructed by the Township
Action 20-3	Conduct Ongoing Maintenance of the Morrhoris Brook/Waycaake Creek	Desnagging and desilting Morrhoris Brook/Waycaake Creek.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	N/A	Township Engineering	Municipal budget	N/A	N/A	Completed	Monmouth County did desnag in 2023

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
Action 25-4	Flood Study revised 2024 by Twp Engineers	Identification of all areas in need of structural remediation or other mitigation	-120 Hazards throughout the township identified	High	Twp Engineer -	-FEMA HMA Municipal Budget	3,386,165	3years-	Ongoing	The study is currently being reviewed to set priorities on projects identified.
Action 25-5	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on	Elevation and/or Acquisition of Flood prone Residential Structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm	High	Mayor and Council	FEMA HMA	TBD on property	2 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties		Surge, Winter Storm							
Action 25-6	Conduct a Flood Mitigation Study for Route 35	An engineering study is needed to solve flooding along Route 35, specifically the commercial property of 2028 Highway 35.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Township Engineering	Municipal budget, DOT, FEMA HMA		2 years	Ongoing	This study is currently being conducted by the State Hwy Authority
Action 25-7	Target Harden Critical Facilities by Installing Surveillance Camera and Fencing	Install camera systems and secure fencing at all Township-owned parks, municipal buildings, schools, and pump stations. Additionally, coordinate with NJ American Water on how to secure their water treatment plant at Phyllis Park.	Terrorism	Medium	Township OEM	Homeland Security grants, Municipal budget	\$300,000	2 years	Ongoing	Town hasn't yet received funding approval to install the cameras
Action 25-8	Tree Trimming Maintenance Program	Create a tree trimming maintenance program and purchase new tree-trimming equipment.	Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Wildfire	Low	Township DPW	Municipal budget	15,000	2 years	Ongoing	Holmdel DPW trims all trees on Township owned property and buildings, yearly
Action 25-9	Construct Flood Measure (e.g. floodwalls or small berms) along Hop Brook	Use minor structural projects that are smaller and more localized (e.g., floodwalls or small berms) along Hop Brook.	Flood	High	Township Engineering	FEMA HMA	100,000	3 years	Ongoing	No progress has been made on this action since the last plan update.

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PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Paul Mazzeo	Police Captain / OEM Coordinator	Primary Point of Contact, Municipal Meeting #1, Municipal Meeting #2
Brian Prochnow	Chief Fire Inspector	Municipal Meeting #1
Matthew Howard	Director of Community Development/Deputy Township Manager	Municipal Meeting #2

COMMUNITY PROFILE

Overview

With a land area of 62.1 square miles, the Township of Howell stands as the largest municipality by land area in Monmouth County. Despite rapid residential and commercial development, Howell has a large network of active farmland, parks, and golf courses. The Township is home to the Manasquan Reservoir, which is the most visited park in the Monmouth County Parks System, with over 1 million visitors annually.

Howell hosts many major transportation routes, including Interstate 195, U.S. Route 9, State Routes 34 & 35, and County Routes 524, 547, & 549. Along Route 9, commuters can travel via Academy Bus Line and NJ TRANSIT. Free transportation is available to members of the Howell Senior Center to the Senior Center and affiliated outside activities.

Sustainability efforts thrive in Howell. The township's K-8 School District achieved silver level certification and Digital Schools Star recognition from Sustainable Jersey for Schools. This voluntary program exemplifies administration, teacher, and student commitment to integrating sustainability efforts in their school and through educational programs.

Land Use, Development, & Growth

In Howell Township, residential and publicly owned land constitutes a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 35 percent of the town's total area, closely followed by wetlands and forested land, which respectively accounted for 34 percent and 20 percent. From 2015 to 2020, although the Borough's developed land grew by 231 acres while its remaining land uses cumulatively diminished by 234 acres, its overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	2784.7	2732.7	-2%
Barren Land	440.3	376.0	-15%
Forest	7790.4	7715.9	-1%
Urban	13656.6	13888.3	2%
Water	1031.9	1034.7	>0%
Wetlands	13452.0	13408.4	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Similar to surrounding towns with access to Route 33 and I-195, a number of large warehouse developments have been proposed and approved over the past few years in response to the demands of growing e-commerce. The Township is seeking to balance economic development with public safety and quality-of-life concerns expressed by its residents.

The Views at Monmouth Manor, which was approved in March of 2022, includes 319 market units and 92 affordable units. The Regency at Allaire, an age restricted housing development was recently completed, including 155 total units. These are not located in the floodplain.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In 2020, the state Board of Public Utilities committed to the state’s plan to build a transmission system and will enter an agreement with PJM Interconnection (regional grid operator). This plan sets forth a goal to create offshore wind farms, and Howell was cited as a potential substation for injecting power into the grid.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Howell Township’s total estimated population is 53,479, of which an estimated 5.2% is under age 5 and 16.5% is over age 65. The Township has experienced an estimated 2.7% population growth in the periods between 2013-2017 and 2018-2022. With an aging population making up a large portion of their total community, Howell may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There is one block group in Howell which meets criteria as potentially overburdened (OBC) due to indicators of *Minority* populations. There are no parts of the Township which are designated as CEJST or CDRZ tracts.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	53,479
Population Change since 2017	2.7%
Percent of Population Age < 5	5.2%
Percent of Population > 65	16.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperature	Lightning
Flood	Extreme Wind	Coastal Erosion – N/A
Wildfire	Hurricane/ Tropical Storm	Landslide – N/A
	Tornado	Drought
	Winter Storm	Earthquake
	Dam Failure	
Human-made Hazards		
Pandemic	Civil Unrest	
Power Failure	Cyber Attack	
	Economic Disruption	
	Terrorism	

The Township ranked Coastal Erosion, Landslide, Storm Surge, and Wave Action as N/A.

Hazard Ranking Explanation

Dam failure has moved up from low in the last HMP update to medium. This is primarily due to the age of existing dams. Civil disturbance has also moved up from low to medium as there have been a couple of demonstrations in the past five years. There was no significant damage, but it required extensive police resources. Landslide and storm surges have moved to not applicable due to the Township's general geography and topography. Power failure is a high concern for the Township as municipal infrastructure is weakening. The Township loses power at a substation every week.

Significant Hazard Events Since Last Plan Update

The most significant hazards in the past five years have been tornadoes and flooding, both causing property damage. Four tornadoes have struck since the last plan update, affecting commercial properties and houses. Flooding has primarily been caused by beavers building dams, rather than by issues related to topography or stormwater management. The Township has purchased some homes that had recurrent flooding due to these animal activities. There is also serious concern about the reservoir; if it were to break, it would release all its water and inundate the Township.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Howell Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and extreme temperatures are likely to increase. This will exacerbate existing vulnerabilities, particularly in flood-prone areas. The township's infrastructure, including critical facilities located within floodplains, will face heightened risks of damage and disruption. Additionally, the aging population in Howell Township may experience increased health risks during extreme weather events, necessitating robust evacuation plans and resilient networks for resource accessibility.

Moreover, climate change will likely lead to more frequent and severe droughts, which can strain water resources and increase the risk of wildfires. The township's efforts to balance economic development with public safety will become more challenging as the impacts of climate change intensify. Proactive measures, such as enhancing stormwater management systems, protecting critical facilities, and improving communication and education on hazard risks, will be essential to mitigate the adverse effects of climate change on Howell Township.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Howell Township	
Initial FIRM	1/6/1983
Effective FIRM	9/25/2009
Number of Policies In-Force:	108
Total Losses:	45
Total Payments:	\$526,567.29
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	5
RL – Total Paid:	\$63,948.47
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

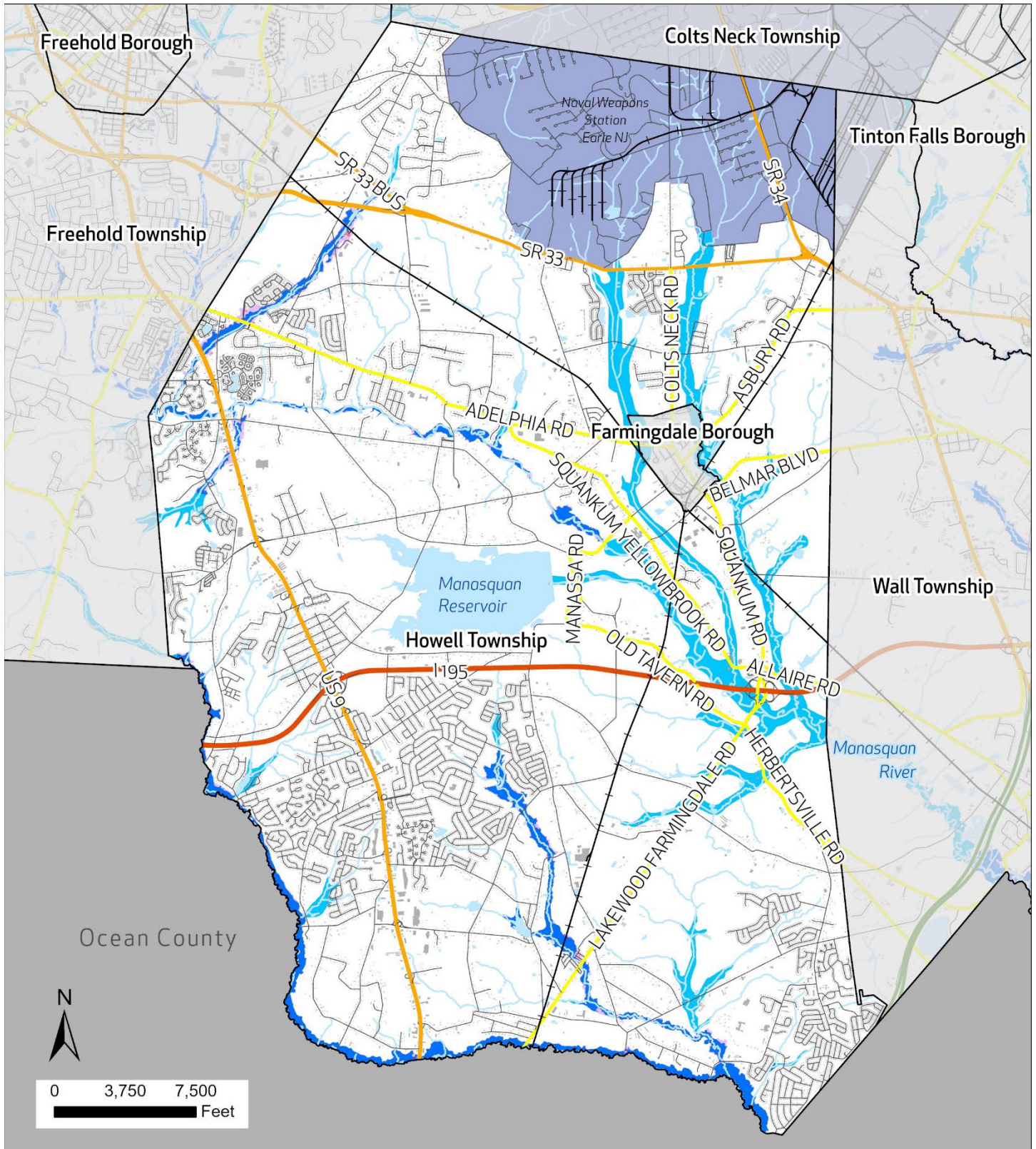
The Special Flood Hazard Area (SFHA) in the Township of Howell is primarily centered adjacent to the waterbodies of the borough the Manasquan and Metedeconk Rivers and their smaller tributaries. Approximately 8.2 percent of the total area of Howell lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.4 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 61.0 percent of Howell is considered developed. Of the developed parcels of the town, 2.9 percent fall within the 1% annual chance flood zone and 0.2 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.9%	0.2%	NA
Exposed Land Area	8.2%	0.4%	NA

During the planning process, Howell identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 76 total facilities. Of these facilities, eight are located within the floodplain. This includes facilities in the Safety and Security and Water Systems community lifelines categories.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	-	NA
Water Systems	7	-	NA



Flood Risk Howell Township

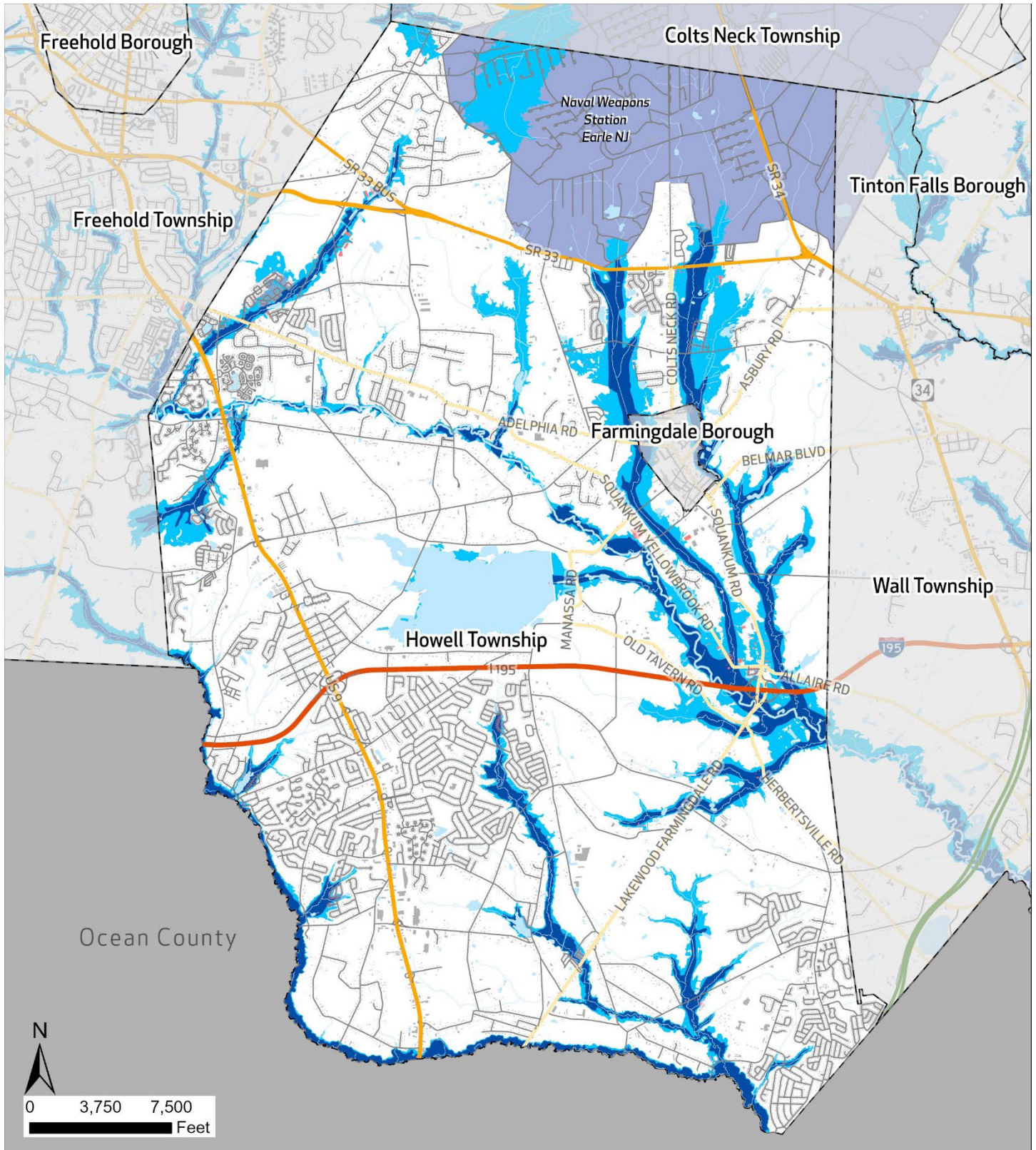
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Howell Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Railroad

Municipal Boundaries

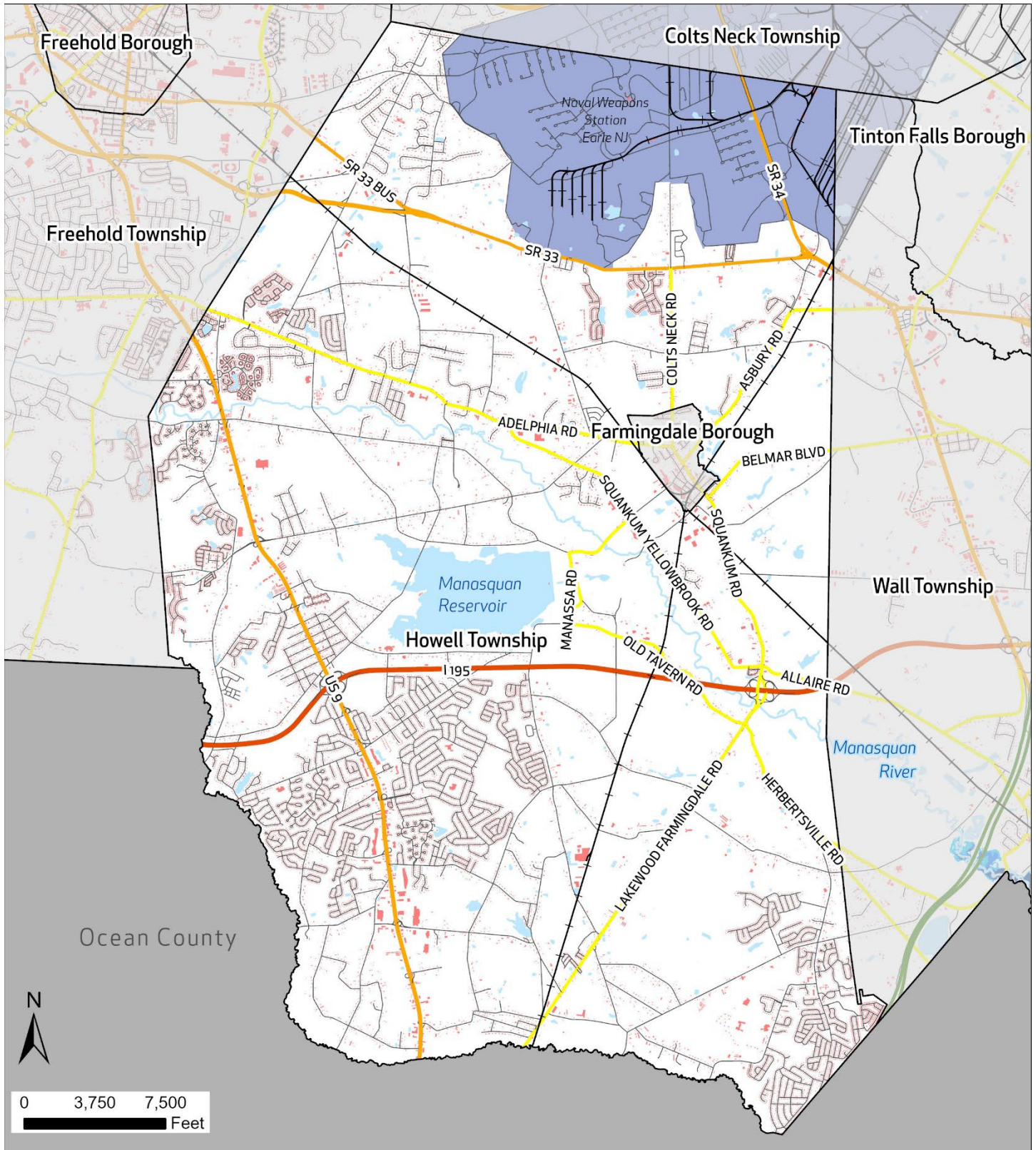
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

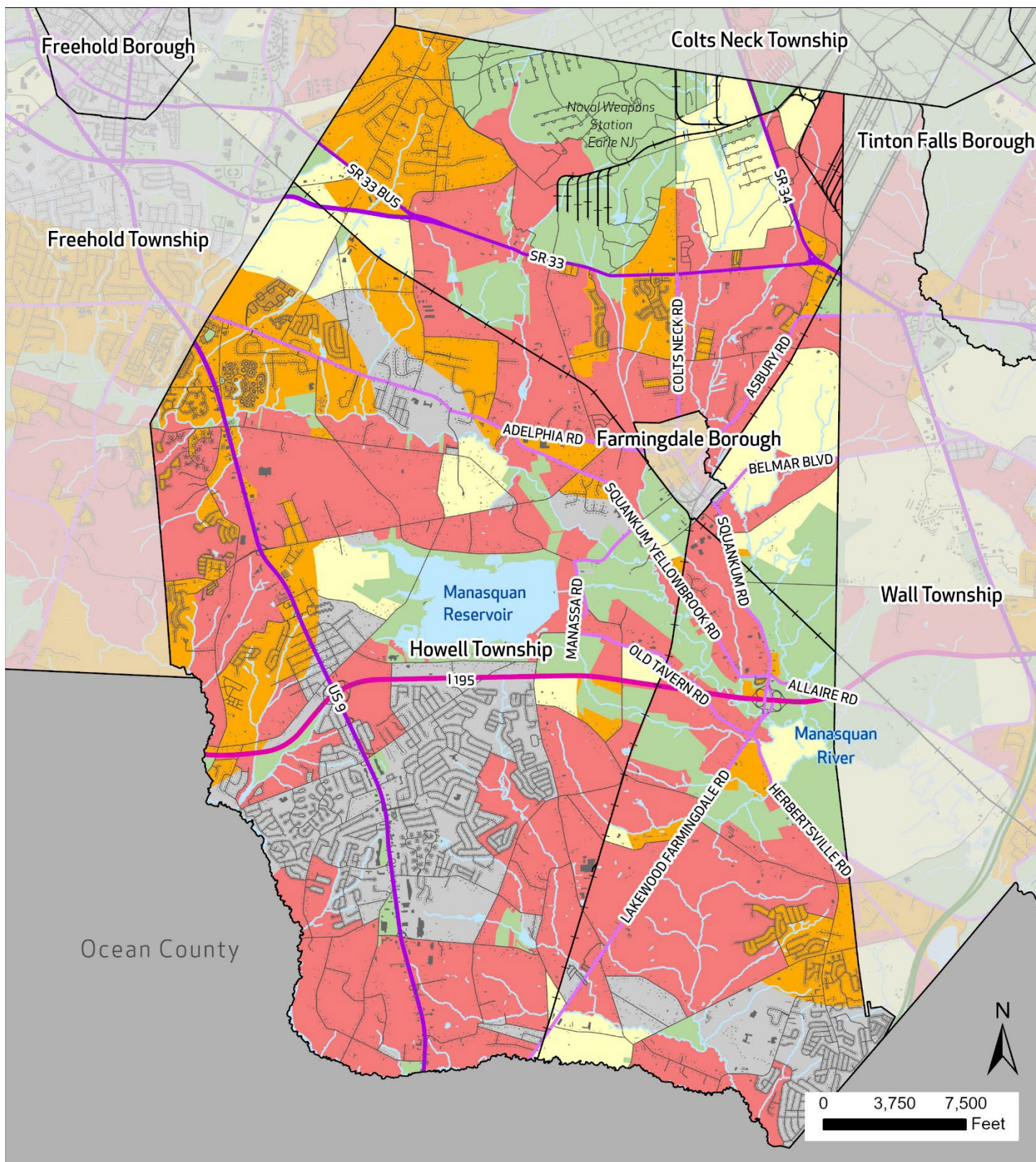
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios Howell Township

- | | | |
|---|--|--|
| Area Inundated Under 2 Feet SLR | Garden State Parkway | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | Interstate Highways | Building Footprint |
| Area Inundated Under 5 Feet SLR | State Routes | Water |
| | County Routes | Department of Defense Land |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Howell Township

- | | | |
|---|---|--|
| Interface | Garden State Parkway | Municipal Boundaries |
| Intermix | State Hwy | Building Footprint |
| High or Medium Density Housing | Interstate Highways | Water |
| Low or Very Low Density Housing | State Routes | |
| No Housing | County Routes | |
| | Local Roads | |
| | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Howell Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		11/18/2019	Recently updated to include storm resiliency, smart growth, environmental sustainability section in 2022 (Land Use Element update, April 2024)
Capital Improvement Plan	X		Annually	Determines funding for capital projects to upgrade our infrastructure .
Local Emergency Operations Plan/Continuity of Operations Plan	X		9/19/26	Addresses how the community will respond to disasters.
Floodplain Development Ordinance	X		7/12/2022	Controls all development in regulated floodways and floodplains
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		6/11/2024	Ensures all development is within State stormwater regulations
Stormwater Management Plan	X		May 2007	Plan to manage stormwater runoff.
Watershed Management Plan		X		
Sheltering Plan	X		9/19/26	Annex N of EOP
Evacuation Plan			9/19/26	Annex F of EOP
Substantial Damage/Improved Structures Response	X		9/19/26	Annex B of EOP
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		9/19/26	Annex K of EOP
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan	X		2015	Currently being updated by NJFFS. This will outline a plan to reduce our risk of wildfires through a maintenance plan of heavily vegetative areas.
Climate Adaptation Plan	X		April 2024	Climate Change Vulnerability Assessment with Land Use Element
Other Plans that discusses hazard mitigation	X			Next Steps to Compatibility Planning Study, Monmouth County, New Jersey (2022) encourages compatible development within the NWS Earle's Military Influence Area. Among the environmental constraints are natural hazards including wildfire, flooding, and storm surge. Additionally, in 2023, Howell adopted a new farmland preservation plan.
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Howell Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Todd Morgano, Construction Official
Grant Writer	X		Colliers Engineering
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Howell Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Use of the Everbridge System to communicate public alerts.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week	X		Display table at Township Municipal Building with information on hazardous weather. Social Media postings.
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Howell Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		\$10,000 EMMA Grant Assistance for OEM Staff
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township of Howell is consistently working on mitigation strategies to build a sustainable and resilient community. Our efforts are to improve and build-upon our current infrastructure to make us better prepared for both man-made and natural disasters. Through a collaborative effort with our stakeholders, we have identified threats and hazards and developed the following strategies to mitigate any damage that may occur to our community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
21-1	Purchase and Install Generators for Critical Facilities to Continue Emergency Services During Storms	Power for essential equipment to sustain Continuity of Operations during hazards that cause loss of power.	All Hazards	Medium	HTOEM, HTPD, HTDPW	FEMA HMA	\$100,000.00	1 year	Completed	Complete. Town hall, EMS, the Police Department, and DPW all have generators.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
21-2	Increase Hazard Education and Risk Awareness for Residents	Mass mailing to all residents to obtain contact info of all residents (email list) for constant contact, updates, and education of Township operations regarding emergencies.	All Hazards	Medium	OEM Coordinator	Local budget	\$20,000.00	1 year	Ongoing	Continuous. The township uses Everbridge and a new platform for tornado warnings.
21-3	Protect Critical Facilities Used for Sheltering from Terrorism and Flooding	Physically harden shelters by shielding windows, adding sandbags, adding embankments. Internally will add communication capabilities, add additional emergency supplies (first aid, water, cots, MREs,ec). Added element of this action is for backup generator	All Hazards	Medium	HTOEM	POMP, FMAP, EMPG, HLS, FEMA HMA	\$120,000.00	1 year	Ongoing	The police station and courthouse were targeted hardened.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
21-4	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties in the Mariners Cove Neighborhood	Elevate structures to current FEMA FIRMS, specifically RL/SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	HTOEM	FEMA HMA	\$3M	1 year	Ongoing	Some homes were purchased through grant funding.
21-5	Improve Communication for Critical Facilities	Improve communications of EOC and Dispatch. EOC needs communication equipment including all office equipment, and the Redundant Dispatch system needs to be upgraded.	All Hazards	Medium	HTOEM, HTPD	Municipal budget	\$1.3M	1 year	Ongoing	Need building antennas and a new communication system.
21-6	Continue to Provide Safe Drinking Water to Residents During Power Outages	During outages, contaminated water needs to be purified and potable to disseminate to residents in shelters and all other needed areas so backup systems are needed to sustain purified water.	All Hazards	Medium	HTOEM, Health, American Water, Brick MUA	Municipal budget	\$500,000	1 year	Ongoing	Storage of water and use prior to its shelf life is a concern. Contracts to provide potable water to be looked into.
21-7	Develop a Study on the Need for Transportation of Vulnerable Populations during Emergencies	Develop a study that assesses if there is a need for transportation of elderly populations during emergencies.	All Hazards	Medium	HTOEM, HTPD	DCA	\$2,000	1 year	Ongoing	A couple of large senior centers and assisted living homes have their plans. The largest senior population is currently at The Villages.
21-8	Develop a Wildfire and Trail Maintenance Plan	Proper burning of underbrush and the removal of fallen trees along park trails will reduce the risk of wildfire.	Wildfire	Medium	HTOEM, HTPD, Fire, NJ State Forest Fire	FEMA HMA, Municipal budget	Staff Time	1 year	Ongoing	Currently re-writing the NJFF plan.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
21-9	Coordinate with NWS Earle on Emergency Response Protocol	NWS Earle is the largest hazard and there is no coordination or training for emergency response.	All Hazards	Medium	HTOEM, HTPD	Homeland Security funding, County funding, Municipal funding	Staff Time	1 year	Ongoing	Use the MCOEM to bridge a meeting.
21-10	Install Transfer Switches for Intersections along Route 9 and Route 33	There have been four backup batteries installed for lights at intersections along Route 9 but seven more lights at intersections need the backup battery.	All Hazards	High	HTOEM, HTPD	FEMA HMA, DOT, Homeland Security	\$100,000	1 year	Ongoing	Need NJDOT approval and awaiting NJDOT to install a new light on Rt 33 and Yellowbrook.
21-11	Conduct Routine Debris Removal and Develop a Floodplain Management Plan for Stream Corridors	There needs to be a Debris Removal and Floodplain Management Plan conducted to assess how to mitigate flooding along stream corridors.	Flood, Nor'easter, Hurricane and Tropical Storm	High	HTOEM, HTPD	Municipal budget	\$500,000	1 year	Ongoing	Additional funding needed to clean out and open up streams.
21-12	Repair, Remove, or Rehabilitate the Echo Lake Dam, Lake Louise Dam, and Manasquan Reservoir Dam	Repair, remove, or rehabilitate the Echo Lake Dam, Lake Louise Dam, and Manasquan Reservoir Dam -all High-Hazard Potential Dams.	Dam Failure	High	New Jersey Water Supply Authority (Manasquan Reservoir Dam) and Howell Township (Echo Lake Dam and Lake Louise Dam)	Lake Louise Dam is eligible FEMA's National Dam Safety Program	\$1.1M	2 years	Ongoing	Lake Louise Dam is the only dam that has been fully rehabilitated in the last 5 years (source: NJDEP).
21-13	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas. Prioritize the slope of Manasquan River which is undercutting the road.	Landslide	Low	Township	Municipal funding		3 years	Ongoing	NJ American Water Company owns/operates the dam.
21-14	Add new drainage on low-laying roads for improved drainage.	Add new drainage on low-laying roads within the Township, including but not limited to Fairfield Rd. & Pinewood Estates.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Township	Municipal Funding	\$1.5M	5 years	New	Fairfield Rd to be completed by a private contractor who is building in this area.

22 – INTERLAKEN BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
William Hulse	OEM Coordinator/ Captain of Police	Point of Contact, Municipal Workshop #2
Nicholas Dowling	Deputy OEM Coordinator/Detective	Municipal Workshop #2
Samuel Avakian	Borough Engineer	Municipal Workshop #2

COMMUNITY PROFILE

Overview

Partially located on a small peninsula along the shores of Deal Lake, Interlaken is aptly named after a resort in Switzerland with similar water features. The borough encompasses a total land area of 0.38 square miles and has no commercial or business district. The Main Street Bridge (County Bridge O-11), which connects Interlaken to Loch Arbour, was replaced in 2016. The project included the construction of a new roundabout at the intersection of Main Street and Grassmere Avenue (County Route 15). NJDOT rehabilitated the railroad crossing adjacent to the roundabout for safer and smoother crossings.

Interlaken remains strictly a residential community, as originally intended by its developers. The east-west, tree-lined avenues were named after lakes in England's northern district and cross streets were named from the Scottish Hebrides islands located in the Irish Sea. To protect the Deal Lake ecosystem, the Borough established an arboretum along the lakefront. The Deal Lake Commission seeks to expand the arboretum, renovate the lakefront, and develop pocket parks along the lake shore.

Land Use, Development, & Growth

Interlaken is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 77 percent of its total area, and water and wetlands making up 22 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	0.0	0.0	>0%
Barren Land	0.0	0.0	>0%
Forest	1.7	1.7	>0%
Urban	196.7	196.7	>0%
Water	42.9	42.9	>0%
Wetlands	13.3	13.3	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None since 2020.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The Borough of Interlaken has historically maintained its single-family residential neighborhood character. Nearly fully developed, projections of population, household, and job growth suggest little change in the near future.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A

community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Interlaken has an estimated total population of 762. Of this population, an estimated 5.2% is under age 5, and nearly 33% (32.94%) is over age 65. The Borough experienced a population decline in the periods between ACS surveys (2013-2017 and 2018-2022), seeing an estimated -7.6% loss during this time. With an aging population making up a third of their total community, Interlaken may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. A nearly eight percent loss in total population over the five-year survey period should be assessed for impacts on de-densification or change in the built environment leading to heightened vulnerability to future disasters.

There are no portions of the Borough which meet designation criteria for CDRZ, CEJST, or OBC identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	762
Population Change since 2017	-7.6%
Percent of Population Age < 5	5.2%
Percent of Population > 65	32.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Nor’easter	Extreme Wind	Earthquake
Flood	Tornado	Wildfire
Storm Surge	Winter Storm	Drought
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Pandemic	
	Terrorism	

The Borough ranked Coastal Erosion, Dam Failure, Landslide and Wave Action as N/A.

Hazard Ranking Explanation

No hazards have seen significant changes in the risks they pose to the community. Hurricanes, tropical storms, nor'easters, floods, and storm surges all remain high hazards of concern. Flooding has been the largest concern. Interlaken started to experience more flooding over the summer of 2024 due to cloud bursts, although no events resulted in significant damage. This flooding primarily occurs around Grassmere Avenue, which often faces substantial flooding. Crawford Circle was redone in 2024 to help alleviate some of the flooding. Cyber-attacks and economic disruptions remain medium risks as they are ongoing and, if an event were to occur, it would cause significant disruption.

Significant Hazard Events Since Last Plan Update

There have been no hazards resulting in significant damage in the last five years; however, there have been some disruptions regarding flooding. Grassmere Avenue often experiences significant flooding. Although the flooding does not affect the houses along the avenue, the entire road floods. Crawford Circle also used to flood significantly but was redone to help alleviate some of the flooding. In September 2024, a significant storm resulted in flooding due to a large amount of rain in a short time, causing the water to have nowhere to exit.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Interlaken Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and extreme temperatures are likely to increase. This will exacerbate existing vulnerabilities, particularly in flood-prone areas like Grassmere Avenue, which already experiences substantial flooding¹. The borough's infrastructure, including critical facilities, will face heightened risks of damage and disruption. Additionally, the aging population in Interlaken Borough, with nearly 33% of residents over age 65, may experience increased health risks during extreme weather events, necessitating robust evacuation plans and resilient networks for resource accessibility¹.

Moreover, climate change will likely lead to more frequent and severe droughts, which can strain water resources and increase the risk of wildfires. The borough's efforts to balance residential development with public safety will become more challenging as the impacts of climate change intensify. Proactive measures, such as enhancing stormwater management systems, protecting critical facilities, and improving communication and education on hazard risks, will be essential to mitigate the adverse effects of climate change on Interlaken Borough.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Interlaken Borough	
Initial FIRM	3/15/1974
Effective FIRM	1/2/1981
Number of Policies In-Force:	12
Total Losses:	18
Total Payments:	\$186,687.31
Number of RL Properties:	2
Number of Mitigated RL Properties:	0
RL – Total Losses:	4
RL – Total Paid:	\$74,333.80
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

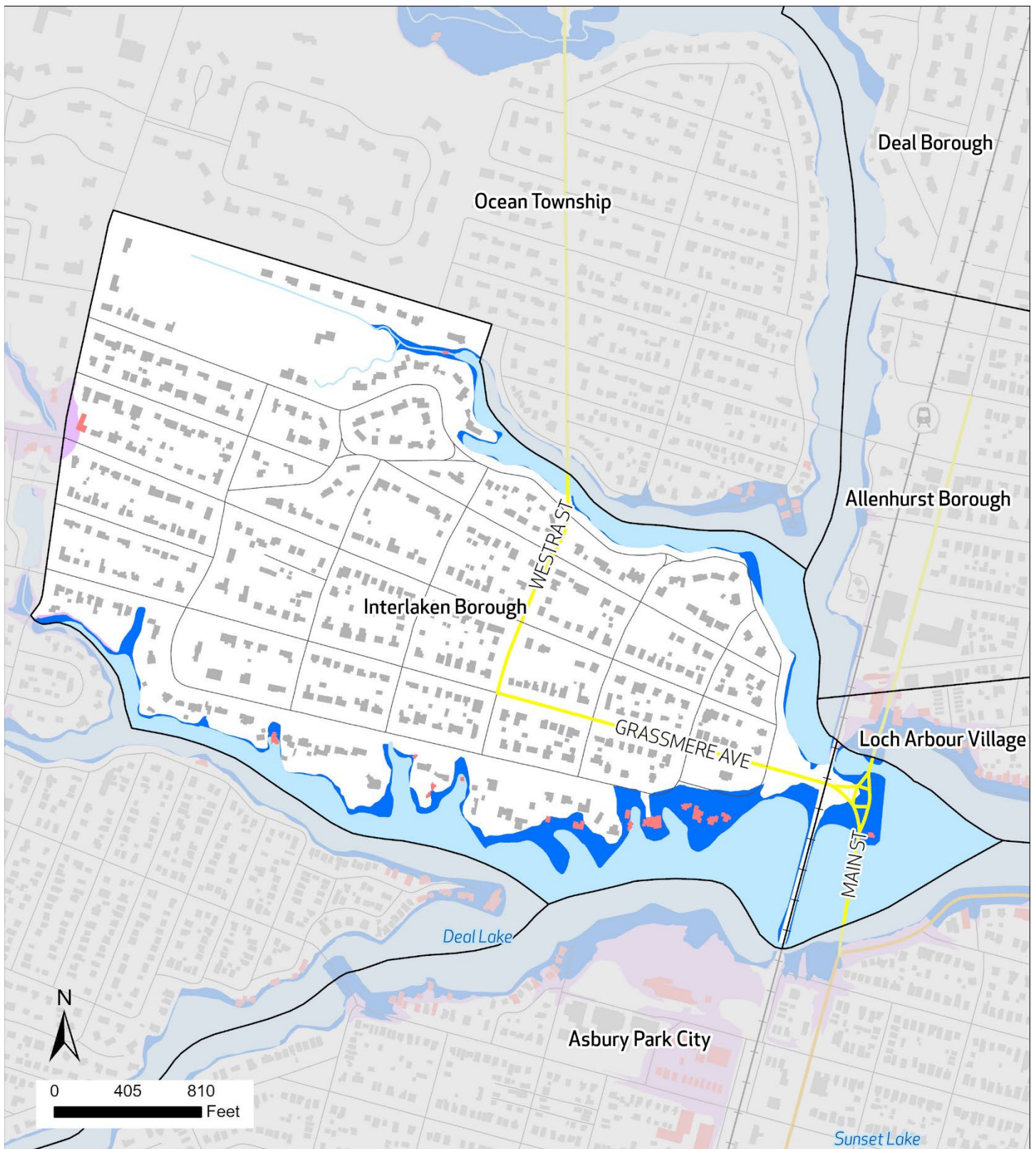
The Special Flood Hazard Area (SFHA) in the Borough of Interlaken I is primarily centered adjacent to the main waterbody, Deal Lake. Approximately 22.1 percent of the total area of Interlaken lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 93.8 percent of Interlaken is considered developed. Of the developed parcels of the town, 14.5 percent fall within the 1% annual chance flood zone and 0.7 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	14.5%	0.7%	NA
Exposed Land Area	22.1%	0.3%	NA

During the planning process, Interlaken identified community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 2 total facilities. Of these facilities, none are within the floodplain or area projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	NA



Flood Risk

Interlaken Borough

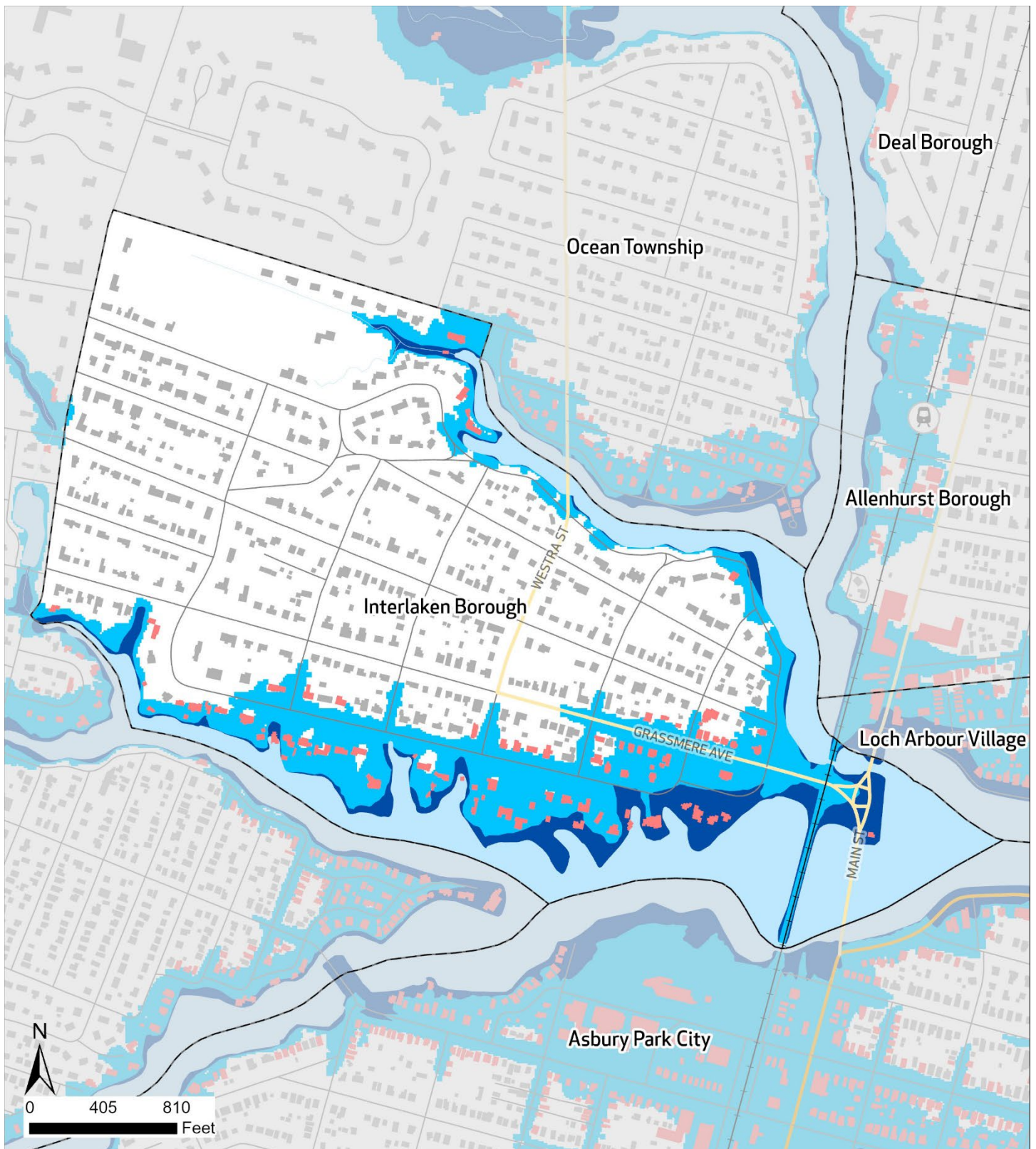
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)

- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Interlaken Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

— Railroad

○ NJ Transit Rail Station

— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Interlaken Borough

- High or Medium Density Housing
- No Housing

- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Interlaken Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		10-1-2015	Integrating risk assessments, land use strategies, and resilient infrastructure planning to reduce vulnerabilities and enhance community preparedness.
Capital Improvement Plan	X		4-15-2022	Prioritize roads that act as a major travel way in case of an emergency.
Local Emergency Operations Plan/Continuity of Operations Plan	X		1-26-2025	
Floodplain Development Ordinance	X		6-30-2024	Restricts high-risk construction, promoting resilient building practices, and preserving natural floodplain functions to reduce flood damage and protect communities.
Floodplain Management Plan	X		6-30-2024	See Above.
Stormwater Management Ordinance	X		6-30-2024	Improving drainage systems, reducing flood risks, and enhancing water quality to protect infrastructure and communities from storm-related impacts.
Stormwater Management Plan	X		6-30-2024	See Above.
Watershed Management Plan		X		
Sheltering Plan	X		1-26-2025	
Evacuation Plan	X		1-26-2025	
Substantial Damage/Improved Structures Response	X		1-26-2025	
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X		1-1-2025	Floodplain manager reviews application for conformance.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			The Borough places a high priority on tree preservation to preserve its community character. In 2016, the Borough received funding to hire a forester to inventory all the trees within the Borough and make recommendations on maintaining this resource. This effort led to the adoption of a tree preservation ordinance in 2020 designed to prevent indiscriminate, uncontrolled, and excessive destruction, removal, and clear cutting of trees to maintain borough's aesthetic character and prevent erosion.

Administrative and Technical Capabilities

Interlaken Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Leon S. Avakian Inc.
Grant Writer	X		Leon S. Avakian Inc.
Staff trained to support mitigation	X		Interlaken OEM
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Interlaken Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Nixle
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Interlaken Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since the 2021 plan update, the Borough of Interlaken has focused on strengthening flood resilience, improving stormwater infrastructure, and enhancing emergency preparedness to mitigate natural hazard risks. Key initiatives have included upgrades to drainage systems, reinforcement of coastal barriers, and improved coordination for emergency response efforts. Over the next five years, Interlaken will prioritize shoreline flood mitigation, roadway elevations along critical access routes, and investments in sustainable stormwater management to address increasing climate challenges. These proactive measures will help protect residents, reduce property damage, and ensure long-term community resilience.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	The Brough has no completed or withdrawn actions since the last plan update.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
22-1	Systematically Conduct Upgrades and Improvements to Sewer Systems, Stormwater Systems, and Outflow Pipes	Over the course of several years, systematically make upgrades and improvements to sewer systems, storm water management systems, and outflow pipes. These improvements will increase capacity, will reduce blockage, and outflow pipes will be retrofitted with back/low valves.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator overseeing engineering firm	Sewer Taxes/Local Budget	\$1M	2 years	Ongoing	This will allow that no infiltration be exposed to the system and that stormwater management is maintained on individual lots.
22-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevation and/or acquisition of flood-prone residential structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List and Severe Repetitive Loss List. New Jersey is committed to continuing the reduction of RL and SRL properties in the State; in turn, they have assigned a	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Engineer	FEMA HMA	TBD	1 year	Ongoing	With the Village having control over the beach club property, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed. We are committed to supporting these projects as interested homeowners come forward and will support such homeowners, despite the loss in tax revenue, because we recognize the importance of making

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		high priority to mitigating SRL and RL properties in the State Hazard Mitigation Plan.								our community more disaster-resistant and reducing the financial burden of repetitive flooding in our community.
22-3	Construct Flood Measure (e.g. floodwalls or small berms) along Deal Lake	Use minor structural projects that are smaller and more localized (e.g., floodwalls or small berms) along Deal Lake, which causes repetitive flooding in the Borough.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Engineering	FEMA HMA	\$200,000	3 years	Ongoing	The creation of a berm would create a damming situation along the Village property to create more capacity in the lake.
22-4	Construct strengthened bulkhead along with Loch Arbour Village and City of Asbury Park	Strengthen flood resilience along Deal Lake with a fortified bulkhead. Collaboration with surrounding municipalities ensures cost-effectiveness and durability.	Flood, Nor'easter, Hurricane and Tropical Storm		Loch Arbour Village, Interlaken Borough, City of Asbury Park	FEMA HMA	\$2,000,000	3 years	New	The raising of the bulkhead would create a damming situation along the Village property to create more capacity in the lake.
22-5	Deal Lake Dredging	Deal Lake plays a crucial role in stormwater management for surrounding communities. Dredging increases its capacity to store and convey stormwater, reducing the risk of flooding during heavy rains and protecting local infrastructure.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough, Deal Lake Commission	Municipal funds, Deal Lake Commission	\$1,000,000	3 years	New	Dredging the lake will allow for more capacity in the lake. During a storm event, moving the water off of the road and into the body of water. Regular dredging complements broader lake management strategies, such as shoreline restoration and vegetation control. It sets the stage for sustainable practices that maintain the lake's ecological and recreational value. Dredging removes sediments laden with nutrients, such as phosphorus and nitrogen, that contribute to algal blooms. These blooms deplete oxygen levels, harm aquatic life, and degrade the lake's water quality. Cleaner water supports biodiversity and recreational uses.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
22-6	Crawford Circle Drainage Improvements	Upsizing the storm drainage pipe under Crawford Circle is a crucial step toward improving the stormwater management infrastructure in the area. By increasing the capacity of the pipe, this project will reduce the risk of localized flooding during heavy rainfall events and enhance the overall drainage efficiency. The upgraded pipe will align with county regulations, ensuring compliance with modern standards for stormwater conveyance and environmental protection.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Mid	Borough	Borough	\$400,000	3-5 Years	New	<p>This will allow for more efficient stormwater management in an area that is high priority as a roadway utilized in a evacuation. There is flooding experienced during storm events that need to be addressed.</p> <p>This improvement will also help mitigate potential damage to roadways, properties, and adjacent infrastructure caused by overflow or insufficient drainage. In addition, the project supports long-term sustainability by accommodating anticipated increases in stormwater volume due to changing climate conditions. By addressing this critical issue proactively, the community can achieve a safer, more resilient, and environmentally compliant drainage system.</p>

23 – KEANSBURG BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Chris Hoffe	OEM Coordinator	Point of Contact, Municipal Workshop 10/28/2024
Ginger Rogan	Deputy OEM Coordinator	Municipal Workshop 10/28/2024
Robert F Yuro, PE	T&M Associates – Borough Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

Coined the “Gem of the Bayshore,” the Borough of Keansburg is 0.95 square miles on the Raritan Bay. With over two miles of beachfront, Keansburg contains the longest stretch of publicly accessible waterfront in the Bayshore region. Commercial activity is primarily located in the Borough’s downtown and waterfront areas, with the main attractions being Keansburg Amusement and Runaway Rapids Waterpark.

Due to Keansburg’s flat topography, the storm surge from Superstorm Sandy breached the protective dunes along Raritan Bay causing significant flooding and damaging approximately 1,500 properties. In 2018, a 186-unit mixed-use mixed-income rental apartment complex on Beachway Avenue was completed. The project includes commercial space and a public plaza overlooking Raritan Bay. It received funding from the Fund for Restoration of Multifamily Housing program, which was created in response to Superstorm Sandy. The program provides developers with low interest loans to finance the construction of affordable housing.

In July of 2020, Keansburg adopted a redevelopment study and preliminary investigation report that was prepared for a 15-acre area located at the northern end of Carr Avenue, which was significantly damaged by Sandy. Rebuilding initiatives have included repairing the Borough’s police station, beach replenishment, waterfront dredging, and building earthen levees.

In the fall of 2020, graduate students from the Bloustein School at Rutgers University completed the “A More Resilient Keansburg” report that is intended to help the Borough develop a municipal resilience plan. The report includes a flood risk assessment highlighting the areas in Keansburg most at-risk to flooding, a social vulnerability assessment, as well as an evaluation of whether Keansburg’s vulnerable populations face different risks from coastal flooding as compared to the community as a whole. \$3.2 million in disaster relief funding has been allocated for flood control re-evaluation for projects in Keansburg and its neighboring communities.

Land Use, Development, & Growth

Keansburg is a predominantly residential community and most of its land is developed. From 2015 to 2020, urban or developed land accounted for nearly 83 percent of its total area, while wetlands and barren land accounted for 10 percent and five percent respectively. Since 2015, although agricultural land, wetlands and water bodies declined marginally, the overall land use composition has remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	52.9	35.1	-34%
Forest	8.0	8.0	>0%
Urban	641.0	646.3	1%
Water	15.3	11.6	-24%
Wetlands	59.3	75.5	27%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In July 2021, Keansburg adopted a redevelopment study and a preliminary investigation report for a 15-acre area located at the northern end of Carr Avenue, which was significantly damaged by Superstorm Sandy. Rebuilding initiatives have included repairing the Borough's police station, beach replenishment, waterfront dredging, and building earthen levees. The redevelopment plans indicate the construction of 700 luxury apartment units, 45,000 square feet of restaurant, entertainment and retail space, and 1,000 parking spaces to Carr and Beachway Avenues. The County turned over jurisdiction of the northerly section of Carr Avenue to the Borough, thus allowing redevelopment in this area to closely follow the existing, narrow road configuration. In addition, Keansburg welcomed several new restaurants and a brewery to its waterfront district. Notably, 20 homes in the Borough were elevated and 3 buildings in Beachway were raised above basic flood elevation. Nearly the entire Borough falls within FEMA's 1% and 0.2% annual chance floodplain zone, and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

One building is planned at Carr Avenue. Eight additional buildings near Carr Avenue are in the works. These will be mixed use and built to minimize damage per NFIP and state standards.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Keansburg has a total estimated population of 9,761. The Borough's residents are estimated to be 3.1% under 5 years old, and 12.8% over age 65. Keansburg saw a slight population decline over the periods between 2013-2017 and 2018-2022, losing an estimated -1.1% of its population. With an aging population making up nearly thirteen percent of their total community, Keansburg may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are five block groups meeting criteria as overburdened (OBC) according to the state of New Jersey, with two block groups identified as *Low Income* and three block groups identified as home to *Low Income and Minority* populations which may be overburdened. There is one tract identified by CEJST criteria of *Climate Change, Housing, Transportation, Water and Wastewater*, and *Workforce Development* characteristics.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	9,761
Population Change since 2017	-1.1%
Percent of Population Age < 5	3.1%
Percent of Population > 65	12.8%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Coastal Erosion	
	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Due to the location of the Borough of Keansburg, the highest ranked hazards are hurricanes, tropical storms, nor'easters, floods, and storm surges. These hazards can cause significant damage to infrastructure, disrupt daily life, and pose severe risks to public safety. Comprehensive emergency plans and community preparedness initiatives are essential to mitigate their impact effectively.

Significant Hazard Events Since Last Plan Update

There have not been any significant events since the last plan update. However, the Borough of Keansburg remains vigilant and continues to enhance its emergency response strategies.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Keansburg Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and extreme temperatures are likely to increase. This will exacerbate existing vulnerabilities, particularly in flood-prone areas. Keansburg's flat topography and extensive beachfront make it especially susceptible to storm surges and coastal flooding, as evidenced by the significant damage caused by Superstorm Sandy. The Borough's infrastructure, including critical facilities located within floodplains, will face heightened risks of damage and disruption. Additionally, the aging population in Keansburg may experience increased health risks during extreme weather events, necessitating robust evacuation plans and resilient networks for resource accessibility.

Moreover, climate change will likely lead to more frequent and severe droughts, which can strain water resources and increase the risk of wildfires. The Borough's efforts to balance residential development with public safety will become more challenging as the impacts of climate change intensify. Proactive measures, such as enhancing stormwater management systems, protecting critical facilities, and improving communication and education on hazard risks, will be essential to mitigate the adverse effects of climate change on Keansburg Borough.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Keansburg Borough	
Initial FIRM	5/16/1983
Effective FIRM	9/25/2009
Number of Policies In-Force:	1228
Total Losses:	1343
Total Payments:	\$50,584,540.02
Number of RL Properties:	38
Number of Mitigated RL Properties:	0
RL – Total Losses:	79
RL – Total Paid:	\$1,623,363.64
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	2
SRL – Total Paid:	\$188,573.91

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

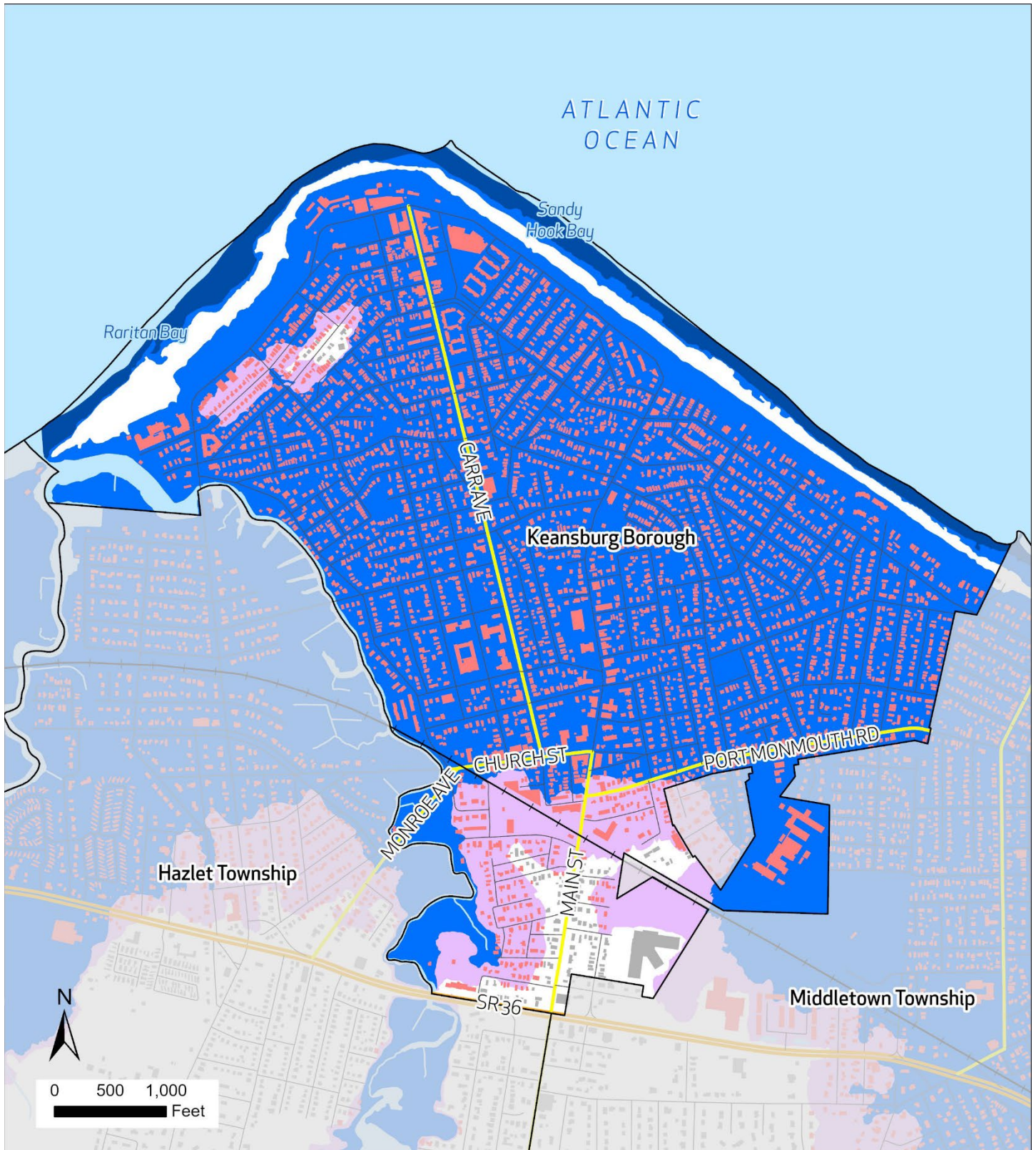
The majority of the Borough of Keansburg lies within the Special Hazard Flood Area (SFHA). Approximately 83 percent of the total area of Keansburg lies within the 1% annual chance flood zone as defined by FEMA. An additional 8.6 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 79.6 percent of Keansburg is considered developed. Of the developed parcels of the town, 84.7 percent fall within the 1% annual chance flood zone and 6.0 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	84.7%	6.0%	73.4%
Exposed Land Area	83.0%	8.6%	49.4%

During the planning process, Keansburg identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 12 total facilities. Of these facilities, 11 are located within the floodplain. Of these 11, three are also located within the area projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Health and Medical	1	-	-
Safety and Security	9	1	3



Flood Risk

Keansburg Borough

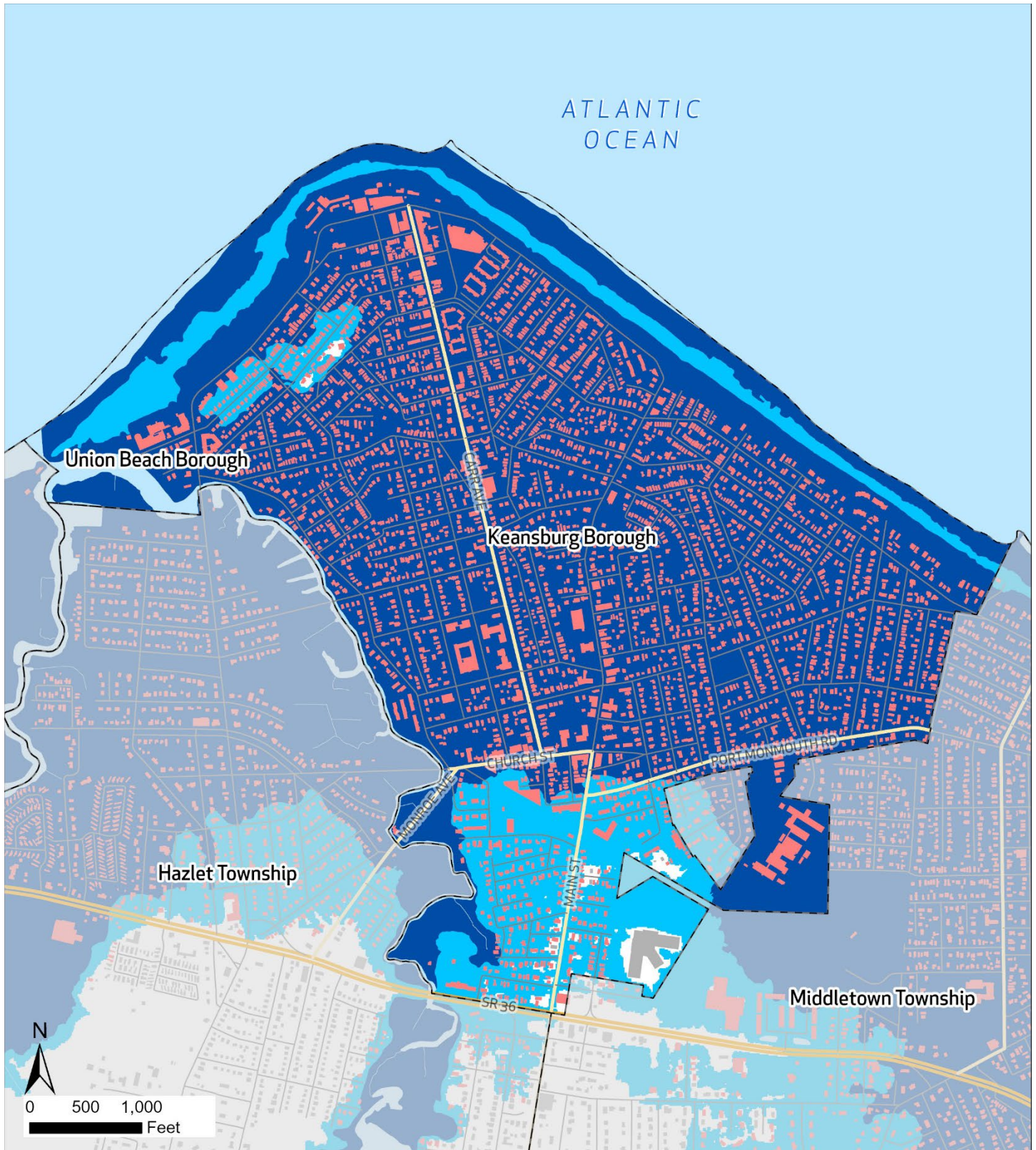
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Keansburg Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood
Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

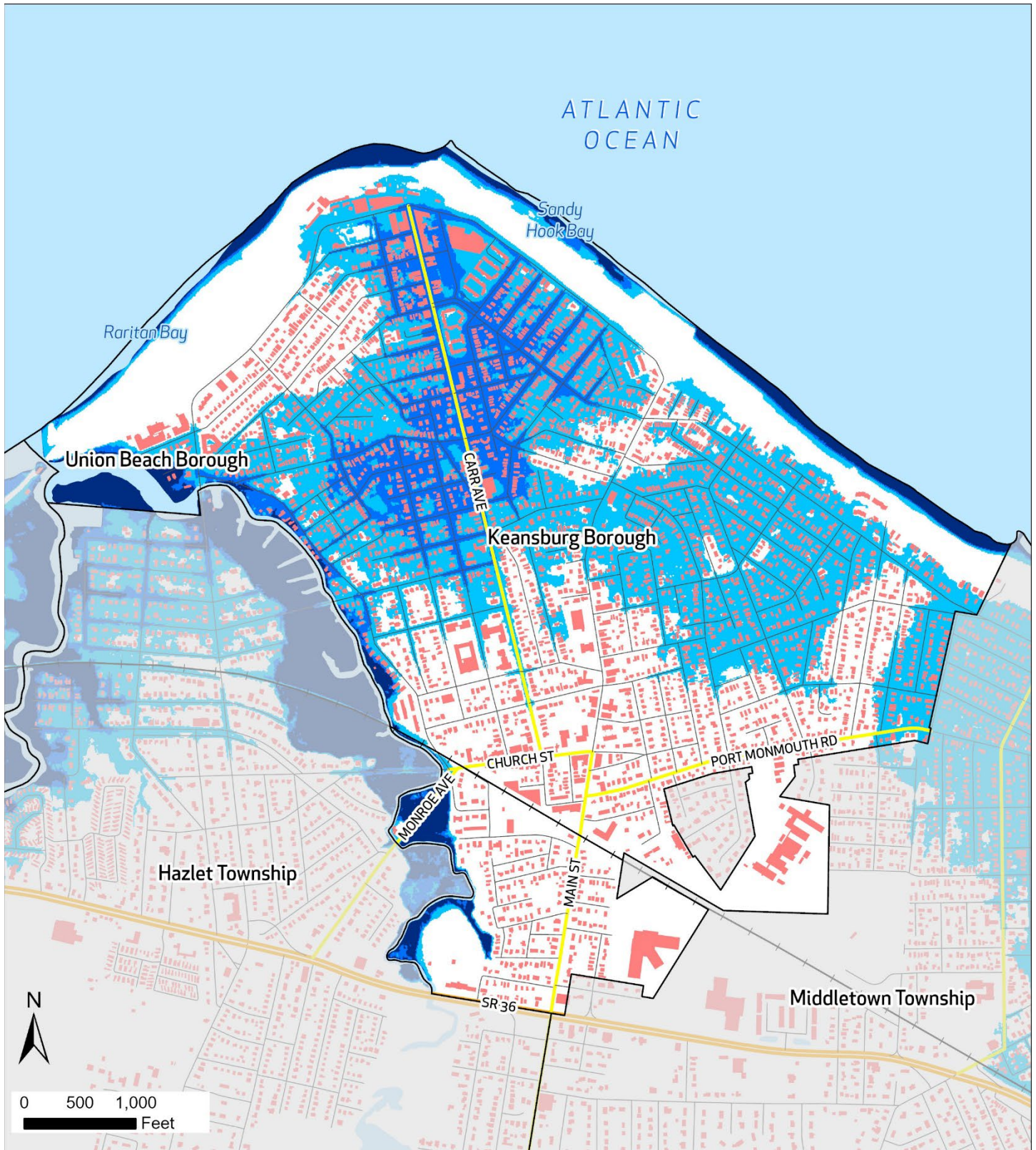
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Keansburg Borough

- | | | |
|---|--|---|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | <div style="position: absolute; left: -5px; top: 50%; transform: translateY(-50%);">+</div> Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Keansburg Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Keansburg Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan		X		
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan		X		
Floodplain Development Ordinance		X		
Floodplain Management Plan	X		2015	This plan is intended to identify and assess flood hazards within the Borough of Keansburg, establish goals and objectives for floodplain management, and to present a series of actions designed to minimize flooding.
Stormwater Management Ordinance	X		2021	
Stormwater Management Plan	X		2006	
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			See Additional Capability Assessment Information
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Keansburg Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		X	
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Keansburg Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Borough website has information on flooding and stormwater, including a link to elevation certificates (https://keansburgnj.withforerunner.com/properties); Know your flood hazard; Insure your property for your flood hazard; Protect people and property from the hazard (storm preparedness); Build responsibly; After the storm; and Protect natural floodplain functions.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Keansburg Borough has used the following financial capabilities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance	X		Covid 19 Disaster Management Costs
FEMA HMGP	X		FMA Pre-disaster. Residential elevations
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- In the fall of 2020, graduate students from the Bloustein School at Rutgers University completed the “A More Resilient Keansburg” report that is intended to help the Borough develop a municipal resilience plan. The report includes a flood risk assessment, and a social vulnerability assessment. \$3.2 million in disaster relief funding has been allocated for flood control re-evaluation for projects in Keansburg and its neighboring communities.
- In February 2023, the U.S. Army Corps of Engineers (USACE) and the New Jersey Department of Environmental Protection announced the initiation of the Raritan Bay and Sandy Hook Bay Coastal Storm Risk Management (CSRM) Feasibility Study. The study will focus on measures including, but not limited to, beach renourishment, dune and beachfill profile changes, potential structural and non-structural measures to reduce risk of damages from coastal storm events, including hurricanes and nor’easters, and modifications to the existing project to provide improved erosion control and storm damage prevention in the project area.
- Keansburg Borough is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience. Forerunner’s public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.

Community Rating System (CRS) Classification: 7

Sustainable Jersey Participation Status: Registered

MITIGATION STRATEGY

Overview and Progress since Last Plan Update

Keansburg needs sand replenishment. After Sandy, USACE had replenished the sand once, but there is need for more replenishment. In Lower Carr Ave/Beachway, there is concern that a building near a construction pit that fills with up water during heavy rainfall would fall in. However, there is a plan in the works to fill in/develop the pit and install pumps. Waacaack Creek needs dredging and bigger pumps. As a result, during high tide, flapper valves are blocked by debris causing 99% of the Borough to flood. The new pipes are perhaps too efficient for the current pumps, so the Borough needs better pumps. The Borough is looking for grants to assist with the dredging and pump installation. The floodgate in the Borough is owned by the State.

Since 2021, The Borough has relocated the Police Headquarters and Emergency Operation Center out of Flood Area, developed a Variance Plan, developed Hazard Mitigation Outreach Program, and bonded for considerable improvements to the local roadway network. They have also advanced purchasing new equipment and constructing a 2 million gallon storage tank to increase flood retention capabilities within the Borough.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Funding	Cost Estimate	Timeline	Action Status
23-1	Relocate the Police Headquarters and Emergency Operation Center out of Flood Area	Relocate the police headquarters and emergency operation center from 179 Carr Avenue to a vacant property in the Borough.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	Funded through FEMA Grant and Municipal Bonds		N/A	Completed
23-2	Develop a Variance Plan	Develop a plan to allow variances on foundations of newly built structures.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	Municipal Budget	\$20,000	N/A	Completed
23-3	Develop Hazard Mitigation Outreach Program	Create an outreach program to help residents prepare for disasters.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	Municipal Budget	\$10,000	N/A	Completed
23-4	Reconstruct Randall Place	Improve road conditions on Randall Place.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$189,000	N/A	Completed
23-5	Reconstruct Maple Avenue	Improve road conditions on Maple Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator,	NJDOT Local Aid Grant and Municipal Bond	\$330,000	N/A	Completed

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Funding	Cost Estimate	Timeline	Action Status
					DPW, Borough Engineer				
23-6	Reconstruct Grove Place	Improve road conditions on Grove Place.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$252,000	N/A	Completed
23-7	Reconstruct Woodside Avenue - Phase 1	Improve road conditions on Woodside Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$132,000	N/A	Completed
23-8	Reconstruct Woodside Avenue - Phase 2	Improve road conditions on Woodside Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$204,000	N/A	Completed
23-9	Reconstruct Lawrence Avenue	Improve road conditions on Lawrence Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$100,000	N/A	Completed
23-10	Reconstruct Myrtle Avenue	Improve road conditions on Myrtle Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.3M	\$270,000	N/A	Completed
23-11	Reconstruct Forest Avenue -Phase 1	Improve road conditions on Forest Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.5M	\$300,000	N/A	Completed
23-12	Reconstruct Forest Avenue -Phase 2	Improve road conditions on Forest Avenue.	All Hazards	N/A	Mayor and Council, Borough Administrator,	Municipal Bond – grouped with several other roads – total cost \$1.5M	\$230,000	N/A	Completed

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Funding	Cost Estimate	Timeline	Action Status
					DPW, Borough Engineer				
23-13	Reconstruct Murray Lane	Improve road conditions on Murray Lane.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – total cost \$50,000	\$80,000	N/A	Completed
23-14	Reconstruct Inlet on Seeley Avenue	Improve drainage on Seeley Avenue by reconstructing the inlet and repairing the pavement and sidewalk.	Flood, Coastal Erosion, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond and CDBG Grant – total cost \$250,000	\$210,000	N/A	Completed
23-15	Replace Piping at Willis Avenue & Park Avenue	Replace the pipe and repair the pavement and sidewalk at the intersection of Willis Avenue and Park Avenue.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond – grouped with several other roads – total cost \$1.5M	\$210,000	N/A	Completed
23-16	Construct/Rehabilitate a Two Million Gallon Storage Tank	Improve water and sewer capacity by constructing a two-million-gallon storage tank.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond		N/A	Completed
23-17	Replace Pressure Filter in Water Plant	Improve stormwater and sewer systems and reduce flooding by replacing the pressure filter in water plant.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond		N/A	Completed
23-18	Purchase a New Sweeper Vac	Purchase one new sweeper vac to maintain streets and keep debris from entering stormwater and sewer pipes.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond	\$225,000	N/A	Completed

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Funding	Cost Estimate	Timeline	Action Status
23-19	Purchase New Wave Runners	Purchase two new wave runners to improve emergency water rescue response.	All Hazards	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Volunteer Fire Assistance Grant, Fire Company and EMS Grant, Borough funding	\$35,000	N/A	Completed
23-20	Purchase Two New Trucks for Water/Sewer Department	Purchase two new trucks for the Water/Sewer Department to assist with ongoing Water/Sewer maintenance.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond	\$150,000	N/A	Completed
23-21	Purchase Three New Department of Public Works Trucks	Purchase three new DPW trucks to assist with ongoing maintenance and continuity of operations within the Borough.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Municipal Bond	\$225,000	N/A	Completed
23-22	Update Winter Storm Response Plan	Update Winter Storm Response Plan to incorporate all current aspects of recent changes throughout the Borough. Inclusive of but not limited to the relocation of Police Headquarters, adding new facilities and/or structures erected since the last update,	Winter Storm	N/A	Borough Administrator, DPW	Borough funding		N/A	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
23-23	Install Three Floodproofed Stormwater Pump Stations with Generators	Install three new floodproofed stormwater pump stations in the Borough with a permanent back-up generator at each and to floodproof two existing pump stations and install a back-up	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA HMA, Borough funding	TBD	1 year	Ongoing	Continues to seek funding sources possible partnering with FEMA/AOCE

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		generator at each station.								
23-24	Extend Bulkhead and Dredge Waackaack Creek	Extend bulkhead for the entire length of Waackaack Creek as well as dredge the creek to increase stormwater storage capacity.	Flood, Coastal Erosion, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	Borough Funding for dredging	TBD	1 year	Ongoing	Continues to seek funding sources possible partnering with FEMA/AOCE
23-25	Extend Beach Width, Increase Sand Dune Height, Conduct Dune Maintenance with Dune Grass, and Other Beach Mitigation Projects	Improve 2.6 miles of beach that is 200 feet wide that was substantially damaged due to storm surge. Need to increase the height and width of the dunes to the 100-year storm elevation. Also included in this project is dune maintenance planting dune grass,	Flood, Coastal Erosion, Extreme Wind, Nor'easter, Hurricane and Tropical Storm	High	Borough Administrator	Monmouth County CDBG Program, Post Disaster CDBG Funding Program, Army Corp, FEMA HMA, NOAA, The Nature Conservancy (TNC),	TBD	1 year	Ongoing	Continues to seek funding sources possible partnering with FEMA/AOCE
23-26	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate approximately 3,843 homes.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowners and/or Borough Administrator	FEMA HMA	TBD on property value	1 year	Ongoing	Continues to seek FMA funding to elevate eight (8) structures in 2025/2026
23-27	Initiate a Tree Trimming/Pruning Program	Initiate a tree trimming and pruning to prevent downed power lines.	Extreme Wind, Lightning, Nor'easter, Hurricane and Tropical Storm	High	Borough Administrator	Borough funding	\$135,000	1 year	Ongoing	Ongoing program with trees trimmed by DPW on an as needed basis
23-28	Acquire Vacant Properties for Open Space	Purchase vacant homes throughout the Borough for flood mitigation (to improve drainage).	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowners and/or Borough Administrator	FEMA HMA, Borough funding, Blue Acres program	TBD on property value	1 year	Ongoing	Continue to acquire properties as they become available

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
23-29	Develop a Backup Generator Plan	Develop a plan to acquire funding for emergency backup power generators in critical care facilities.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	Borough funding	\$1M	1 year	Ongoing	One (1) generator was acquired for \$500,000 through Municipal Bonds and HMGP funding. Continues to seek funding for a second generator.
23-30	Create Flood Hazard Zoning Ordinances	Develop flood hazard zoning ordinances to better protect the Borough from natural disasters.	Flood, Extreme Wind, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA HMA, Borough funding	\$20,000	1 year	Ongoing	
23-31	Develop Water Use Restriction Ordinances	Develop ordinances to restrict landscaping water usage in times of drought.	Drought	Low	Borough Administrator	Borough funding	\$5,000	1 year	Ongoing	
23-32	Construct a Certified Levee along the Bay	Construct a certified levee to replace the 1968 Army Corp project.	Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor and Council, Borough Administrator, DPW, Borough Engineer	FEMA HMA, Army Corp		5 + years	Ongoing	Still seeking funding sources possible partnering with FEMA/AOCE
23-33	Designate More Dredging Dump Sites	Need at least two more dredging dump sites to assist the existing two dump sites.	Flood, Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Borough funding		2 years	Ongoing	Still seeking funding sources possible partnering with FEMA/AOCE
23-34	Develop a Civil Unrest Response Plan	Develop an action plan to address a coordinated public safety response to civil unrest should it occur within the Borough. The plan will address the appropriate response levels of all public safety entities including Police, Fire, and EMS.	Terrorism	High	Police Chief	Homeland Security grant, Borough funding	\$125,000	1 year	Ongoing	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
23-35	Develop a Cyber Attack Response Implementation	Update emergency response plans to address, mitigate, and recover from a potential cyber-attack affecting the operation of Borough activities.	Cyber Attack	Medium	Borough Administrator	Homeland Security Grant, Borough Funding	\$500,000	1 year	Ongoing	This plan is updated as needed. We have IT companies that provide us assistance.
23-36	Develop an Action Plan to Address Economic Collapse	Plan, develop, and maintain a Borough-wide action plan to address the public safety response in the event of an economic collapse. The plan should be all inclusive to safeguard and protect all critical facilities.	All Hazards	Medium	Borough OEM	Borough funding	\$250,000	1 year	Ongoing	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years.
23-37	Develop an Action Plan to Address a Pandemic Event	Create an emergency response plan to address a pandemic event.	All Hazards	Medium	Fire Chief, County Health Officer, Borough Administrator, OEM	Public health grants, Borough Funding	\$250,000	1 year	Ongoing	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years.
23-38	Create an Action Plan to Address Power Failure	Create an emergency response plan to address power failure in the Borough.	All Hazards	Medium	Borough Administrator, Police Chief, Fire Chief, DPW Director, OEM	Borough Funding	\$250,000	1 year	Ongoing	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years.
23-39	Create a Terrorism Response Plan	Create an action plan to address an act of terrorism within the Borough.	Terrorism	Medium	Police Chief, Borough Administrator, OEM	Homeland Security Grant, Borough funding	\$125,000	1 year	Ongoing	We are in the process of updating the Borough's EOP. Which is ongoing every 2 Years.
23-40	Reconstruct Beachway Avenue	Improve road conditions on Beachway Avenue.	All Hazards	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	NJDOT Municipal Aid Funding, Monmouth County CDBG, Borough funding	\$412,000	1 year	Ongoing	Project under construction, to be completed June 2025 – total cost \$360,000

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
23-41	Reconstruct Carr Avenue	Improve road conditions on Beachway Avenue.	All Hazards	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	NJDOT Municipal Aid Funding, Monmouth County CDBG, Borough funding	\$240,000	1 year	Ongoing	To be constructed as part of 5 year redevelopment program. To be funded by developer
23-42	Replace Piping at Beaconlight Avenue	Replace the pipe and repair the pavement and sidewalk on Beaconlight Avenue.	Flood, Coastal Erosion, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	NJDOT Municipal Aid Funding, Monmouth County CDBG, Borough funding	\$300,000	1 year	Ongoing	Received congressional funding for \$1.0M – anticipated construction Sept 2025
23-43	Improve Drainage at Beachway Avenue	Install a new inlet and pipe to improve drainage on Beachway Avenue.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	NJDOT Municipal Aid Funding, Monmouth County CDBG, Borough funding	\$180,000	1 year	Ongoing	Project under construction, to be completed June 2025 – total cost \$360,000
23-44	Install New Inlet and Pipes at Laurel Avenue	Install a new inlet and pipe to improve drainage on Laurel Avenue.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor and Council, Borough Administrator, DPW, Borough Engineer	NJDOT Municipal Aid Funding, Monmouth County CDBG, Borough funding	\$100,000	1 year	Ongoing	Project under construction, to be completed June 2025 – total cost \$360,000
23-45	Replace Aging Water Mains	Improve stormwater and sewer systems and reduce flooding by replacing aging water mains.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor and Council, Borough Administrator, DPW, Borough Engineer	WIFIA, Monmouth County CDBG, Borough funding	As needed	1 year	Ongoing	Watermain replacement included on ongoing roadway reconstruction projects
23-46	Purchase and Install New Pumps and New Comminutors at Sewer Pump station	Purchase and install three new pumps & two new comminutors for the Sewer Pump Station to help improve stormwater and sewer systems in the Borough.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor and Council, Borough Administrator, DPW, Borough Engineer	FEMA Hazard Mitigation Grant, WIFIA, Monmouth County CDBG, Borough funding	\$200,000	1 year	Ongoing	Continues to seek funding sources

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
23-47	Purchase a New Jet/Vac Truck	Purchase a new Jet/Vac truck to clean out debris from sewers and stormwater pipes.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Monmouth County CDBG, Borough funding	\$500,000	1 year	Ongoing	Continues to seek funding sources
23-48	Purchase a New Belt Filter Press for Sludge Disposal	Purchase a new belt filter press for sludge disposal to help keep sewer and stormwater systems clear.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	WIFIA, Monmouth County CDBG, Borough funding	\$600,000	1 year	Ongoing	Municipal Bonding - Project currently under design – anticipated construction Q3 2025
23-49	Purchase New Membranes for R/O Treatment	Purchase New Membranes for R/O Treatment	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	WIFIA, Monmouth County CDBG, Borough funding	\$300,000	1 year	Ongoing	Municipal Bond - RO Membrane purchase every 5-8 years. Anticipated purchase Q2 2025.
23-50	Purchase a New Trailer to Haul Equipment	Purchase a new trailer to haul emergency and maintenance equipment, such as a bulldozer used to clear debris and sand.	Coastal Erosion	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	WIFIA, Monmouth County CDBG, Borough funding	\$35,000	1 year	Ongoing	Continues to seek funding sources
23-51	Purchase New Aerial Fire Trucks	Purchase two new aerial fire trucks to better equip the Fire Department with putting out wildfires.	Wildfire	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Volunteer Fire Assistance Grant, Fire Company and EMS Grant, Borough funding	\$700,000	1 year	Ongoing	Continues to seek funding sources
23-52	Purchase New Basic Life Support Ambulances	Purchase two new Basic Life Support ambulances for the EMS/Rescue squad.	All Hazards	Medium	Mayor and Council, Borough Administrator, DPW, Borough Engineer	Volunteer Fire Assistance Grant, Fire Company and EMS Grant, Borough funding	\$300,000	1 year	Ongoing	Continues to seek funding sources

24 – KEYPORT BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Ken Krohe	Emergency Management Coordinator, Borough of Keyport	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Tom Gallo	Fire Department, Borough of Keyport	Municipal Workshop #1, Municipal Workshop #2
James Lawson	Deputy Coordinator, Borough of Keyport	Municipal Workshop #1, Municipal Workshop #2
Matthew Zwingraf	Borough Engineers, CME Associates	Municipal Workshop #1, Municipal Workshop #2
Trevor Taylor	Borough Engineers, CME Associates	Municipal Workshop #1, Municipal Workshop #2

COMMUNITY PROFILE

Overview

Nicknamed “The Pearl of the Bayshore,” the Borough of Keyport has a land area of 1.40 square miles. Established as a Borough in 1908, Keyport’s geographic location along Raritan Bay has fostered numerous harbor facilities and a strong charter boat industry. The sheltered coast of Keyport allowed for the establishment of a thriving oyster industry which lasted until the mid-20th century. Between 1917 and 1937, Keyport was home to the Aeromarine Plane and Motor Company, which built seaplanes for the U.S. Navy during World War I. Steamboats would transport agricultural goods and timber to New York markets. Even today, Keyport’s historic downtown reflects the town’s once vibrant fishing and shipping industries.

Keyport Skipper Bus offers free transportation services for Keyport seniors (60+) and residents with disabilities to local grocery stores, the library, borough hall, the senior center, the food pantry, and the waterfront. Route 35 and 36 traverse the southern portion of the borough. The 817 local bus route is offered by NJ TRANSIT. The borough has a Safe Routes to School “First Step” rating.

Land Use, Development, & Growth

In Keyport, residential, commercial, industrial, and publicly owned land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 77 percent of the town’s total area, while wetlands, forested land, and water together made up 23 percent. From 2015 to 2020, the Borough’s overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	3.2	5.9	84%
Forest	73.2	72.3	-1%
Urban	715.5	714.3	>0%
Water	55.2	55.0	>0%
Wetlands	81.0	80.5	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Since 2020, the Borough has seen several residential redevelopment projects take shape, including the following:

- **Raritan Cove**, a 26-unit townhouse redevelopment project along West Front Street was completed in 2024.

- Construction is anticipated to break ground in 2025 for the construction of **Hudson Pointe**, a redevelopment project at the intersection of Manchester Street and Maple Place, consisting of approximately 57 residential units.

Since 2020, the Borough has made significant investments in its municipal utility, roadway, and recreation infrastructure:

- **Main Street Park (2020)**: installation of a new playground, fitness equipment and pre-cast concrete skate park
- **Benjamin C. Terry & Veteran's Park (2020)**: passive park improvements, including landscaping, walkways, irrigation, benches, picnic tables, and dune restoration to address coastal erosion. This park falls within falls under FEMA's 0.2% annual chance floodplain (NJFloodMapper).
- **Beach Park Outfall Replacement (2020)**: Replacement of a failed 30" storm sewer outfall and piping. This park falls within falls under FEMA's 1% annual chance floodplain (NJFloodMapper).
- **Division Street Reconstruction and Storm Sewer Replacement (2020)**: Reconstruction of Division Street, including replacement of undersized storm sewer piping and sanitary sewer mains
- **Broadway Sanitary Sewer Main Replacement (2024)**: Replacement of approximately 600 linear feet of sanitary sewer and services between Route 35 and Nappi Place.
- **East Third Street Storm Sewer and Outfall Improvements (2024)**: Replacement and up-sizing of existing storm sewers and replacement of an existing failed outfall to mitigate flood events associated with high intensity short duration precipitation events.
- **Resurfacing and/or reconstruction of Various Roadways**, including Fulton Street, Seventh Street, Eighth Street, Third Street, Manchester Street, Warren Street, Butler Street, Main Street, Kearney Street, Hurley Street, and Geran Street. Sections of these streets fall within FEMA's 1% and 0.2% annual chance floodplain (NJFloodMapper).

Initiated in 2020, Keyport continues to implement its Neighborhood Preservation Program (NPP), a 5-year implementation program that serves as "a blueprint to create long-term neighborhood preservation while keeping the distinct aspects of the neighborhood in line with the traditions and spirit of the Borough and the community." In 2022, the Borough implemented several improvements as part of their NPP plan, including decorative street and stop signs, upgraded municipal lots, pedestrian safety improvements, accessibility/recreation improvements to Mini Park, and playground improvements at Beach Park.

Improvements are currently underway at Cedar Street to address aging recreational infrastructure, including basketball and tennis court replacements, lighting, landscaping, playground improvements, and dune restoration.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The Borough has taken advantage of County, State, and Federal funding awards to make significant improvements to its municipal infrastructure, with the following projects planned to be implemented in the next five (5) years:

- **Improvements to Second Street**: NJDOT-funded roadway and sidewalk reconstruction of Second Street between Atlantic Street and Stone Road, including water and sanitary main and service replacements. Construction anticipated to begin in 2025.
- **Fireman's Park Promenade and Parking Lot Improvements**: Planned westward extension of the elevated promenade from Waterfront Park to close the remaining low bulkhead gap along the Borough's Waterfront, including outfall replacements and the elevation of American Legion Drive and adjacent parking lot to mitigate nuisance tidal flooding. Construction anticipated to begin in 2025 and is funded by NJOEM, NJDEP Green Acres, and the NJDCA Boardwalk Preservation Fund.
- **Beach Park Pavilion Replacement**: CDBG-funded improvements to replace an existing gazebo with an ADA-compliant picnic structure at Beach Park.
- **Lockport Neighborhood Water Main Improvements**: USEPA-funded replacement of approximately 4,000 linear feet of water main and associated house services in the Borough's Lockport neighborhood (Walnut Street, Walnut Terrace, Oak Street, Snyder Lane, Spring Street, Locust Street, Pine Street and First Street).
- **Safe Routes to School Pedestrian Safety Improvements**: NJDOT-funding pedestrian accessibility and sidewalk improvements along St. Peters Place, St. George Place, Maple Place, and West Fourth Street.

- **Improvements to W. 2nd Street, Chandler Street, and Provost Street:** NJDOT-funded roadway reconstruction, water main, and sanitary sewer improvements.
- **Beers Street Storm Sewer Outfall Replacement**
- **Chingarora Creek Stream Cleaning:** De-silting and de-snagging of Chingarora Creek downstream of Florence Avenue and outfall cleaning
- **Lead Service Line Replacement:** The Borough has been identified one of ten pilot communities in the State to receive technical assistance and funding for the replacement of existing lead and galvanized water service lines throughout the municipality. The Borough is preparing a plan to address these improvements prior to 2031.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Keyport has a total estimated population of 7,188, of which 7.6% is estimated to be under age 5, and 21% over age 65. The Borough had consistent population over the ACS periods between 2013-2017 and 2018-2022, with an estimated .7% change. With an aging population making up over twenty percent of their total community, Keyport may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are four block groups in Keyport which are identified as potentially overburdened (OBC) according to the State of New Jersey, meeting criteria for *Low Income* populations (three block groups) and *Minority* populations (one block group). There are no parts of Keyport Borough which meet designation criteria for CDRZ or CEJST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	7,188
Population Change since 2017	0.7%
Percent of Population Age < 5	7.6%
Percent of Population > 65	21.0%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Coastal Erosion	Wave Action	Drought
Flood	Extreme Temperature	Earthquake
Hurricane/Tropical Storm	Extreme Wind	Lightning
Nor'easter	Tornado	Wildfire
Storm Surge		Dam Failure
Human-made Hazards		
	Cyber Attack	
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

Note: Landslide is ranked N/A per the Borough.

Hazard Ranking Explanation

Keyport changed Coastal Erosion from medium concern in the previous HMP update to high concern. The Borough has recently been notified by NJDEP of contamination originating from a private property (Aeromarine), fronting along the Borough's northeastern shoreline with the Raritan Bay. While the area of concern is situated on private property, it highlights the importance of shoreline stabilization to mitigate the effects of coastal erosion brought on by sea-level rise and strengthening storms. Furthermore, the Borough has reported that ongoing Chingarora Creek near the Aeromarine site has experienced upstream silting and developed a sandbar at the mouth of the Creek. Both issues have decreased the Creek's ability to efficiently conduct runoff during storm events and serve to increase the Borough's risk of flooding during rain events.

Although Keyport does not have any dams of concern, there is potential that dam failure in neighboring municipalities could impact the town, for that reason, dam failure has been changed from N/A in the previous update to low concern. Municipal officials rank wave action as a "medium plus" concern. There is concern that the nearby USACE project in Union Beach could impact the effects of wave action upon Keyport. Officials are currently investigating and working with adjacent municipalities to assess any indirect hazards that may impact the Borough because of this project.

Significant Hazard Events Since Last Plan Update

The Borough reports that there have been no additional significant hazard events impacting the town beyond those declared disasters for the County. High-intensity, short-duration precipitation events (cloudbursts) experienced in the past decade have highlighted the need to address storm sewer improvements and stream cleaning projects. These measures are necessary to quickly conduct runoff from Borough streets into the Luppataong and Chingarora Creeks and Raritan Bay.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Keyport Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and nor'easters are likely to increase. This will exacerbate coastal erosion, storm surge, and flooding, particularly in low-lying areas and along the Raritan Bay shoreline. The Borough's infrastructure, including storm sewers and bulkheads, will face heightened stress, necessitating ongoing upgrades and maintenance to mitigate these risks. Additionally, sea level rise will contribute to more frequent and severe tidal flooding, further threatening the Borough's built environment and critical facilities.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Keyport Borough	
Initial FIRM	
Effective FIRM	
Number of Policies In-Force:	87
Total Losses:	170
Total Payments:	\$6,502,825.99
Number of RL Properties:	6
Number of Mitigated RL Properties:	0
RL – Total Losses:	15
RL – Total Paid:	\$475,833.02
Number of SRL Properties:	4
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	24
SRL – Total Paid:	\$2,583,892.96

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

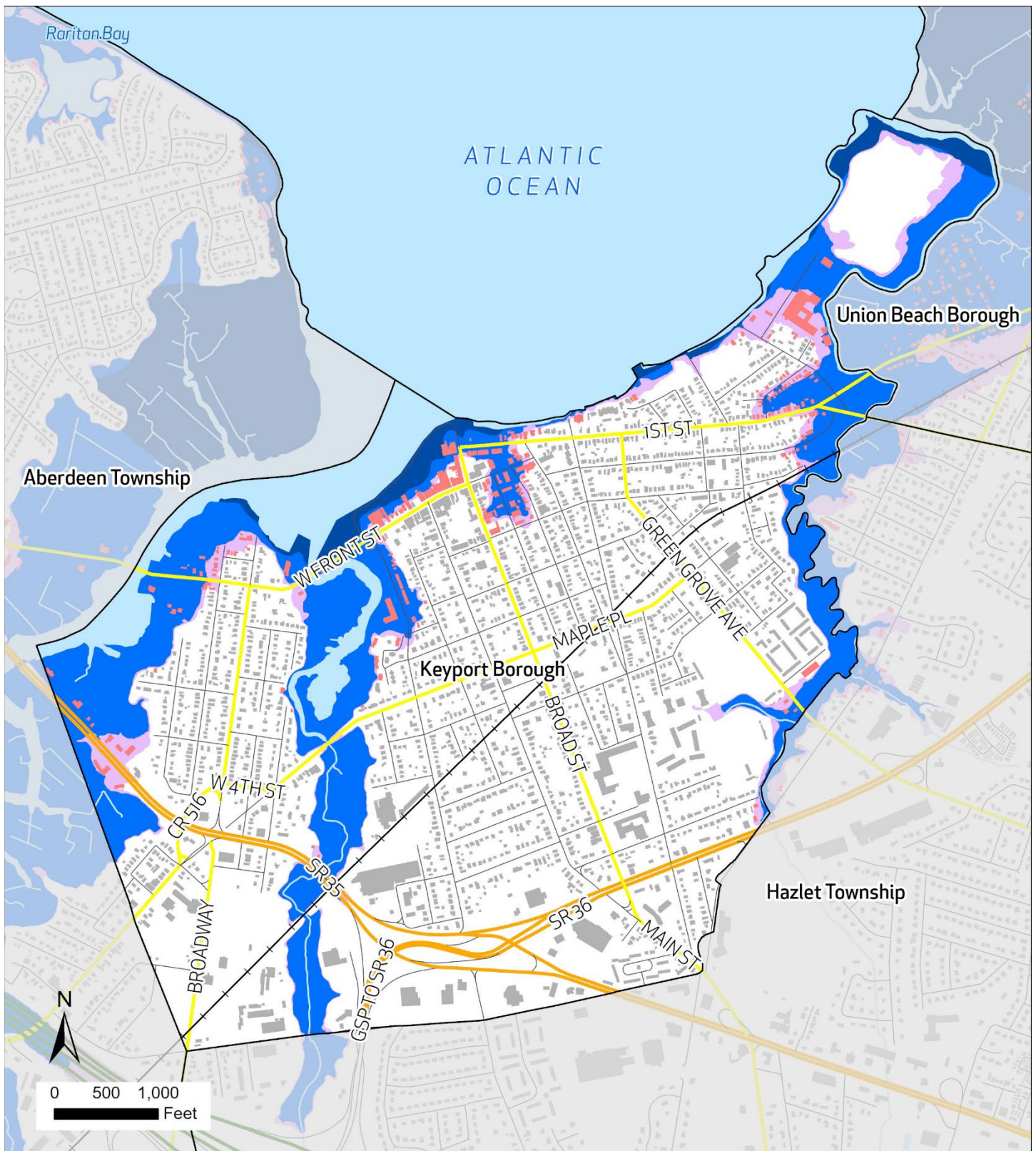
The Special Flood Hazard Area in Keyport is primarily centered adjacent to the waterbodies of the borough: Chingarora Creek, Luppataong Creek, and Matawan Creek, and the Raritan Bayshore especially where the streams flow into the Bay. Approximately 23.9 percent of the total area of Keyport lies within the 1% flood zone. An additional 4.2 percent of the area of the municipality is in the 0.2% flood zone.

About 80.6 percent of Keyport is considered developed. Of the developed parcels of the town, 11.8 percent fall within the 1% annual chance flood zone and 4.1 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	11.8%	4.1%	7.7%
Exposed Land Area	23.9%	4.1%	16.5%

During the planning process, Keyport identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 36 total facilities. Of these facilities, two are located within the floodplain. These facilities fall within the Health and Medical and Safety and Security community lifeline categories.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Health and Medical	1	-	-
Safety and Security	-	1	-



Flood Risk Keyport Borough

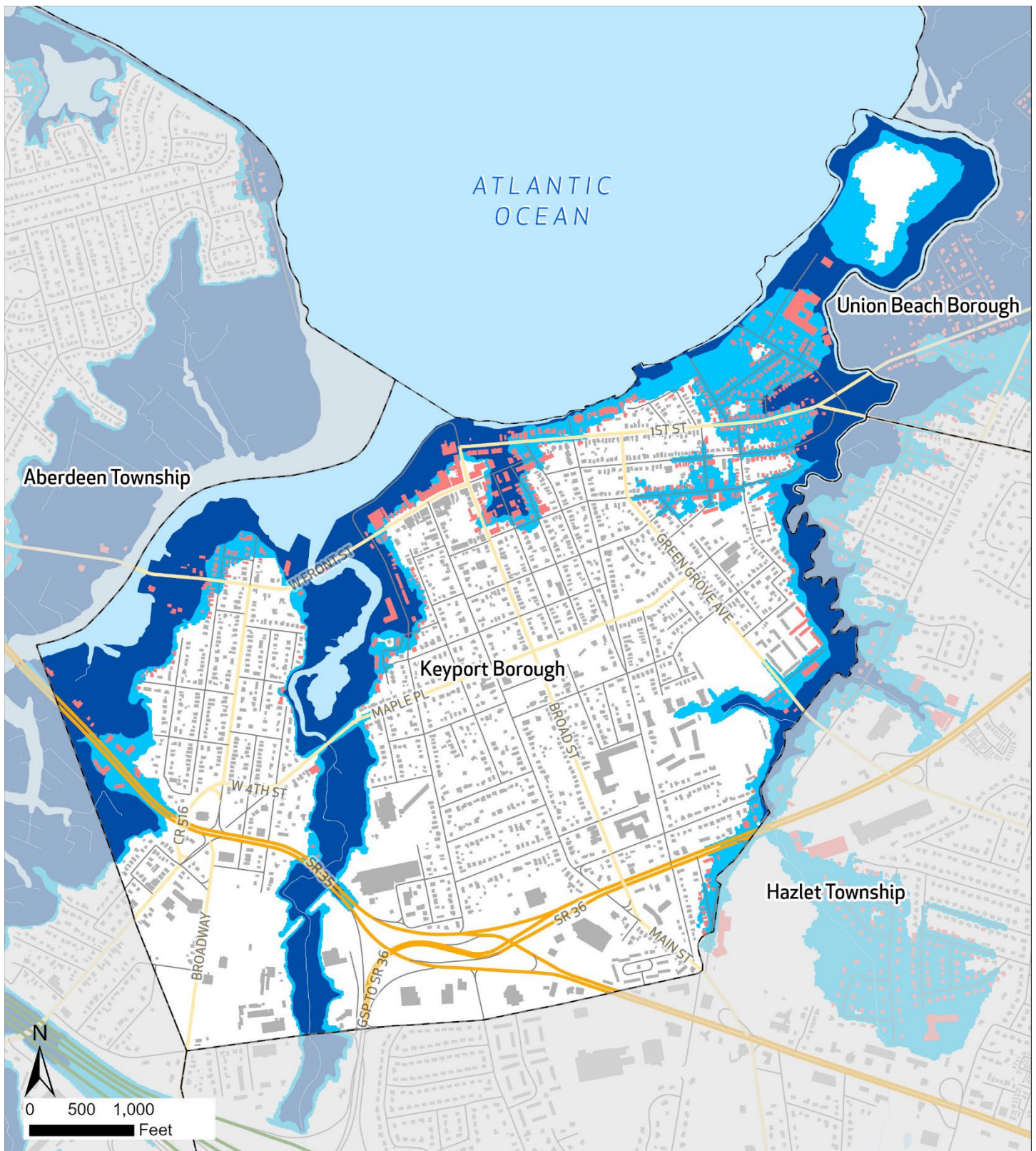
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- Garden State Parkway
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Keyport Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Garden State Parkway

— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Keyport Borough

- | | | |
|---|--|--|
| Area Inundated Under 2 Feet SLR | Garden State Parkway | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | Interstate Highways | Building Footprint |
| Area Inundated Under 5 Feet SLR | State Routes | Water |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Keyport Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- Garden State Parkway
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Keyport Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017	Sets goals for development consistent with Borough needs and mitigation of known hazards in various areas of the municipality, acknowledging hazards and vulnerabilities.
Capital Improvement Plan	X		2023	Establishes, prioritizes, and budgets major infrastructure projects to support hazard mitigation measures specific to Borough interests
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	Strengthens Borough capacity for emergency operations to respond to hazards
Floodplain Development Ordinance	X		2022	Keyport's FPDO enforces higher base flood elevation standards
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		2024	Addressed most recent NJDEP requirements
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response	X			Borough utilizes construction permits and floodplain ordinance to make determinations
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X			Files held in the Construction Department
Post-Disaster Recovery Plan	X			Establishes framework for recovery in wake of disaster events to improve resiliency
Current/recent redevelopment plans or studies	X			Residential and commercial redevelopment projects are largely centered around the Borough's waterfront areas, with some spot redevelopment in upland portions of the town.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			In 2021 the borough developed the Keyport Complete Streets Design Guide and Complete Streets Implementation Guide, along with a Complete Streets ordinance and demonstration project. The temporary demonstration project aimed to show community members what potential traffic calming and visibility improvements to the intersection of Maple Place, Atlantic Street and Church Street could look like. This plan will advance the Borough's sustainable land use, transportation, economic, and green building planning elements by providing recommendations for Complete Streets design and implementation tailored to Keyport's roadways and community needs. Establishing Complete Streets goals, design standards and review checklist, and a complete streets ordinance.
Other ordinance and regulation that mitigate the impacts of natural hazards	X			The Complete Streets Ordinance amends Keyport's municipal code to prioritize implementing complete streets in all design, planning, construction, and maintenance projects. It emphasizes how sustainable green streets design elements such as green stormwater infrastructure, shade trees, and traffic calming treatments protect and create a healthier environment and reduce localized flooding.

Administrative and Technical Capabilities

Keyport Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Borough Engineer serves as Floodplain Administrator
Grant Writer	X		Borough Engineer provides grant writing services
Staff trained to support mitigation	X		DPW/OEM/municipal staff receive training as necessary
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Keyport Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Borough utilizes Swift 911 reverse calling with internet, email-based options, as well as the town website to communicate risk to the public.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Keyport Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP	X		Beach Park Outfall Replacement; Fireman's Park Promenade
Non-FEMA Federal Funding Programs		X	
Other FEMA resources	X		FEMA PDM (Fireman's Park Boardwalk Improvements)
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		DCA Boardwalk Preservation Fund (Fireman's Park Boardwalk Improvements)
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Lead Service Line Replacement program
Other ongoing efforts to build additional financial capabilities	X		Seeking any/all eligible state and federal grant programs to fund identified projects; working with County and neighboring municipalities to team on projects where applicable

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since 2021, the Borough of Keyport has worked to leverage Federal, State and Local funding to plan and implement significant investments in its municipal infrastructure and emergency operations. Given the Borough's geographic location along the Bayshore, coastal storm and flooding hazards are a familiar threat faced by its residents, with hazardous weather events exacerbated by the effects of climate change. Borough leadership has set a goal to work towards a resilient future. This encompasses not only vulnerable waterfront facilities, including storm sewer improvements and the elevation of bulkheads, roadways, and low-lying areas, but also for the Borough's storm sewer, sanitary sewer, and water networks which have served residents for over a century. Notably, the Borough was selected by the EPA as one of ten municipalities across the State for its Lead Service Line Replacement accelerator program, which will fund and target the replacement of antiquated drinking water infrastructure over the next five years. The Borough's team is focused on providing the necessary infrastructure and operational improvements and planning necessary to prepare for both natural and human-induced hazards, while providing consistent and safe services to residents.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-1	Extend Beach Park Pipe Past Division Street	Extend the Beach Park pipe discharging Division Street to prevent flooding due to obstruction of the pipe.	Flood, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	FEMA HMGP	\$500,000	N/A	Completed	Completed in 2020; project has limited tidal flooding upstream of the outfall; however, upstream storm sewer pipes remain undersized and require a pump station to effectively clear water from low points along Division and E. Front Streets (refer to ongoing actions).
Action 24-2	Acquire 44 Beer Street and Convert to Open Space	Acquire 44 Beer Street, a frequently flooded property, and convert to a park	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	N/A	N/A	Withdrawn	Property approved for residential redevelopment. All structures are proposed to be raised above flood elevation.
Action 24-3	Develop Storm Debris Dumpster Storage Plan	Develop a regional approach to storm debris dumpster storage.	All Hazards	N/A	N/A	N/A	N/A	N/A	Completed	Temporary Debris Management Area plans developed to utilize Broad Street parking lot. Plan approved by NJDEP.
Action 24-64	Purchase and Install Generators at Pump Stations	Install generators to ensure proper performance of the sewer pumps in the event of power outage	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$100,000	N/A	Completed	Portable generator purchased to be put into use during power outages to maintain operation of sewer infrastructure.
Action 24-5	Acquire Two Flood Prone Properties	Acquire two flood prone properties and prohibit future building in flood prone areas	Flood, Wave Action, Nor'easter, Hurricane and	N/A	N/A	N/A	\$3,566,800	N/A	Withdrawn	The Borough no longer anticipates pursuing this acquisition.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
			Tropical Storm, Storm Surge							
Action 24-6	Acquire Olsen's Marina and Convert to Open Space	Acquire Olsen's Marina, a waterfront property, and convert to a park.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$1,000,000	N/A	Withdrawn	The Borough no longer anticipates pursuing this acquisition.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate 95 commercial and residential properties that are in FEMA's flood zone, specifically RL/SRL properties.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator, Borough Engineer, NJDEP	FEMA HMA, NJDEP Blue Acres	\$2.8M	5 + years	Ongoing	Borough will continue to seek funding opportunities to acquire flood prone properties and structures, including FEMA and NJDEP Blue Acres programs to acquire and convert to open space.
Action 24-4	Elevate and Replace Bulkheads	Increase elevation and replacement of existing bulkheads.	Flood	High	Business Administrator	FEMA HMA	\$2,500,000	1 year	Ongoing	Walnut Street West and Front St Bulkhead elevations included as separate actions. Borough is exploring funding sources to implement this action.
Action 24-5	Elevate and Floodproof Maple Place Pump Station	Elevate and harden Maple Place Pump Station through elevating electrical panels, modifications for water tightness, generators to mitigate power loss and surging	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator	FEMA HMA	\$718,900	3 years	Ongoing	The Borough is exploring funding sources to implement this action to provide immediate power redundancy to eliminate critical infrastructure downtime during power outages, and prevent pumps from being overwhelmed by floodwaters.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-7	Build New Culvert at Green Grove Ave.	Road Culvert and Drainage Improvements to increase drainage and curbing.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough, Monmouth County, Hazlet Twp	FEMA HMA	\$1,100,000	1 year	Ongoing	Coordinating with Monmouth County on project implementation timeline. Project will elevate culvert and roadway to maintain emergency ingress/egress route between Borough and Hazlet Twp.
Action 24-8	Increase Size of Stormwater Pipes and Overall Stormwater System in the Borough	Provide additional storm sewer piping, a reduction of backwater, and increase the capacity of the stormwater system.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator , Borough Engineer	FEMA HMA	\$1,102,556	1 year	Ongoing	E. Third Street Outfall and conveyance piping replaced/upgraded in 2024. Pipes and structures are reviewed for all paving projects with upgrades recommended by the Engineer and DPW where necessary.
Action 24-9	Elevate Firemen's Park Bulkhead	Although the bulkhead has been replaced since Sandy, the bulkhead still needs to be elevated six feet to prevent future flooding of public property and roadways	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough of Keyport, Borough Engineer, NJDEP/USACE permits	FEMA HMA	\$3,000,000	2 years	Ongoing	. Construction is scheduled to begin in 2025 and be complete by 2026. The completion of this project will result in a significant improvement in storm surge and wave action protection for the western end of Waterfront Park, American Legion Drive, and Fireman's Park, which are frequently flooded during spring high tides and coastal storm events.
Action 24-10	Install Tide Valves - Phase II (Beers Street, Fireman's Park)	Install Tide Valves to alleviate blockages and prohibit foreign objects in the outflow pipes	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator	FEMA HMA	\$150,000	1 year	Ongoing	Check valves will be replaced as part of Fireman's Park bulkhead and other outfall replacement projects. These improvements will protect storm sewers and roadways from being surcharged during high tide and storm surge events and ensure roads remain passable for traffic and emergency vehicles.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-11	Extend Beach Park Pipe Past Division Street	Extend the Beach Park pipe discharging Division Street to prevent flooding due to obstruction of the pipe.	Flood, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator	FEMA HMA	\$700,000	1 year	Ongoing	Outfall extension project completed in 2020. Storm sewer upgrades along E Front St and Division completed in 2020. Pipes remain to be replaced within private properties.
Action 24-12	Purchase and Install Permanent Generators for Emergency Shelters	Permanent generators for emergency shelters including Center School, Keyport High School and the First Aid Center	All Hazards	Medium	Business Administrator	FEMA HMA	\$75,000	1 year	Ongoing	The Borough is exploring funding sources to implement this action to provide immediate power redundancy to eliminate critical infrastructure downtime during power outages.
Action 24-1	Dredge Luppataong and Chingarora Creeks	Assistance with dredging the creek so that the creeks can store and conduct more stormwater	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator	Municipal Budget	\$4.5M	1 year	Ongoing	Dredge Chingarora and Luppataong Creek as a continuation of 2016 USDA project to remove downed trees. The Borough is exploring funding sources to implement this action.
Action 24-15	Restore Wetlands at Happy Meadows	Infrastructure (piping and bridges) have been built in an area designated as wetlands, which has disrupted the natural flow of water. The Borough would like to restore the wetlands so it can serve as a drainage basin.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator, County	New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), FEMA HMA, NFWF, Acres for America, NOAA, US FWS, EPA		1 year	Ongoing	Cliffwood Beach (Aberdeen Township) and the Borough of Keyport are at risk of coastal flooding due to their low-lying locations surrounding Matawan Creek, which flows into Lake Lefferts and Lake Matawan. Extensive Phragmites in the Happy Meadows tidal marsh dominates the creek between Ravine Drive and the mouth of Keyport Harbor. The concept plan proposes restoring marshlands to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves, as well as a maritime forest berm to

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
										provide a buffer to the surrounding residential area. Project is located within and driven by Aberdeen Township. The Borough supports neighboring municipalities' projects that will serve to reduce flood and storm surge hazards to the Borough.
Action 24-17	Create Living Shorelines along the Raritan Bay and Install Wave Attenuation Devices in the Bay	Implement dune grass plantings, artificial reefs, oyster castles, and other living technologies as a means of mitigating storm-related tidal, wind and wave action damage.	Flood, Wave Action, Coastal Erosion, Hurricane and Tropical Storm, Storm Surge	High	Business Administrator	FEMA HMA or BRIC, The Nature Conservancy (TNC)	\$500,000	5 + years	Ongoing	The Borough plans to implement living shorelines with relevant bulkhead projects and shoreline stabilization projects where feasible to promote nature-based solutions to adapt to sea level rise.
Action 24-18	Implement the Beers Street Neighborhood Plan Recommendations	Implement the recommendations of the Beers Street Neighborhood Plan including raising Beers Street.	All Hazards	High	Business Administrator	Municipal budget	\$5,000,000	5 + years	Ongoing	Replace existing outfall along Beers Street adjacent to proposed housing development; bulkhead installation; and roadway elevation to address storm surge and nuisance flooding. With sea level rise and increases in cloudburst type precipitation events, improvements will improve long-term resiliency of the neighborhood and its infrastructure.
Action 24-19	Implement the Walnut-Oak Street Neighborhood Plan Recommendations	Implement the recommendations of the Walnut and Oak Street Neighborhood Plan including raising Beers Street	All Hazards	High	Business Administrator	Municipal budget	\$3,000,000	5 + years	Ongoing	Address flood and storm surge hazards from Chingarora Creek along Walnut Street at First Street and shoreline/bulkhead stabilization at end of Walnut Street. With sea level rise and increases in cloudburst type precipitation events, improvements will improve long-term resiliency of the neighborhood and its infrastructure.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-20	Implement the First Street Neighborhood Plan Recommendations	Implement the recommendations of the First Street Neighborhood Plan.	All Hazards	High	Business Administrator	Municipal budget	\$3,000,000	5 + years	Ongoing	Address flood and storm surge hazards at low point along First Street near Beach Park. With sea level rise and increases in cloudburst type precipitation events, improvements will improve long-term resiliency of the neighborhood and its infrastructure.
Action 24-21	Implement the Division Street Neighborhood Plan Recommendations	Implement the recommendations of the Division Street Neighborhood Plan.	All Hazards	High	Business Administrator	Municipal budget	\$3,000,000	5 + years	Ongoing	Implement storm sewer and pump station improvements at Division Street municipal lot; realignment of storm sewers running through private properties. With sea level rise and increases in cloudburst type precipitation events, improvements will improve long-term resiliency of the neighborhood and its infrastructure.
Action 24-23	Address Clark Street Flooding	Flooding at the Luppataong Creek Culvert impacts Clark Street, an important connector road. Entire stretch of road needs to be mitigated.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Engineer, County, Hazlet Township	FEMA HMA, NJDOT	\$5,000,000	3 years	New	Elevation of existing culvert at Luppataong Creek along Clark Street and reconstruction of Clark Street are necessary to mitigate the risks associated with flooding at this critical connector between NJSH 35 / 36 traffic bound for the southbound GSP. Mitigating this hazard will improve traffic flow conditions and provide a necessary emergency route as the next downstream culvert along Route 35 is also subject to flooding, cutting off critical arteries that results in traffic detoured to County and local roadways during storm events.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 24-24	Remediate, Stabilize, and Redevelop Aeromarine site	The Aeromarine site, a former landfill, is located at the mouth of the Chingarora Creek. The site requires environmental remediation and shoreline stabilization.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Hazardous Materials	High	Property Owner, (in coordination with Borough Engineer, LSRP, and Administrator)	FEMA HMA, NJDEP Site Remediation Program	Unknown	5 years	New	NJDEP has notified the property owner and Borough of lead slag material along the property's shoreline associated with past industrial and landfill uses on the site. This is a high priority item as it impacts waterfront areas commonly utilized by the public for fishing and recreation. Future storm events and the effects of sea level rise will serve to increase shoreline erosion and exacerbate exposure of contaminated fill material.
Action 24-25	West Front Street Bulkhead Elevation	Elevate Bulkheads at Luppataong Creek Culvert near West Front Street and Beers Street.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Borough Engineer, Borough Administrator , Private Property Owners	FEMA HMA	\$2,500,000	5 years	New	Elevate bulkhead and upgrade outfalls to address area vulnerable to storm surge along West Front Street between Beers Street and Luppataong Creek culvert adjacent to Keyport Fishery. Following the completion of the Fireman's Park Bulkhead elevation, anticipated in 2026, the area between Beers Street and the Luppataong Creek culvert (adjacent to the Keyport Fishery) will become the new lowest point at which storm surge will overtop West Front Street. The Borough is exploring funding sources to address elevation of the publicly owned portion of waterfront, and work in coordination with adjacent private property owners to make bulkhead improvements.

25 – LAKE COMO BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Robert DeMartin	OEM Coordinator	Point of Contact, Municipal Workshop #1
Brian Poppert	Deputy OEM Coordinator	Point of Contact, Municipal Workshop #1
Andrew Huisman	Borough Administrator	HMP Review
Amy Boney	Borough Clerk	HMP Review
Samantha Waters	CFO	HMP Review
Sam Avakian	Borough Engineer	HMP Review/discussion via phone

COMMUNITY PROFILE

Overview

The Borough of Lake Como is a 0.2 square mile area separated from the Atlantic Ocean by a small portion of Belmar. Lake Como is located on the southeastern shore of Monmouth County. Most the borough's land area is residential. No major highways traverse Lake Como. County Route 30 serves as the borough's Main Street, and County Route 18 (16th Ave) is the northern border. Lake Como is situated along the North Jersey Coastline Railway, which can be accessed by nearby Belmar Train Station, and is served by the 317 and 830 bus routes.

Lake Como is a member of Monmouth University Urban Coast Institute Coastal Lakes Observing Network, which partners with municipalities and community groups to organize citizen science efforts, workshops and conferences dedicated to understanding the causes of environmental problems facing seaside water bodies.

Land Use, Development, & Growth

Lake Como is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 92 percent of its total area, and water and wetlands making up the remaining 8 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	-	-	-
Forest	-	--	
Urban	148.3	148.3	>0%
Water	4.7	4.7	>0%
Wetlands	8.4	8.4	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Lake Como has focused on revitalizing its Main Street, increasing mixed-use development, and improving its housing stock consistent with its shore community character. In addition, the Borough seeks to improve Lake Como and provide additional recreational facilities and opportunities for its residents. In 2020, the Borough Council authorized a study to determine what improvements are needed for Main Street.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Lake Como plans to relocate its borough hall to 18th Ave where the former first aid building was located. The site of the current borough hall will then be used for mixed-use development.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Lake Como Borough has a total estimated population of 1,710. Of this population, an estimated 2.6% is under age 5, and 19.2% is over age 65. The Borough experienced an estimated 12.6% population growth over the ACS survey periods between 2013-2017 and 2018-2022. With an aging population making up nearly twenty percent of their total community, Lake Como may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. With a striking population growth over the past five-year survey periods, Lake Como’s vulnerability to disaster may continue to be shaped by population growth and changes to the built environment including development and potential redevelopment or densification.

There are no areas of Lake Como which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,710
Population Change since 2017	12.6%
Percent of Population Age < 5	2.6%
Percent of Population > 65	19.2%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/ Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
		Landslide
		Wave Action
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	

High	Medium	Low
Natural Hazards		
	Power Failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

The hazard ranking remains unchanged from the previous plan update. This consistent ranking underscores the ongoing importance of monitoring and mitigating these hazards to maintain community safety and resilience.

Significant Hazard Events Since Last Plan Update

Flooding incidents have been reported along Main Street leading into Lake Como, particularly at the intersection with 22nd Avenue near the park, Marucci Park, and Behrman Park. While these parks often experience flooding, along with some backyards, there is generally minimal damage to the houses. The backyards were notably flooded due to Hurricane Sandy.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly amplify the risks and hazards faced by communities like Lake Como Borough. As global temperatures continue to rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and nor'easters are projected to increase. This will likely result in more severe flooding, particularly in low-lying and coastal areas. The borough's existing flood-prone zones, including the areas adjacent to Lake Como, will face heightened risks, potentially leading to more frequent and severe inundation events. Additionally, the increased occurrence of extreme temperatures and prolonged heatwaves will pose significant health risks, especially to vulnerable populations such as the elderly and young children.

The changing climate will exacerbate the challenges associated with stormwater management and infrastructure resilience. The borough's stormwater systems, which are already under strain during heavy rainfall events, will need to be upgraded to handle the increased volume and intensity of precipitation.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Lake Como Borough	
Initial FIRM	
Effective FIRM	
Number of Policies In-Force:	70
Total Losses:	41
Total Payments:	\$2,412,185.42
Number of RL Properties:	3
Number of Mitigated RL Properties:	0
RL – Total Losses:	6
RL – Total Paid:	\$85,300.87
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

The Special Flood Hazard Area (SFHA) in the Borough of Lake Como is primarily centered adjacent to the main waterbody of the borough, Lake Como. Approximately 6.8 percent of the total area of Lake Como lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.1 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 86.2 percent of Lake Como is considered developed. Of the developed parcels of the town, 2.7 percent fall within the 1% annual chance flood zone and 4.5 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.7%	4.5%	NA
Exposed Land Area	6.8%	4.1%	NA

During the planning process, Lake Como identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 6 total facilities. Of these facilities, none are within the floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	NA

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.7%	4.5%	NA
Community Lifelines and Critical Facilities	NA	NA	NA
Exposed Land Area	6.8%	4.1%	NA



Flood Risk

Lake Como Borough

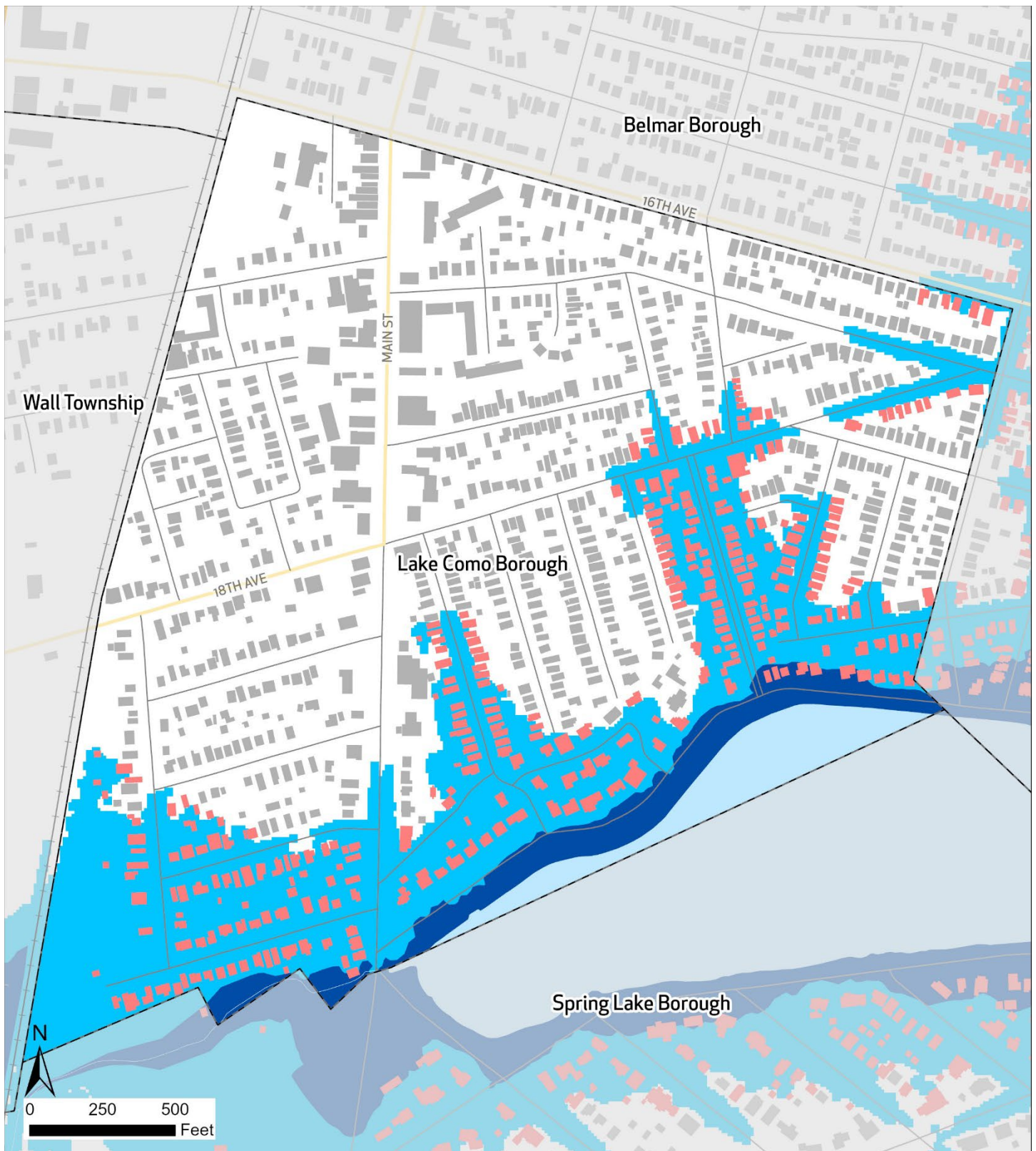
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Lake Como Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

— Railroad

— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Lake Como Borough

High or Medium Density Housing
 No Housing

County Routes
 Local Roads
 Rail Lines

Municipal Boundaries
 Building Footprint
 Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Lake Como Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2021	
Capital Improvement Plan	x		2024	
Local Emergency Operations Plan/Continuity of Operations Plan	x			
Floodplain Development Ordinance	x		2022	
Floodplain Management Plan	x			
Stormwater Management Ordinance	x		2024	
Stormwater Management Plan	x			
Watershed Management Plan		x		
Sheltering Plan		x		
Evacuation Plan	x			
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan		x		
Disaster Debris Management Plan	x			
Tracking elevation certificates and/or Letter of Map Change	x			
Post-Disaster Recovery Plan	x			
Current/recent redevelopment plans or studies	x			
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation	x			
Other ordinance and regulation that mitigate the impacts of natural hazards	x			

Administrative and Technical Capabilities

Lake Como Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer		x	
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	
Organizations that work with socially vulnerable or underserved populations	x		Monmouth County Social Services

Education and Outreach Capabilities

Lake Como Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Onsolve and Nixle alerting systems
StormReady		x	
Firewise USA		x	
Severe Weather Awareness Week		x	
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Lake Como Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance		x	
FEMA HMGP		x	
Non-FEMA Federal Funding Programs		x	
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs		x	
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Update

The mission of the Borough of Lake Como Hazard Mitigation Program is to enhance community resilience by identifying, reducing, and managing risks associated with natural and human-made hazards. Through proactive planning, public engagement, and strategic investments, we aim to protect lives, property, and the environment while ensuring the long-term sustainability of our community. We are committed to Identifying and assessing potential hazards that may impact Lake Como, implementing cost-effective and sustainable mitigation strategies, promoting public awareness, education, and preparedness and strengthening infrastructure and natural systems to reduce vulnerabilities. By fostering a culture of preparedness and resilience, we strive to safeguard the well-being of our residents, businesses, and visitors while preserving our community's unique character.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 25-1	Construct a New Outfall Pipe and Pump at Lake Como to Allow Water to be Released to the Ocean	Lake Como, Spring Lake, and Belmar are seeking remedies to prevent flooding. Currently implementing a solution to reduce the amount of water in the lake prior to heavy rain events. The outfall pipe and area for pumps has to be designed to allow water to b	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Lake Como, Spring Lake & Belmar all responsible	N/A	\$2,000,000	N/A	Completed	<i>Funded By Belmar</i>
Action 25-2	Improve Water System	Lining project and replacement to upgrade the distribution of water system.	Drought	N/A	Municipal Engineer	NJ Environmental Infrastructure program; US Department of Agriculture; possible mitigation grant; local funding through bonds issued	\$5,000,000	N/A	Completed	<i>USDA \$4 million</i>
Action 25-3	Purchase and Install Generator for OEM Central Command Center - Borough Hall	Loss of power is possible during hazard events including flooding, surge, extreme wind, hurricane and tropical storm, nor'easter, extreme temperatures, and lightning. OEM Central Command Center - Borough Hall lacks backup power.	Extreme Temperatures, Flood, Extreme Wind, Lightning, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Office of Emergency Management and Administration.	N/A	\$80,000	N/A	Completed	<i>Borough self funded</i>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 25-4	Purchase and install Generator for First Aid Building	Purchase a generator for the First Aid Building which is the First Response Emergency Center.	Extreme Temperatures, Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	N/A	N/A	Withdrawn	Withdrawn. This building was knocked down - priority for Borough Hall as Emergency Center.
Action 25-5	Purchase and Install Generator for Emergency Shelter	Purchase a generator for the Emergency Shelter located at Academy Charter High School. The Borough uses the gymnasium as an emergency shelter (1725 Main Street) located across the street from the Office of Emergency Management.	Extreme Temperatures, Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Office of Emergency Management will coordinate with school.	FEMA HMA	\$140,000	1 year	Withdrawn	The Borough has moved on from this gymnasium as they are using Belmar's gymnasium for the emergency shelter and Lake Como Boro Hall as secondary shelter.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 25-6	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Home elevations to comply with the FEMA flood base guidelines, specifically RL/SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Boro Administrator will be the lead person.	FEMA HMA	\$10M	10 years	Ongoing	With the Borough having control of high-risk areas and properties, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed
Action 25-7	Purchase and Install Generator for Public Works Building	Purchase a generator for the Public Works Building which is essential during times of emergencies. Located at 790 Seventeenth Avenue.	Extreme Temperatures, Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Office of Emergency Management and Administration.	Hazard Mitigation Grant; local funding.	\$75,000	2 year	Ongoing	Lake Como DPW still in need of funding for a generator to allow employees to work efficiently during power loss and help town recover from storm.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 25-8	Protect the Emergency Command Center from Wind Damage Through Purchasing and Installing Hurricane Windows and Roof Straps	Installation of hurricane windows and roof straps which will be in the complex location at 1730-1740 Main Street.	Extreme Wind	Medium	Office of Emergency Management and Administration.	Hazard Mitigation Grant; local funding.	\$125,000	1 year	Ongoing	Still ongoing and awaiting funding to further protect the boro hall complex which is vital for towns operations in extreme weather.
Action 25-9	Purchase and Install Generator for Belmar Police	The Belmar Police Station and shelter needs a new generator.	All Hazards	Medium	Borough of Belmar and Lake Como	FEMA HMA	\$350,000	1 year	Ongoing	Still waiting funding to update the generator at Belmar PD to allow the boro gymnasium which is listed as a shelter for both Lake Como and Belmar to also have power.
Action 25-10	Third Avenue/Main Street Drainage Improvements	Upsizing the storm drainage pipe under Third Avenue/Main Street is a crucial step toward improving the stormwater management infrastructure in the area. By increasing the capacity of the pipe, this project will reduce the risk of localized flooding during heavy rainfall events and enhance the overall drainage efficiency. The upgraded pipe will align with county regulations, ensuring compliance with modern standards for stormwater conveyance and environmental protection. This improvement will also help mitigate potential damage to roadways, properties, and adjacent	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough of Lake Como	FEMA HMA	\$400,000	3 year	New	This will allow for more efficient stormwater management in an area that is high priority as a roadway utilized in an evacuation. There is flooding experienced during storm events that need to be addressed. By addressing this critical issue proactively, the community can achieve a safer, more resilient, and environmentally compliant drainage system.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		infrastructure caused by overflow or insufficient drainage. In addition, the project supports long-term sustainability by accommodating anticipated increases in stormwater volume due to changing climate conditions.								
Action 25-11	Dredge Lake Como	Remove excess sediment from identified choke points and reduce flood risks during heavy rainfall events. As of now, buildup prevents retention.	Hurricane/ Tropical Storm/ Flood/ Nor'easter	High	Borough of Lake Como	Local funding / grants	\$750,000	3 years	New	Dredging the lake will allow for more capacity in the lake. During a storm event, moving the water off of the road and into the body of water.
Action 25-12	Extend the Outfalls at Lake Como	Extend the outfall pipes at Lake Como. Pipes are in need of cleaning and repair. Investigation needed to see where breaks are. During storm events flooding of the surrounding areas occurs.	Hurricane/ Tropical Storm/ Flood/ Nor'easter	High	Borough of Lake Como	USACE, NJDEP	\$100,000	5 years	New	Expanding the outfall length will ensure all stormwater reaches the lake and allow for stormwater to flow.

26 – LITTLE SILVER BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Peter Giblin	OEM Coordinator	Point of Contact, Municipal Workshop #2
Scott Lorenson	Deputy OEM Coordinator	Point of Contact, Municipal Workshop #1

COMMUNITY PROFILE

Overview

Located on the banks of the Shrewsbury River, the Borough of Little Silver has a land area of 2.8 square miles. The small commercial district along Prospect Avenue consists of cafes, restaurants, shops, and the municipal library. The Little Silver Train Station, which is on the National Register of Historic Places, was designed by the famous 19th century American architect Henry Hobson Richardson and is served by the North Jersey Coast Rail Line. County Route 520 traverses the borough.

Since 2014 the Borough has included a Sustainability Element in its Master Plan. Little Silver has an active Sustainable Jersey Green Team and now has a Parent Teacher Organization Green Team, comprised of teachers, parents, and administrators, to increase awareness about making schools more environmentally sustainable.

Land Use, Development, & Growth

Little Silver is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 74 percent of its total area, and water and wetlands together making up 24 percent. Although since 2015, the Borough's barren and forested land declined by 2 and 3 acres respectively while its developed land grew by 6 acres, its overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	15.6	15.6	>0%
Barren Land	4.6	2.3	-50%
Forest	31.8	29.0	-9%
Urban	1493.6	1499.8	>0%
Water	303.6	303.5	>0%
Wetlands	186.8	185.8	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters,

and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Little Silver Borough’s total population is estimated to be 6,104. Of this population, an estimated 6.2% is under age 5, and 17.9% is over age 65. The Borough experienced a moderate population growth of an estimated 3.16% in the periods between ACS surveys in 2013-2017 and 2018-2022. With an aging population making up nearly eighteen percent of their total community, Little Silver may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of Little Silver which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	6,104
Population Change since 2017	3.2%
Percent of Population Age < 5	6.2%
Percent of Population > 65	17.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/ Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Coastal Erosion	Landslide
	Wave Action	
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	

Hazard Ranking Explanation

Coastal erosion remains a moderate concern due to the riverfront. Wave action, previously not applicable, now poses a medium level of concern due to the Shrewsbury River, which impacts two peninsulas. Additionally, the increased wave action exacerbates the potential for property damage and navigational challenges in these areas.

Significant Hazard Events Since Last Plan Update

Several areas are prone to tidal or storm flooding, with One Seven Bridges Road being the highest risk location. Water enters through catch basins and floods the roadway. The area around 557 Seven Bridges Road experiences flooding 30 to 40 times per year. While there is minimal to no property damage, the frequent flooding can create significant navigational challenges.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Little Silver Borough, particularly in terms of the extent and magnitude of these threats. As global temperatures continue to rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and nor'easters are likely to increase. This will exacerbate existing vulnerabilities, especially in flood-prone areas like the eastern end of the borough adjacent to the Shrewsbury River. The increased wave action and storm surges will pose greater risks to property and infrastructure, leading to more frequent and severe flooding events. Additionally, the borough's aging population, which makes up nearly eighteen percent of the community, may face heightened challenges in terms of mobility, resource access, and social support during and after such disasters.

Climate change will likely lead to more extreme temperatures, prolonged droughts, and increased coastal erosion, further stressing the borough's natural and built environments. The rising sea levels and more intense storm surges will not only threaten the structural integrity of critical facilities but also disrupt essential services and community lifelines. The borough's proactive measures, such as the proposed installation of Living Breakwaters and the elevation of flood-prone infrastructure, are crucial steps towards mitigating these risks.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Little Silver Borough	
Number of Policies In-Force:	249
Total Losses:	390
Total Payments:	\$33,291,261.26
Number of RL Properties:	21
Number of Mitigated RL Properties:	0
RL – Total Losses:	55
RL – Total Paid:	\$4,998,830.14
Number of SRL Properties:	2
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	9
SRL – Total Paid:	\$219,060.41

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

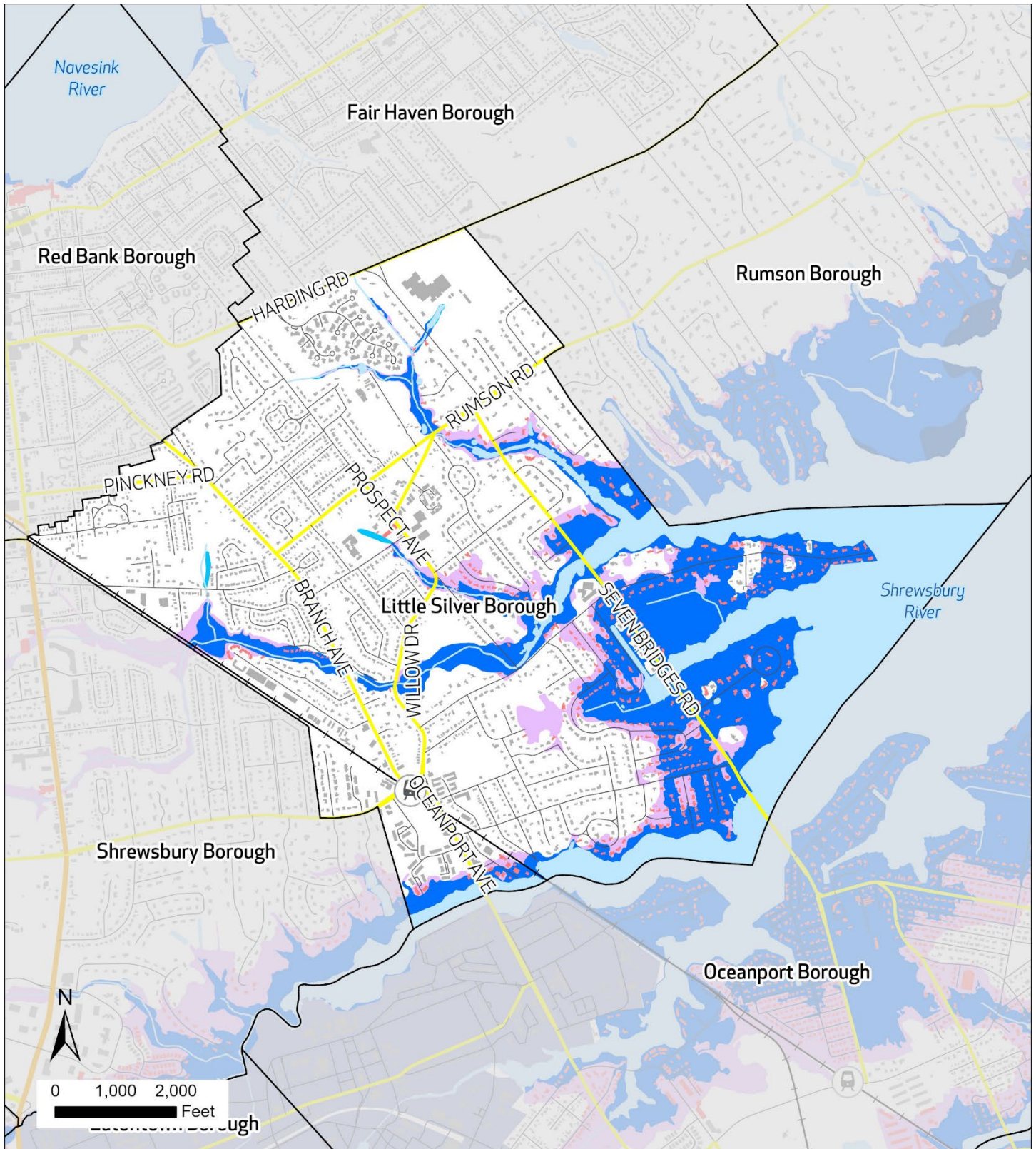
The Special Flood Hazard Area (SFHA) in the Borough of Little Silver is primarily in the eastern end of the borough adjacent to the Shrewsbury River, as well as its various smaller tributaries which pass through town. Approximately 28.2 percent of the total area of Little Silver lies within the 1% annual chance flood zone as defined by FEMA. An additional 5.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 83.6 percent of Little Silver is considered developed. Of the developed parcels of the town, 17.4 percent fall within the 1% annual chance flood zone and 4.5 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	17.4%	4.5%	14.4%%
Exposed Land Area	28.2%	5.2%	12.2%

During the planning process, Little Silver identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 10 total facilities. Of these facilities, one is within the floodplain.

Community Lifeline Category	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	-	-



Flood Risk Little Silver Borough

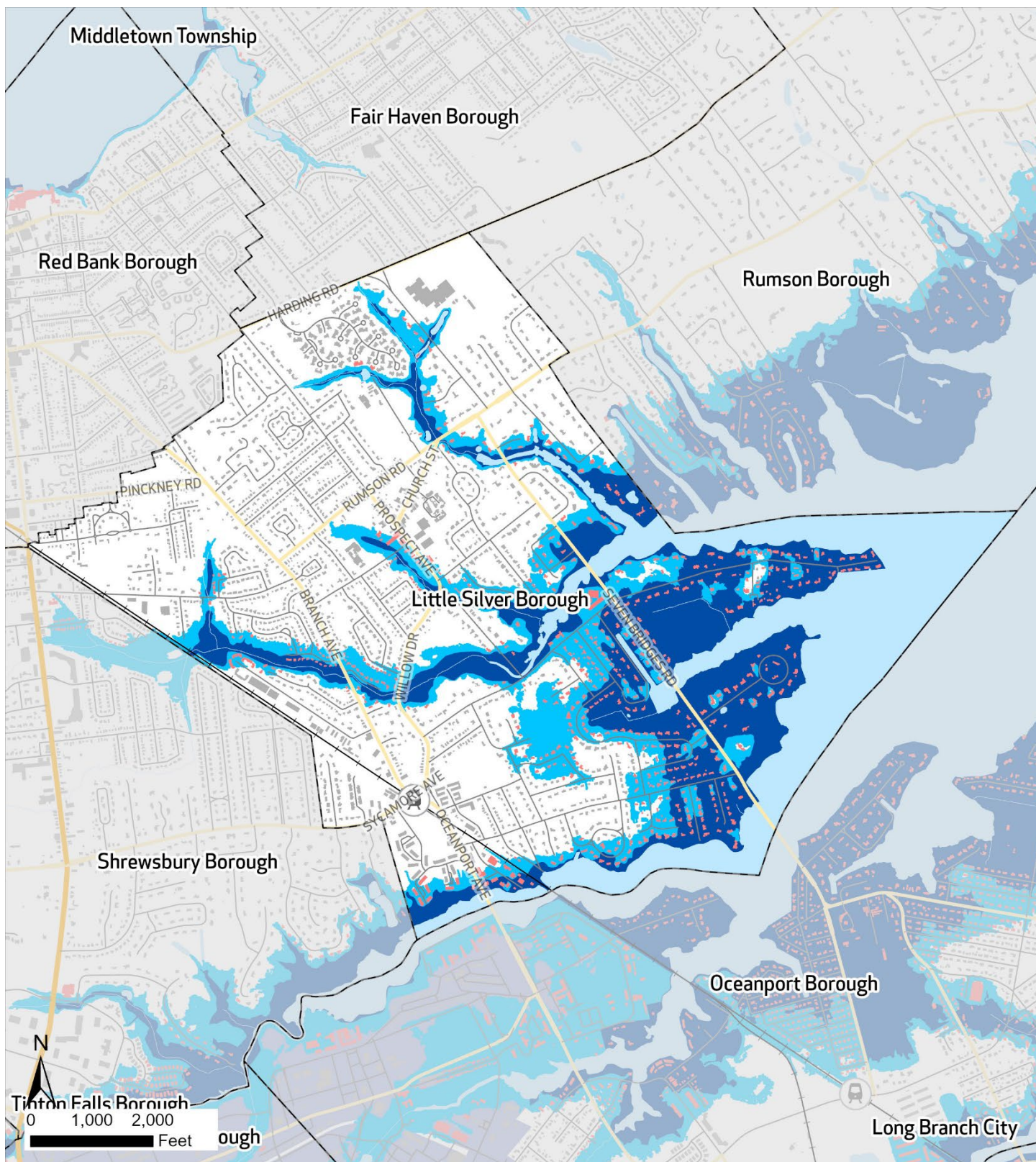
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Little Silver Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

○ NJ Transit Rail Station

— Municipal Boundaries

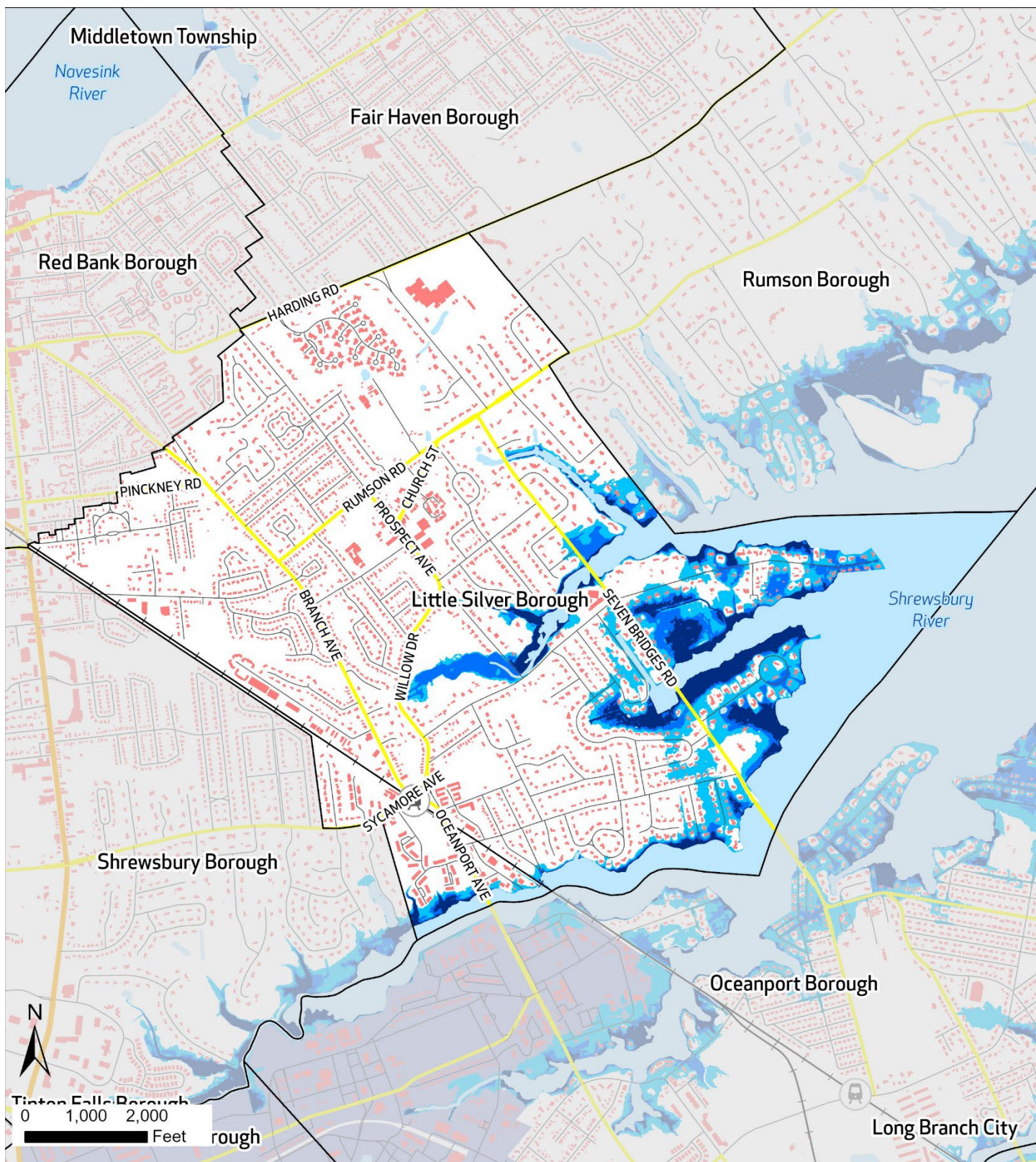
■ Water

■ Department of Defense
Land

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



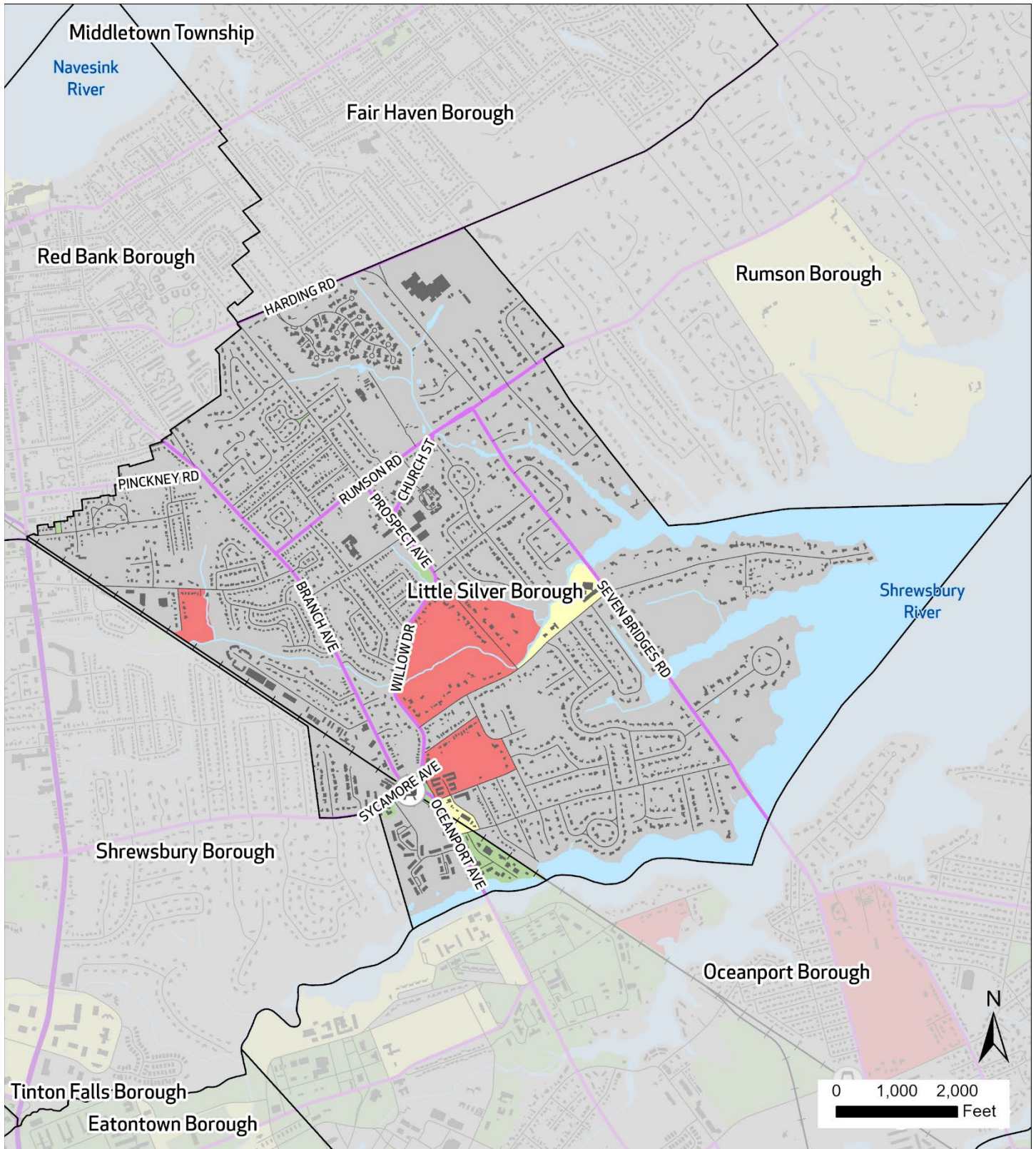
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Little Silver Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Little Silver Borough

- | | | |
|---|---|--|
| Intermix | State Routes | Municipal Boundaries |
| High or Medium Density Housing | County Routes | Building Footprint |
| Low or Very Low Density Housing | Local Roads | Water |
| No Housing | Rail Lines | |
| | NJ NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Little Silver Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2023	
Capital Improvement Plan	X			Capital money has been allocated to purchase new generators / radio equipment / security equipment for our Borough buildings.
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	strategizes deployment of resources, communications, and ICS
Floodplain Development Ordinance	X			designing and building structures within a floodplain in a way that actively reduces the risk of flood damage
Floodplain Management Plan		X		
Stormwater Management Ordinance		X		
Stormwater Management Plan		X		actively reduce flooding, particularly by managing stormwater runoff effectively, thus minimizing potential damage to communities and infrastructure.
Watershed Management Plan	X			managing water flow, land use, and vegetation to minimize the impacts of flooding
Sheltering Plan	X		2023	We have this outlined in our Municipal EOP
Evacuation Plan	X		2023	We have this outlined in our Municipal EOP
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		2023	effectively manage debris generated after a natural disaster
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X		2023	We have this outlined in our EOP as our sheltering plan, evacuation plan, and local EOP encompasses hazard mitigation
Other ordinance and regulation that mitigate the impacts of natural hazards	X			In 2024, the borough adopted a Complete Streets Policy, aiming to provide "safe, convenient, equitable, healthy, and environmentally and economically beneficial transportation for all users."

Administrative and Technical Capabilities

Little Silver Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		OEM
Grant Writer		X	
Staff trained to support mitigation	X		OEM
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Little Silver Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Social media and Code red
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Little Silver Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since the Last Plan Update

The Borough of Little Silver is a sustainable community that actively works to fuse scientific evidence with proactive policy and aims to improve Little Silver's resilience to damage from natural disasters and adapt to future climate concerns. The Borough is in discussions with Installing a series of Living Breakwaters that would be positioned in the Shrewsbury River, east of the Gooseneck Bridge on both the Oceanport and Little Silver side to assist with flood mitigation. Moving forward, Little Silver will remain forward thinking and prioritize home, roadway and critical infrastructure elevation, continued upgrades to water, sewer and stormwater conveyance systems and coordinate with state and local agencies on the best ways to achieve resiliency within this vulnerable coastal community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
26-1	Improve Communications between Police Officers	New internet provider (ISP) for police/borough communications to enable responders to communicate with each other and community members.	All Hazards	N/A	N/A	Municipal budget	N/A	N/A	Completed	The infrastructure for Police, Fire, and EMS was upgraded, and they are on the state system. The cost was \$1,300,000 and came from the municipal budget.
26-2	Purchase Tree Trimming Equipment	Purchase new tree-trimming equipment, such as a tree shredder.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Wildfire	N/A	N/A	Municipal budget	N/A	N/A	Withdrawn	This action has been withdrawn; it is being completed by a private entity.
26-3	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	N/A	N/A	Municipal budget	N/A	N/A	Withdrawn	This action has been withdrawn; the Borough has not been experiencing landslides.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
26-4	Improve Stormwater Runoff and Drainage by Upgrading Infrastructure and Clean Streams	The Borough improves their stormwater system every year with their yearly roadway program, updating drainage inlets to eco-grates. Develop mitigation steps to reduce damage and losses due to flooding through control of	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough Engineer	Municipal budget	\$50,000.00	1 year	Ongoing	Control of stormwater runoff and efficient drainage has been needed on county roads. The County cleans these through ongoing maintenance.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		stormwater runoff and more efficient drainage and discharge to three major streams. Stream cleaning reduces sediment/debris within watershed providing better overall volume flow throughout the Borough.								
26-5	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	The Borough is proposing mitigation through house elevation and acquisition for homes within the 100-year flood zone, specifically RL/SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Engineer	FEMA HMA	\$24,990,000.00	5 + years	Ongoing	No elevations were completed since the last plan update, and one property was acquired.
26-6	Repair Outfall Drainage Pipe and Install Tide Flex Valve	The Borough is proposing mitigation of each drainage outfall pipe located within the Borough. The installation of a tide flex valve is proposed to migrate storm surge within the Borough existing storm drain system to help protect during a flooding event.	Storm Surge	High	Borough - Engineer	FEMA HMA	\$200,000.00	1 year	Ongoing	This remains a high priority, however we have no progress on this yet.
26-7	Install a Regional Dyke Structure along the Sandy Hook Inlet	The Army Corp of Engineers is proposing a regional dyke structure along the Sandy Hook Inlet into the Navesink and Shrewsbury River. The installation of a dyke structure is proposed to mitigate storm surge within the Borough existing storm drain system to	Storm Surge	High	Army Corp of Engineers	FEMA HMA, Army Corp of Engineers	\$30,000,000.00	1 year	Ongoing	USACE has dredged Shrewsbury River (Branchport Creek).

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
26-8	Purchase and Install Generators for Critical Facilities	Purchase and install a generator at Red Bank Regional High School, DPW Annex, Municipal Building, Point Rd. School, Fire/EMS, and the pump house at Fairview Ave.	All Hazards	Low	Borough OEM	FEMA HMA, Municipal budget	\$200,000 .00	2 years	Ongoing	The Municipal Building and Fire/EMA obtained a new generator. The cost for both was \$60,000 and came from the municipal budget.
26-9	Target Harden Critical Facilities by Installing Surveillance Cameras, Panic Buttons, and/or Bulletproof Glass	Fortify the Woman's Club; enhance camera system at DPW/Verizon tower, train station platform, sewer pumps; and harden the municipal building through bulletproof glass in entry, portable metal detectors (est. \$7,000), a camera system, panic buttons, and ha	Terrorism	Medium	Borough Administration	Homeland Security grants	\$250,000 .00	2 years	Ongoing	The camera systems and security in the building at Borough Hall has been updated via the municipal budget. We are in the process of updating security cameras at our Train Station.
26-10	Elevate Seven Bridges Rd. Above the Flood Zone	Coordinate with the County to elevate Seven Bridges Rd. above the Flood Zone	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Monmouth County and Borough Engineering	FEMA HMA, County funding, municipal funding	\$10,000, 000.00	2 years	Ongoing	The priority level remains high, but there has not been progress.
26-11	Install Living Breakwaters	Install a series of Living Breakwaters that would be positioned in the Shrewsbury River, east of the Gooseneck Bridge on both the Oceanport and Little Silver side.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Oceanport, Rumson, Monmouth Beach, Long Branch	FEMA HMA	See Notes	2 years	New	Rip-Rap and Armor Stone: \$35.9M Oyster Rings: \$5.4M ExoForms: \$3M Oyster Castles: \$1.5M

27 – LOCH ARBOUR VILLAGE

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
William Hulse	OEM Coordinator/ Captain of Police	Point of Contact, Municipal Workshop #2
Nicholas Dowling	Deputy OEM Coordinator/Detective	Reviewed municipal appendix and attended meetings with consultant

COMMUNITY PROFILE

Overview

The Village of Loch Arbour is roughly 2 blocks wide and 5 blocks long, for a total land area of just 0.10 square mile. With only 220 Residents as of the 2020 census, Loch Arbour has the smallest current population of any municipality in Monmouth County. Loch Arbour is traversed by the North Jersey Coastline, and residents can access the station at Allenhurst, less than a mile from the most distant part of the municipality. The NJ TRANSIT 832 and 837 bus routes also run through the Village.

Land Use, Development, & Growth

Source: MOV-IV Data, 2024

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	5.3	5.7	8%
Forest	-	-	-
Urban	50.0	50.0	>0%
Water	18.6	18.0	-3%
Wetlands	0.0	0.3	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None since the Main Street Bridge replacement in 2016 that falls in FEMA's 1% annual chance floodplain (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the village. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Village of Loch Arbor has a total estimated population of 220, of which an estimated 5% are under 5 years of age and 24.5% are over age 65. Loch Arbor experienced a population growth of an estimated 12.8% between the ACS survey

periods of 2013-2017 and 2018-2022. With an aging population making up nearly one-quarter of their total community, Loch Arbor may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. With a striking population growth of nearly thirteen percent, the village may face vulnerabilities related to development or redevelopment and potential densification of the built environment in hazard prone areas.

There are no areas of the Village which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	220
Population Change since 2017	12.8%
Percent of Population Age < 5	5.0%
Percent of Population > 65	24.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Village's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperature	Lightning
Coastal Erosion	Extreme Wind	Drought
Flood	Tornado	Earthquake
Storm Surge	Winter Storm	Wildfire
	Wave Action	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

The Village ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Hurricanes, tropical storms, floods, coastal erosion, and storm surges continue to be the biggest concerns for the village. Among these, coastal erosion has seen an increase in its risk level. Significant erosion occurred on the village's beach in 2020, prompting town and state-funded improvements in 2022 to help mitigate the effects. Despite these efforts, erosion remains a persistent concern.

Significant Hazard Events Since Last Plan Update

In September 2023, Loch Arbor experienced significant flooding due to an unprecedented amount of rainfall over a short period. The rapid accumulation of water did not allow sufficient time to lower the level of Deal Lake, leading to the inundation. Although there was no substantial damage reported, the bulkhead was completely submerged underwater, highlighting the intensity of the flood.

Climate Change Impacts on Extent and Magnitude of Hazards

The Village of Loch Arbour is already facing significant risks from natural hazards such as hurricanes, tropical storms, floods, and coastal erosion. Climate change is expected to exacerbate these risks, increasing both their extent and magnitude. Rising sea levels and more frequent and intense storm events will likely lead to more severe coastal erosion and flooding. Looking at a map of FEMA BFE+3 indicates the Village may experience significantly more widespread flooding from large storms than just the regulatory floodplain.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Loch Arbour Village	
Initial FIRM	11/30/1973
Effective FIRM	03/15/1979
Number of Policies In-Force:	35
Total Losses:	99
Total Payments:	\$3,667,207.74
Number of RL Properties:	16
Number of Mitigated RL Properties:	0
RL – Total Losses:	39
RL – Total Paid:	\$720,809.86
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	4
SRL – Total Paid:	\$93,012.98

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

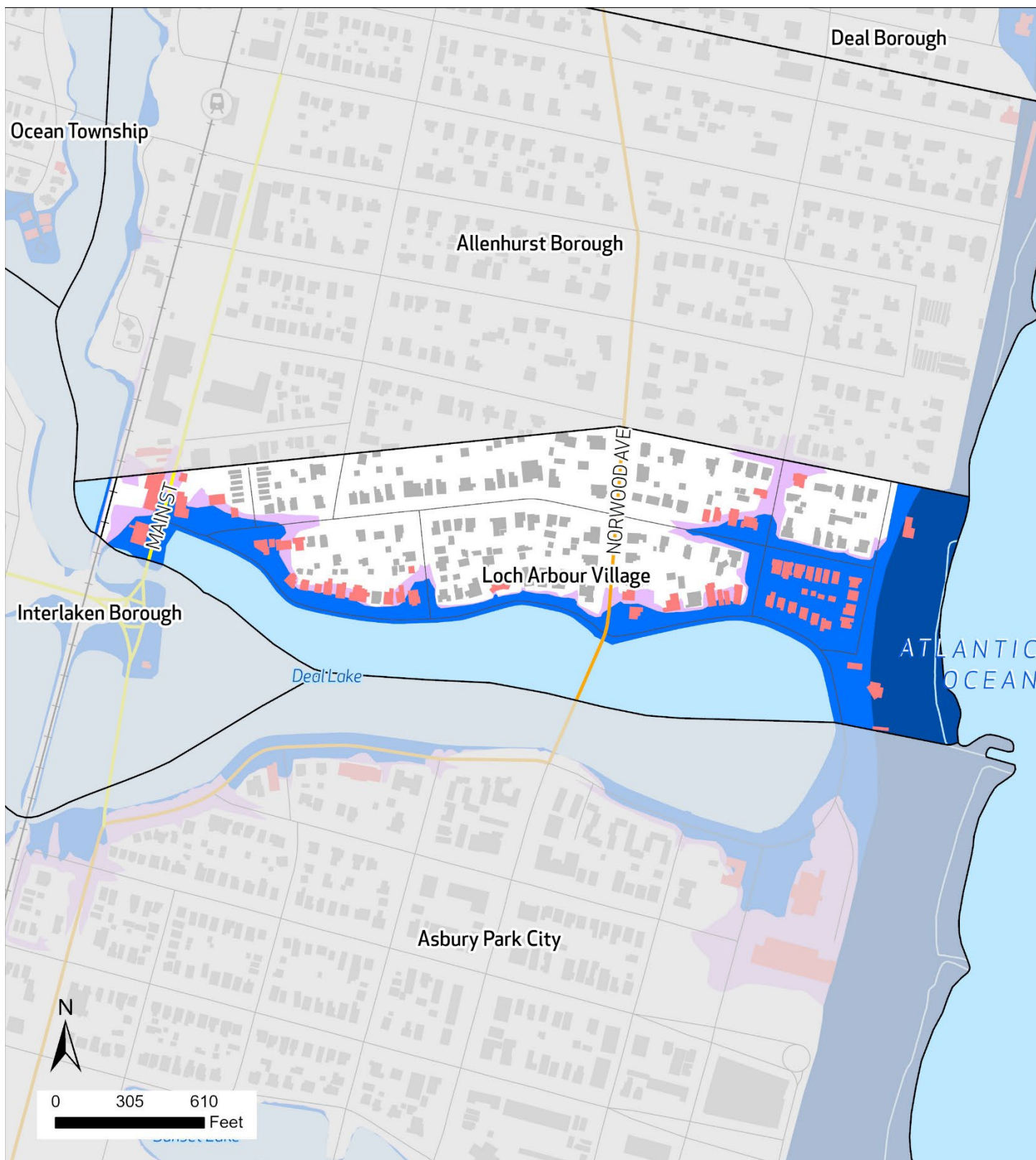
The Special Flood Hazard Area (SFHA) in the Borough of Loch Arbour is primarily located adjacent to the main waterbody of the borough, Deal Lake, especially the area between the Lake and the Atlantic Ocean. Approximately 52.1 percent of the total area of Loch Arbour lies within the 1% annual chance flood zone as defined by FEMA. An additional 5.5 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 87.8 percent of Loch Arbour is considered developed. Of the developed parcels of the town, 38.6 percent fall within the 1% annual chance flood zone and 12.1 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	38.6%	12.1%	0.7%
Exposed Land Area	52.1%	5.5%	3.4%

Loch Arbour did not identify any critical facilities which function as community lifelines during the planning process, so it was not possible to analyze vulnerability of critical facilities.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	NA	NA	NA



Flood Risk Loch Arbour Village

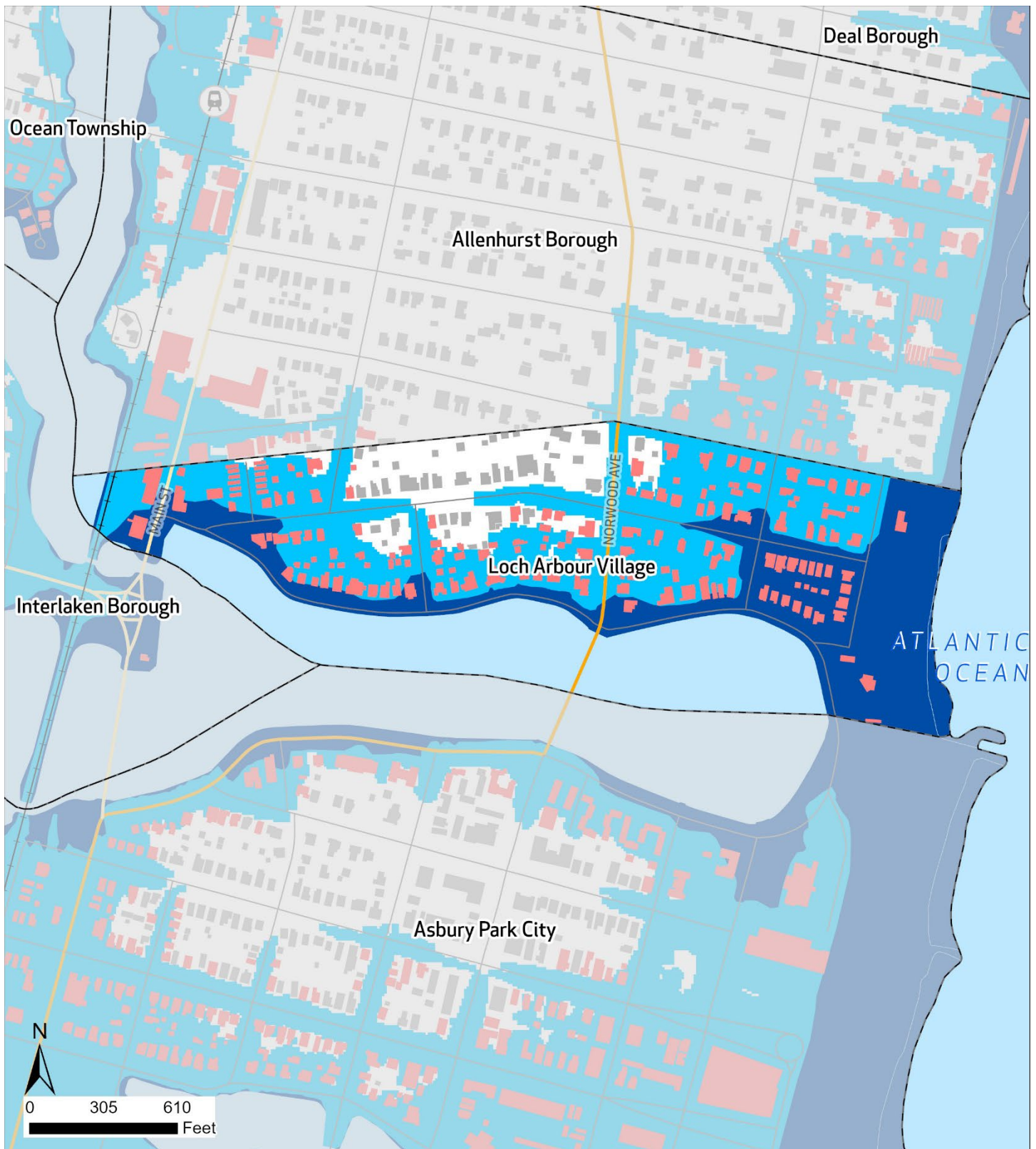
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Loch Arbour Village

FEMA Flood Zone

Current Base Flood
Elevation (1%)

**NJ Inland Design Flood
Elevation**

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

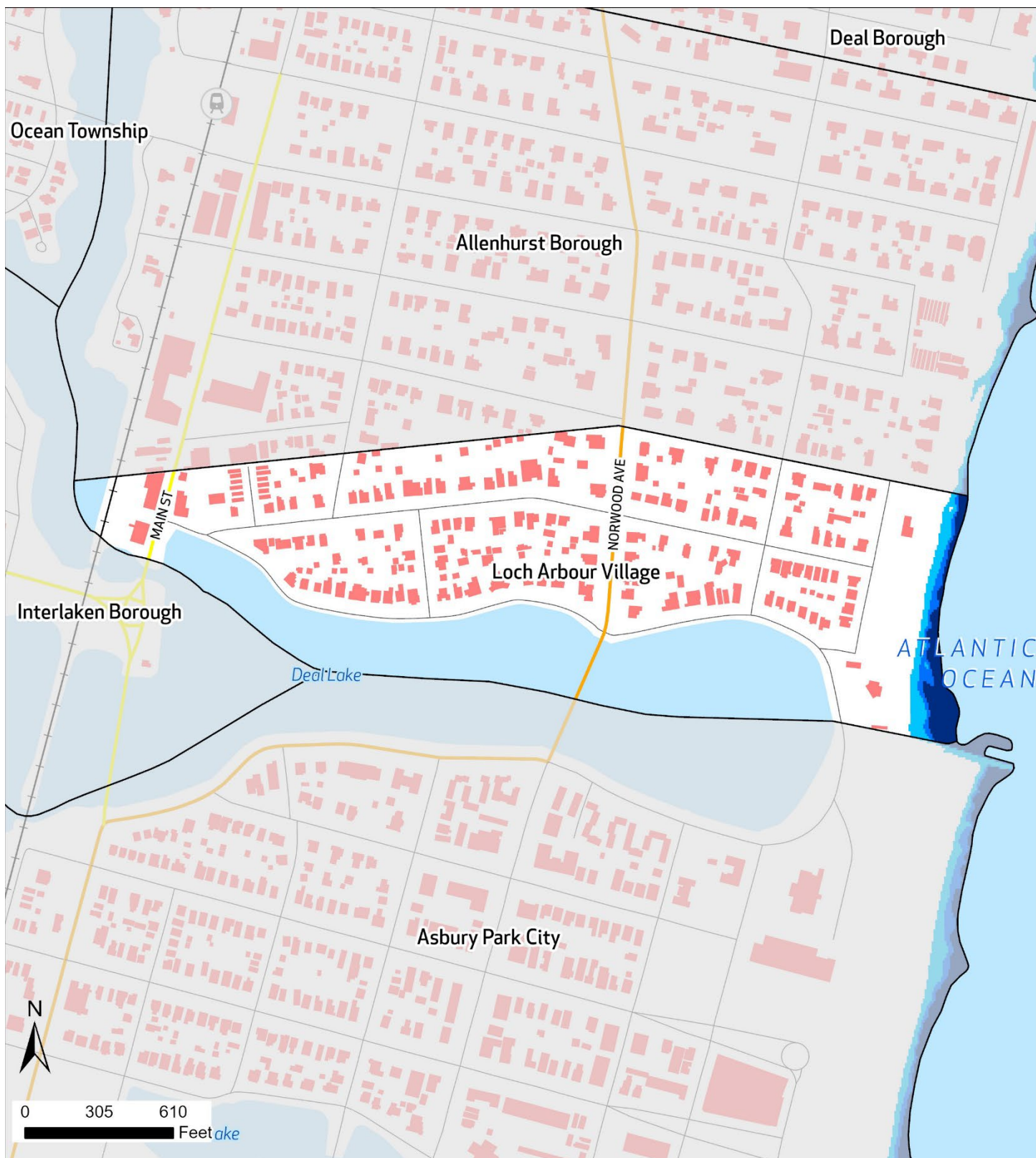
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Loch Arbour Village

- | | | |
|---------------------------------|---------------------|----------------------|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Loch Arbour Village

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ

 NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJ Transit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Loch Arbour Village has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		4-1-2016	Integrating risk assessments, land use strategies, and resilient infrastructure planning to reduce vulnerabilities and enhance community preparedness.
Capital Improvement Plan	X		6-15-2024	Prioritize roads that act as a major travel way in case of an emergency.
Local Emergency Operations Plan/Continuity of Operations Plan	X		1-26-2025	
Floodplain Development Ordinance	X		6-30-2024	Restricts high-risk construction, promoting resilient building practices, and preserving natural floodplain functions to reduce flood damage and protect communities.
Floodplain Management Plan	x		6-30-2024	See Above.
Stormwater Management Ordinance	X		6-30-2024	Improving drainage systems, reducing flood risks, and enhancing water quality to protect infrastructure and communities from storm-related impacts.
Stormwater Management Plan	X		6-30-2024	See Above.
Watershed Management Plan				
Sheltering Plan	X		1-26-2025	
Evacuation Plan	X		1-26-2025	
Substantial Damage/Improved Structures Response	X		1-26-2025	
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X		1-1-2025	Floodplain manager reviews applications for conformance.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			In response to Superstorm Sandy, Loch Arbour adopted the "Flood Damage Prevention" chapter in the Borough Code to include updated definitions of flood terms, such as Advisory Base Flood Elevation (ABFE) and Substantial Damage. The Borough also updated the basis for establishing Special Flood Hazard Areas, adopted new standards for residential and nonresidential construction, and established that structures must be elevated above the Base Flood Elevation, ABFE, or as required by the Uniform Construction Code.

Administrative and Technical Capabilities

Loch Arbour Village has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Leon S. Avakian Inc.
Grant Writer	X		Leon S. Avakian Inc.
Staff trained to support mitigation	X		Loch Arbour OEM
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Loch Arbour Village has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Nixle
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Loch Arbour Village has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan

Since the 2021 plan update, The Village of Loch Arbour has prioritized enhancing flood resilience, strengthening emergency response capabilities, and improving critical infrastructure to mitigate natural hazard risks. Key completed actions include upgrading stormwater management systems, reinforcing evacuation routes, and improving backup power at essential facilities. Over the next five years, our focus will shift toward addressing the increasing impacts of climate change by implementing targeted roadway elevation projects, enhancing floodplain management strategies, and expanding public emergency preparedness initiatives. These efforts are designed to safeguard residents, minimize property damage, and ensure long-term community resilience.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	The Village has no completed or withdrawn actions since the previous plan update.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
27-01	Conduct a Study on the Need for Stormwater Basins and Construct New Infrastructure (if needed)	Deal Lake Commission is proposing: (1) a study to research the possibility of building several stormwater basins on DOT land; and (2) construction of stormwater basins.	Flood	Medium	Deal Lake Commission - Engineer, Environmental Consultant and Attorney	Municipal budget	\$1,250,000	2 years	Ongoing	The reason for this action is to find and prioritize the needs to be addressed in high-risk areas of town. Addressing the problem areas will allow for better assistance in the case of an emergency.
27-02	Acquire the Beach Club Property and Protect the Shoreline with Dunes and Living Shorelines	Acquire Block 8 Lot 1 ; Block 7 Lots 1 & 2 and construct a sand dunes and living shorelines along the entire beach frontage.	Flood, Wave Action, Coastal Erosion, Nor'easter, Storm Surge	High	Village Engineer	FEMA HMA, The Nature Conservancy (TNC)	\$3,000,000	2 years	Ongoing	With the Village having control over the beach club property, it will allow for full control over the projects that can be done on site. This will allow that no new major construction be proposed.
27-03	Construct an Automatic Tide Gate at Deal Lake	Deal Lake Commission is actively in the process of design for the development of automatic Tide Gate. The tide gate will be inserted within the 5' x 10' flume.	Flood	Medium	Deal Lake Commission - Engineer	FEMA HMA	\$500,000	1 year	Ongoing	This will allow for better control of the tide gate. Allowing the control to be done remotely and not having someone on site during a storm event.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
27-04	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Coordinate with residents to mitigate RL/SRL properties through structure elevation, demolition to open space, or other type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Village and Property Owners	FEMA HMA	TBD	5 + years	Ongoing	This allows the Village to continue to follow state and federal guideline for construction in a flood hazard area. Following those guidelines will mitigate damage in a major flood event.
27-05	Raise the Bulkhead at Edgemont Drive	Raise the bulkhead at Edgemont Drive to protect homes.	Flooding	Mid	Village	FEMA	\$3,000,000	5 Years	New	The raising of the bulkhead would creating a damming situation along the Village property to create more capacity in the lake.
27-06	Dredge Deal Lake	Remove excess sediment form identified choke points and reduce flood risks during heavy rainfall events. Deal Lake plays a crucial role in stormwater management for surrounding communities. Dredging increases its capacity to store and convey stormwater, reducing the risk of flooding during heavy rains and protecting local infrastructure. Regular dredging complements broader lake management strategies, such as shoreline restoration and vegetation control. It sets the stage for sustainable practices that maintain the lake's ecological and recreational value. Dredging removes sediments laden with nutrients, such as phosphorus and nitrogen, that contribute to algal	Flood, Nor'easter, Hurricane and Tropical Storm	High	Village, Deal Lake Commission	Municipal funds, Deal Lake Commission	\$1,000,000	3 years	New	Dredging the lake will allow for more capacity in the lake. During a storm event, moving the water off of the road and into the body of water.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		blooms. These blooms deplete oxygen levels, harm aquatic life, and degrade the lake's water quality. Cleaner water supports biodiversity and recreational uses								
27-07	Construct strengthened bulkhead along with Interlaken Borough and City of Asbury Park	Strengthen flood resilience along Deal Lake with a fortified bulkhead. Collaboration with surrounding municipalities ensures cost-effectiveness and durability.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Loch Arbour Village, Interlaken Borough, City of Asbury Park	FEMA HMA	1.5 Million	5 Years	New	The raising and completion of the bulkhead would creating a damming situation along the Village property to create more capacity in the lake.
27-08	Construction of Sand Dunes	The addition of sand dunes at vulnerable points along the Boroughs shoreline would allow for more resilience during a hurricane or major tidal event. The existing dunes will continue to be maintained under the DEP Permit, however, additional dunes will be considered.	Wave Action, Storm Surge, Flood, Nor'easter, Hurricane and Tropical Storm	Mid	Village	FEMA Village	\$100,00	5 Years	New	Sand dunes act as the first line of defense in a severe tidal event. Creating more dunes will allow for more time for response.
27-09	Shoreline Flood Measures	Shoreline flood measures include a combination of structural defenses, such as seawalls, levees, and bulkheads, along with natural solutions like dune restoration, wetlands enhancement, and living shorelines to mitigate coastal flooding and erosion.	Flood, Nor'easter, Hurricane and Tropical Storm	Mid	Village	FEMA Village	\$250,000	5 Years	New	

28 – LONG BRANCH CITY

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Guido Monteleone	Deputy OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
Stan Dziuba	OEM Coordinator	Municipal Workshop #1
David Graminski	Police Sergeant / Deputy OEM Coordinator	Municipal Workshop #2
Charles F Shirley Jr	Business Administrator / Deputy OEM Coordinator	Plan Review

COMMUNITY PROFILE

Overview

Named for its location along the southern branch of the Shrewsbury River, the City of Long Branch has a land area of 5.1 square miles. In recent years, the city saw large-scale redevelopment along its oceanfront with new high-rise residences, restaurants, and commercial businesses, including the trendy Pier Village. The city recently designated a new developer for its redevelopment project in the historical Broadway corridor.

Long Branch Train Station and its surrounding area was designated a Transit Village in 2021. There are several NJ Transit Bus Stops in Long Branch with service from the 831 and 837 routes, including those along Ocean Boulevard, 2nd Avenue, 3rd Avenue, and Broadway. North Jersey Coastline Rail service can be accessed at Long Branch Station across from Monmouth Medical Center long 3rd Avenue.

Land Use, Development, & Growth

Long Branch is a predominantly residential community, although publicly owned and commercial land also constitute significant portions of its developed land. In 2020, urban or developed land accounted for nearly 87 percent of the town's total area, while water, wetlands and barren land together made up 11 percent. From 2015 to 2020, there was negligible change in the Borough's overall land use composition.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	4.8	4.8	>0%
Barren Land	142.2	146.6	3%
Forest	45.9	37.8	-18%
Urban	3059.7	3054.7	>0%
Water	209.3	207.7	-1%
Wetlands	44.2	54.4	23%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Long Branch continues to complete major roadway improvements throughout the City; and completed work on 35 roads in 2022. This initiative was financed using federal, state, and city funding sources totaling nearly \$3 million. NJDOT designated the area surrounding the city's train station as a Transit Village. In February of 2023 the City was awarded \$13.2 million to construct a tunnel intended to connect the areas situated to the east and west of the train station. The project includes upgrades to the station and surrounding area, reconstructed commuter parking lot for multi-modal public transportation, ride share, and taxi service, a heated pedestrian overhang for bus service, and landscape improvements.

In September of 2023 FHWA approved and additional \$7.9 Million in funding to complete the pedestrian tunnel project bringing the total to \$15.1 million.

Several new multifamily residential developments were approved in the Transit Village District in 2021, the first year of Long Branch having an area with the designation. The Transit Village area center around Long Branch Station and Monmouth Medical Center and stretches as far south as Bath Avenue and as North as Chelsea Avenue. In 2022, Long Branch had a \$2 million expansion and renovation of the city's senior center to include renovations to the entire exterior of the building, new health screening rooms, fitness space, and more.

- Transit tunnel to reconnect Morris Ave across the train tracks. Not in a flood zone.
- Seaview Towers at Bath Ave and Ocean Blvd. being redeveloped. Not in flood zone.
- Seashore School on Bath Ave. Not in flood zone.
- Pure Village phases 4 and 5. Don't flood, but nearby Laird Street does when outfall gets clogged.
- Lower Broadway in full development right now, both big lots. Never flooded.
- Ferry terminal pier at end of Laird Street, starting construction in the spring. Not an active ferry, just a pier with fishing. This pier falls within NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).
- Other projects in the next five years – nothing in the flood zone.
- Takanassee Lake dredging project. That area gets runoff from Monmouth University and heavy sedimentation.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The former Seaview Towers apartment buildings, which were deemed an imminent hazard in 2021 and subsequently demolished, is slated to be replaced by the Atlantic Club, a new luxury condo property approved by Long Branch's Planning Board in 2023. This site falls within NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

The Long Branch Planning Board approved the former Seashore School site to be developed into 94 market rate units. The developer will also build an acre-sized public park to give back to the city. Two other condominium apartment complexes are in various stages of construction along Ocean Boulevard. The Reef and Aqua Vista projects propose a combined total of 46 new condominium apartments. This site falls within NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

The fourth and final phase of Pier Village is located at the south end of the redevelopment area, was approved by the County's Development Review Committee in July 2023. The project consists of a 107-room hotel with a pool, a lounge, a spa, and a public plaza. This site falls within NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

In 2023, Long Branch approved a redeveloper agreement for its Lower Broadway redevelopment area. The agreement calls for 299 dwelling units, of which 30 will be affordable units. In addition, the project is required to provide at least 22,000 square feet of new retail space. The agreement requires the developer to pay a fee of \$100,000 to the City, and construction must start within six months of receiving site plan approval. The County's Development Review Committee voted to approve the project in August 2023.

The Federal Transit Administration awarded \$2.4 million to develop a conceptual design for a pier and ferry terminal. The Long Branch pier and ferry terminal project is currently in the engineering and design phase.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the city. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The City of Long Branch’s total estimated population is 31,932. Of this population, an estimated 6.6% is under age 5 and 16.4% is over age 65. The city experienced a moderate 3.8% population growth estimated between the ACS survey periods of 2013-2017 and 2018-2022. With an aging population making up over sixteen percent of Long Branch’s total community, Long Branch may focus hazard mitigation efforts on those with robust messaging and engagement for local residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

Within Long Branch City, there are twenty block groups meeting criteria for overburden (OBC) according to the State of New Jersey. These block groups are clustered in the City’s north and western portions, and identify overburden based on criteria of vulnerable populations: *Low Income* (three block groups), *Minority* (four block groups), and *Low Income and Minority* (thirteen block groups). There are five tracts meeting CEJST criteria throughout Long Branch; these tracts are identified due to characteristics including *Workforce Development*, *Water and Wastewater*, and *Health*. There are no parts of the city which meet criteria under CDRZ identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	31,932
Population Change since 2017	3.8%
Percent of Population Age < 5	6.6%
Percent of Population > 65	16.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the City’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/tropical storm	Extreme wind/tornado	Drought
Nor'easter	Lightning	Forest fires
Storm surge	Winter storm	Earthquake
Flood	Coastal erosion	
	Wave action	
Human-made Hazards		
	Cyber attack	Civil unrest
	Economic disruption	
	Power failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Long Branch City regularly experiences coastal flooding and flooding related to the high-water table in the area. Recent property damage from Nor'easters in 2021 and heavy rain events in 2023 has heightened the community's desire to prepare for and mitigate this high wind and flood hazard events.

Due to its location along the Atlantic coastline and being situated near several creeks, Long Branch faces ongoing impacts from coastal erosion and tidal flooding. These impacts are currently mitigated through regular beach replenishment projects and maintenance of outfalls. The state, county, and USACE have been notified of the outfalls that need repairs.

Significant Hazard Events Since Last Plan Update

Heavy rain caused flooding in some areas for about 8 hours, but no major damage was reported. The flooding was primarily related to two creeks, involving tidal flooding and runoff from Tinton Falls and the watershed from Monmouth University. There are outfalls that were replaced by USACE, but they now need repairs. Additionally, the installation of underground storage may be considered. The area is in better shape, but due to its low-lying nature, some flooding is unavoidable. Outfalls requiring repairs include one where Atlantic Ave meets the ocean, one south of Joline, and a few further south. The state, county, and USACE have been notified of these needed repairs. Oceanfront flooding is not common, with most flooding coming from tributaries. The only significant ocean flooding occurred during Sandy.

Climate Change Impacts on Extent and Magnitude of Hazards

The City of Long Branch is already experiencing significant risks from natural hazards such as hurricanes, tropical storms, floods, and coastal erosion. Climate change is expected to exacerbate these risks, increasing both their extent and magnitude. Rising sea levels and more frequent and intense storm events will likely lead to more severe coastal erosion and flooding. The city's location, with a significant portion of its developed area within the 1% annual chance flood zone, makes it particularly vulnerable. Additionally, the aging population in Long Branch, with over 16% of residents over 65, may face increased challenges during extreme weather events due to mobility issues and limited access to resources.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Long Branch City	
Initial FIRM	5/31/1974
Effective FIRM	5/05/1976
Number of Policies In-Force:	1585
Total Losses:	1,374
Total Payments:	\$52,491,833.50
Number of RL Properties:	49
Number of Mitigated RL Properties:	0
RL – Total Losses:	126
RL – Total Paid:	\$4,684,421.26
Number of SRL Properties:	9
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	46
SRL – Total Paid:	\$2,454,241.68

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

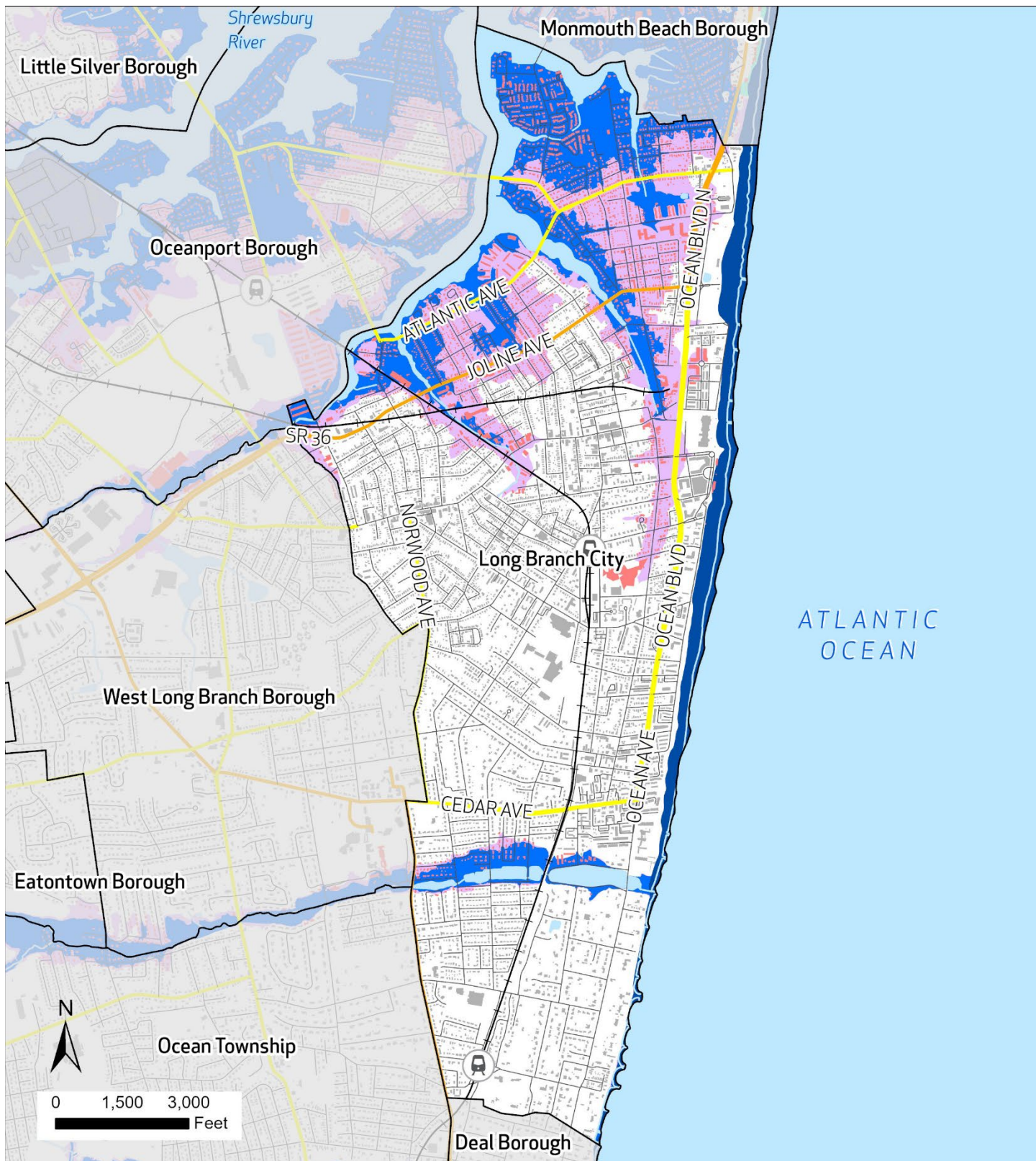
The Special Flood Hazard Area (SFHA) in the City of Long Branch is primarily located adjacent to the main waterbodies of the city, Lake Takanassee in the south of town and the Shrewsbury River and its tributaries in the north, as well as the Atlantic Ocean. Approximately 21.4 percent of the total area of Long Branch lies within the 1% annual chance flood zone as defined by FEMA. An additional 13.8 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 86.6 percent of Long Branch is considered developed. Of the developed parcels of the town, 16.0 percent fall within the 1% annual chance flood zone and 13.7 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	16.0%	13.7%	9.5%
Exposed Land Area	21.4%	13.8%	12.7%

During the planning process, Long Branch identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 41 total facilities. Of these facilities, nine are located within the floodplain. Of these nine, one is also located within the area projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	6	1
Water Systems	2	-	-



Flood Risk Long Branch City

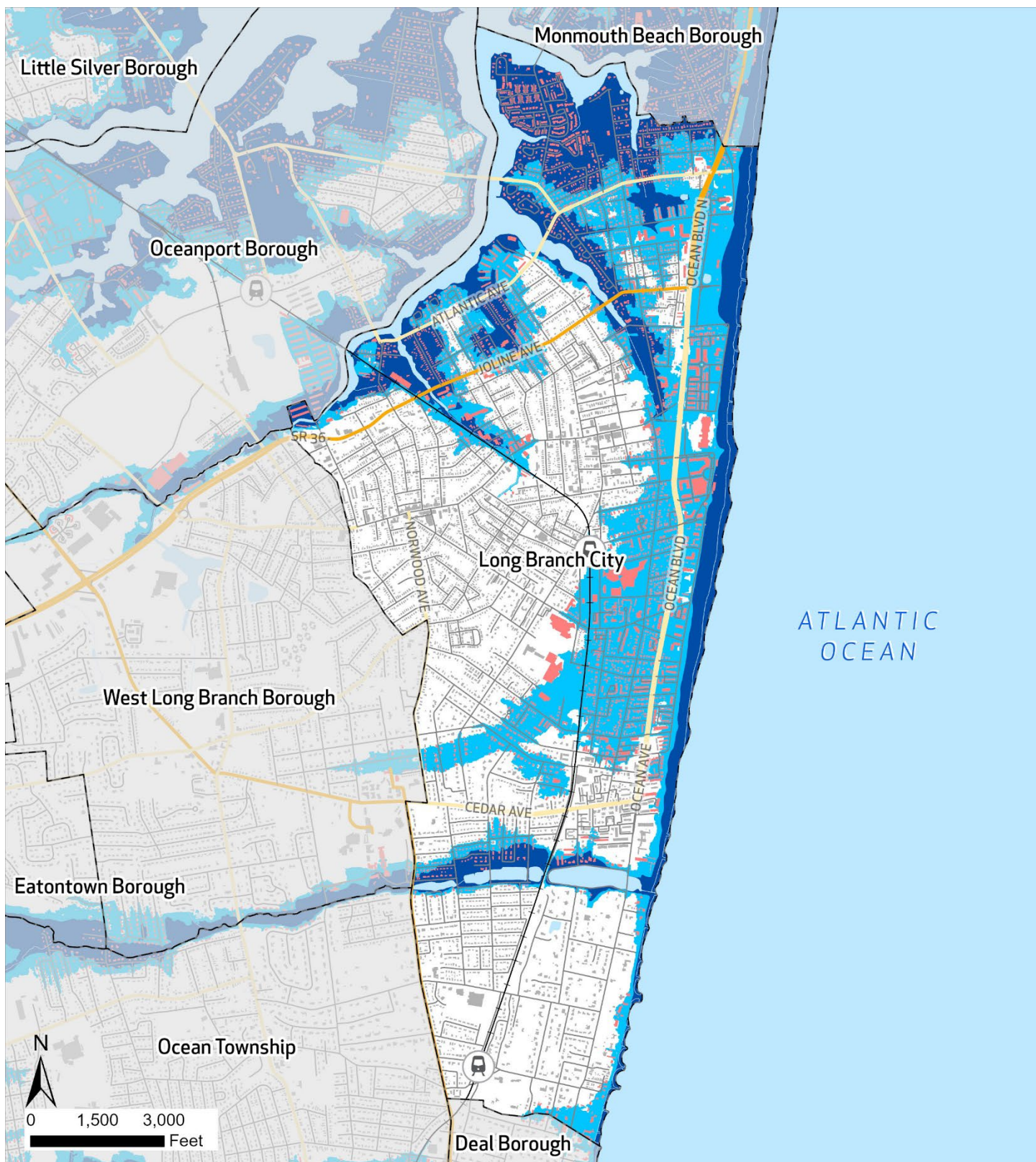
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJTransit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Long Branch City

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

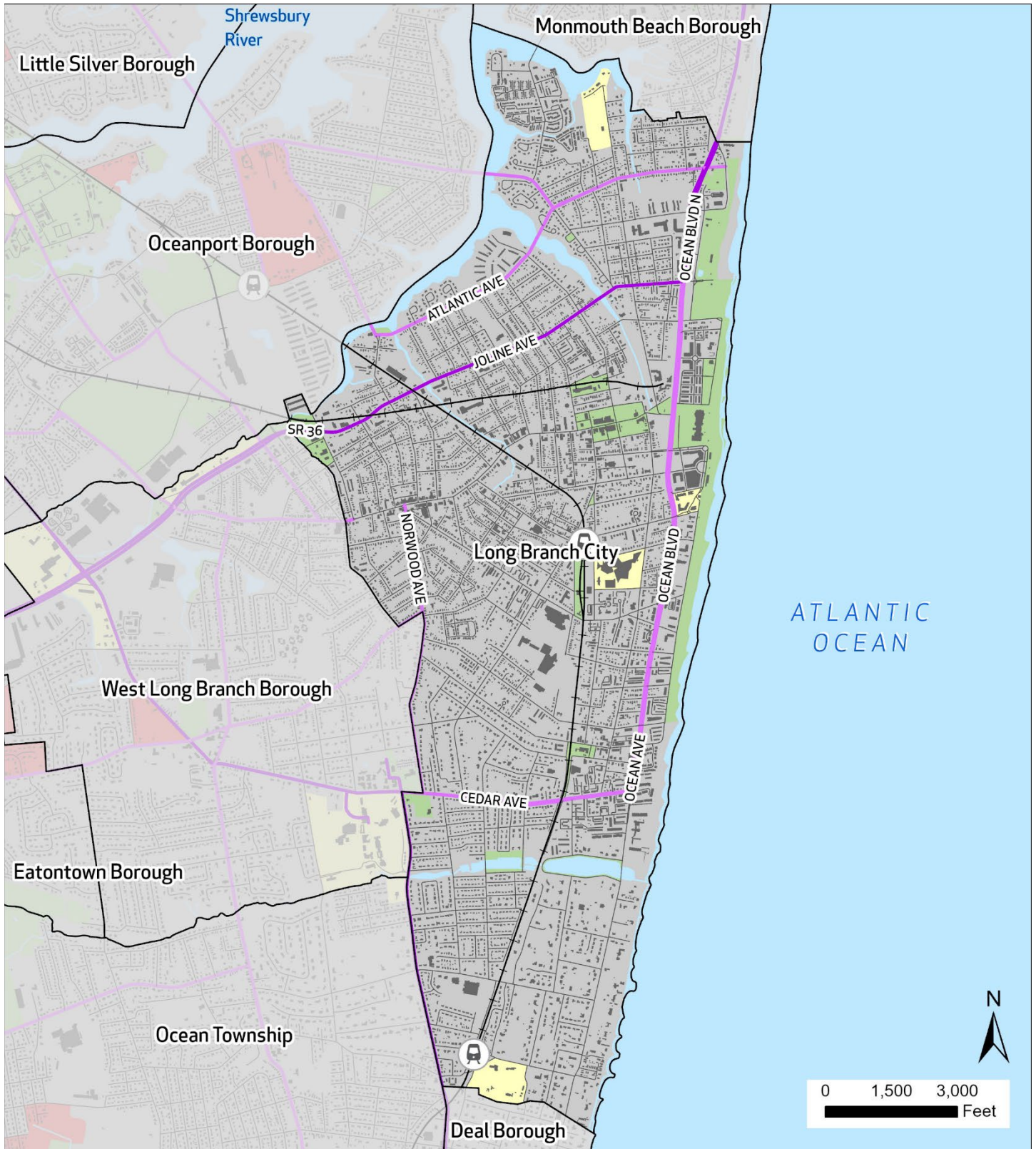
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Long Branch City

- | | | |
|---------------------------------|------------------------|----------------------|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |
| | NJTransit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Long Branch City

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Long Branch City has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X			
Capital Improvement Plan	X			
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	Basic framework for mitigation, preparedness, response and recovery for our town
Floodplain Development Ordinance	X	X		
Floodplain Management Plan	X			
Stormwater Management Ordinance	X			
Stormwater Management Plan	X			
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan	X			
Substantial Damage/Improved Structures Response	X			
Repetitive Loss Plan		X		All properties are tracked
Disaster Debris Management Plan	X			
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X			
Current/recent redevelopment plans or studies	X			
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Long Branch City has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		
Grant Writer	X		
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		
Organizations that work with socially vulnerable or underserved populations	X		

Education and Outreach Capabilities

Long Branch City has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		
StormReady		X	Double check, county is
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Long Branch City has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC	X		
FEMA FMA	X		
FEMA Public Assistance	X		
FEMA HMGP	X		
Non-FEMA Federal Funding Programs	X		
Other FEMA resources		X	
NJ Infrastructure Bank		X	

Financial Capability	Yes	No	Explanation
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities	X		
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Long Branch is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the City.
- **Community Rating System (CRS) Classification: 7**
- **Sustainable Jersey Participation Status: Silver**

MITIGATION STRATEGY

Completed or Removed Actions

The City of Long Branch is a sustainable community that is focused on actively working to mitigate common issues in town to improve our resilience to major storms and weather events as well as maintaining a level of operational readiness to respond to and mitigate any and all threats. Since 2021, our major focus was to reduce flooding in prone areas especially those that follow evacuation routes out of and through town through infrastructure updates and assuming the risk in RL and SRL buildings and property. Moving forward, our goal is to continue these efforts as well as implement changes to the sewage treatment plant systems in town and to coordinate with other local and state agencies to achieve a level of whole community resiliency within this vulnerable coastal city.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
There are no completed or removed actions since the last plan update.										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
28-01	Continue to Enforce Flood Ordinances	Update local ordinances to comply with FEMA's new preliminaries and possibly acquire reductions for residents in flood insurance premiums.	Flood, Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	City of Long Branch	Local Budget	Staff time	1 year	Ongoing	Ordinances are always being enforced and our community is ever changing so they are updated semi regularly Still working with local elected officials on trying to reduce premiums
28-02	Continue to Implement the City-Wide Drainage Master Plan	Installation of improved drainage and stormwater pipe to control flood waters and increase strategic locations to control flow.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	City of Long Branch	Local Budget	\$113,500	1 year	Ongoing	Updates to infrastructure are ongoing, due to the nature of how our town works not much can be done in the summertime, lots of new construction leading to more need in other locations

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
28-03	Upsize the Stormwater Pipe under the New Jersey Transit Rail Line	The stormwater pipe that needs to be upsized under the New Jersey Transit (NJT) Railroad. Replace the piping of the ditch from Morris Ave to the start of the underground piping.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	City of Long Branch	Local Budget, FEMA HMA	\$7,030,000	5 + years	Ongoing	Still working with transit to accomplish this, being blocked legislatively right now
28-04	Install Stormwater Control Devices at Lake Takanassee	Install an improved drainage system and stormwater control devices to regulate flood waters and increase strategic locations to control flow.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	City of Long Branch	Local Budget, FEMA HMA	\$314,000	2 years	Ongoing	This has been partially accomplished but there is now need for them on other parts of the lake that were previously not needed
28-05	Install Improved Stormwater Pipe at the Elberon Trestle	Installation of improved drainage and stormwater pipe to control flood waters and increase strategic locations to control flow. Advanced warning systems to alert motorist of the conditions located overhead and will require significant coordination with Ne	Flood, Hurricane and Tropical Storm, Storm Surge	High	City, Ocean Township, Borough of Deal	Local Budget, FEMA HMA	\$1,500,000	3 years	Ongoing	This has been partially accomplished but needs to be reevaluated as the issue is somewhat persisting
28-06	Install Duckbill Check Valves along the Shrewsbury River	Installation of duckbill check valves to control flood waters and increase strategic locations to control flow.	Flood, Hurricane and Tropical Storm, Storm Surge	High	City of Long Branch	Local Budget, FEMA HMA	\$136,500	3 years	Ongoing	
28-07	Construct a New Bulkhead at Bay Ave.	Improvements to existing Bay Avenue bulkhead that has proven to be inadequate after the changes in conditions following Superstorm Sandy.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	City of Long Branch	FEMA HMA	\$20M	3 years	Ongoing	This is a top priority for us but is still in the works

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
28-08	Elevate Flood-prone Residential Properties Below the BFE, especially Repetitive Loss and Severe Repetitive Loss Properties	Project will consist of the elevation of approximately 150 flood-prone residential structures that are below the approved base flood elevations.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	City of Long Branch Emergency Management	FEMA HMA	\$2.1M	5 + years	Ongoing	Repetitive loss is tracked, and some purchasing has been done
28-09	Acquire and demolish/relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	The City will work with private property owners that are on FEMA's Repetitive Loss and Severe Repetitive Loss list on mitigation solutions, including available grants for home elevation or flood-proofing.	Flood, Wave Action, Nor'easter, Storm Surge	High	City of Long Branch	FEMA HMA	TBD	3 years	Ongoing	Again, a work in progress
28-10	Purchase and Install Portable Flood Diversions	Purchase a portable muscle wall that can is plastic and will lock together and go underground.	Flood, Extreme Wind, Hurricane and Tropical Storm	High	City of Long Branch	FEMA HMA	\$226,000	1 year	Ongoing	
28_11	Target Harden Critical Facilities by Installing Surveillance Cameras, an Access Control System, Security Personnel, and/or Bulletproof Glass	Harden municipal buildings, schools, and public spaces when special events occur in the City.	Terrorism	Medium	City of Long Branch	Homeland Security grants	\$1.5M	5 + years	Ongoing	This was mostly accomplished for the PD but not some of our infrastructure
28-12	Purchase and Install Back Up Servers at Polling Stations	Back up servers for polling stations.	Cyber Attack	Medium	City of Long Branch	Homeland Security grants	\$800,000	5 + years	Ongoing	This had to take a back burner position since the grants were directed to deal with the pop-up party issue

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
28-13	Purchase Portable Traffic Lights	Portable synchronized traffic lights for evacuation routes, including Route 36, Route 71, and Ocean Ave.	All Hazards	Medium	City of Long Branch	Homeland Security grants	\$50,000	1 year	Ongoing	Grants diverted for pop up party issue
28-14	Relocate Police Station out of Flood Hazard Area	Relocate Police Station from Basement of 344 Broadway where flooding occurs during heavy rain, hurricane, high tide.	All Hazards	Medium	City of Long Branch	EMA HMA, Local Budget	\$7,000,000	5 + years	Ongoing	Working on this, new property purchased but waiting for new budget
28-15	Purchase and Install Flood Warning Signs	Purchase flood warning signs and install at four locations: Long Branch Avenue, Elberon Trestle, Route 36 and Florence Ave, and the Atlantic Ave and Edwards Ave intersection.	All Hazards	Medium	City of Long Branch	Local Budget	\$160,000	3 years	Ongoing	Has been done in most areas, still looking to add more in new flooding zones
28-16	Replace Bulk Head at Long Branch Promenade	Replace 50-year-old bulkhead at Long Branch Promenade. Bulkhead is damaged and is approaching 50 years old.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	City of Long Branch	FEMA HMA	\$10M	1 year	Ongoing	DEP pushback I believe
28-17	Create Water Retention Areas to Alleviate Flooding	Install retention areas around city where nuisance, riverine, and tidal flooding continue to occur.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	City of Long Branch	FEMA HMA	\$500,000	2 years	Ongoing	Working with developers to include these in new construction projects

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
28-18	Install Flood Gate within Manahasset Creek	Install Flood gate within Manahasset Creek at Sands Point to alleviate the flooding from storm surge throughout Long Branch, Eastern side of Oceanport, and the Northern end of Monmouth Beach.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	City of Long Branch	FEMA HMA		1 year	Ongoing	
28-19	Install Living Breakwaters	Install a series of Living Breakwaters that would be positioned in the Shrewsbury River.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Oceanport, Rumson, Monmouth Beach, Long Branch	FEMA HMA	See Notes	2 years	New	Rip-Rap and Armor Stone: \$35.9M Oyster Rings: \$5.4M ExoForms: \$3M Oyster Castles: \$1.5M

29 – MANALAPAN TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Rick Hogan	OEM Coordinator	Point of Contact, Municipal Workshop #1
Brian Boccanfuso, PE	Township Engineer	Reviewed appendix
Tara Lovrich	Township Administrator	Reviewed Document Before Submission

COMMUNITY PROFILE

Overview

With its name derived from the Lenni Lenape phrase meaning “land of good bread,” the Township of Manalapan encompasses 30.85 square miles of land area in the western portion of Monmouth County, including over 1,480 acres in preserved farmland. Manalapan is home to notable landmarks that include the headquarters of the Monmouth County Library System, Old Tennent Church, and the Manalapan Recreation Center. The municipality has two major roadways within its boundaries: State Highway 9 and Highway 33. The Rt-9 at Gordon's Corner NJ Transit bus stop is on the northbound side of Rt-9 across from Willow Grove Way. Routes accessible from this location include Bus, 64, 67, 132, and 139.

Land Use, Development, & Growth

In Manalapan, residential, publicly owned and commercial land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 52 percent of the town's total area, while wetlands, forested land, and farmland made up 24 percent, 13 percent and 10 percent respectively. From 2015 to 2020, there was a marginal increase of 61 acres in the Township's urban or developed land, which was accompanied by a decrease of 36.5 acres in forested land and 18 acres in wetlands.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	2016.4	2017.9	>0%
Barren Land	48.6	40.4	-17%
Forest	2593.0	2556.5	-1%
Urban	10221.1	10281.9	1%
Water	181.8	181.8	>0%
Wetlands	4702.2	4684.5	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In December 2021, the Township Committee adopted a redevelopment plan for a 225-acre parcel of land along Route 33 to allow warehouses and indoor recreation centers as permitted uses.

The Township's Reexamination Report acknowledges the loss of open space, woodlands, landmarks, scenic areas, natural habitat areas, and farmland to development. In 2023 Manalapan was awarded \$27,000 under the Monmouth County Municipal Park Improvement Program for Thompson Grove trail improvements.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Manalapan Crossing, one of the largest development projects approved in recent memory, was approved by the Township's Planning Board at the intersection of Highway 33 and Millhurst Road. The project includes 200,000 square feet of retail, restaurant, and office space, 280 age-restricted single-family residential homes, non-age restricted affordable apartments, and an array of site amenities for residents and visitors. Another affordable housing complex named The Place at Manalapan was approved in late 2021 and will provide 102 affordable apartments along Highway 33.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Manalapan has a total estimated population of 40,639. This population is made up of an estimated 4.5% of residents under age 5 and 17.1% of residents over age 65. The Township experienced moderate growth between the ACS survey periods of 2013-2017 and 2018-2022, with an estimated 1.4% increase in total population. With an aging population making up over seventeen percent of their total community, Manalapan may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

Manalapan has one block group in its far northeast meeting criteria for potential overburden (OBC) based on community Low Income characteristics. In this same location, a census tract is identified under CEJST criteria, noted as potentially vulnerable due to Workforce Development vulnerabilities. There are no parts of the Township meeting criteria for identification under CDRZ.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	40,639
Population Change since 2017	1.4%
Percent of Population Age < 5	4.5%
Percent of Population > 65	17.1%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor’easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Dam Failure
	Hurricane/ Tropical Storm	Drought
	Tornado	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
	Cyber Attack	Civil Unrest

High	Medium	Low
	Economic Disruption	Power Failure
	Terrorism	Pandemic

Hazard Ranking Explanation

Hazards are ranked the same as in the previous plan.

Significant Hazard Events Since Last Plan Update

No significant hazards have occurred in the last five years; however, Pine Brook continues to cause repetitive flooding within the Township.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Manalapan Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and extreme temperatures are likely to increase. This will exacerbate existing vulnerabilities, particularly in flood-prone areas. The Township's Special Flood Hazard Area, which already encompasses 8% of its total area, may see more frequent and severe flooding events, leading to greater damage to infrastructure and increased displacement of residents. Additionally, the aging population in Manalapan, with 17.1% of residents over age 65, may face heightened risks during extreme weather events due to mobility issues and limited access to resources. Climate change will likely lead to more prolonged periods of drought and heatwaves, which can strain water resources and increase the risk of wildfires.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Manalapan Township		
Initial FIRM		7/20/1973
Effective FIRM		9/15/1977
Number of Policies In-Force:		95
Total Losses:		93
Total Payments:		\$1,423,201.68
Number of RL Properties:		8
Number of Mitigated RL Properties:		0
RL – Total Losses:		20
RL – Total Paid:		\$418,669.46
Number of SRL Properties:		1
Number of Mitigated SRL Properties:		0
SRL – Total Losses:		4
SRL – Total Paid:		\$190,437.75

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

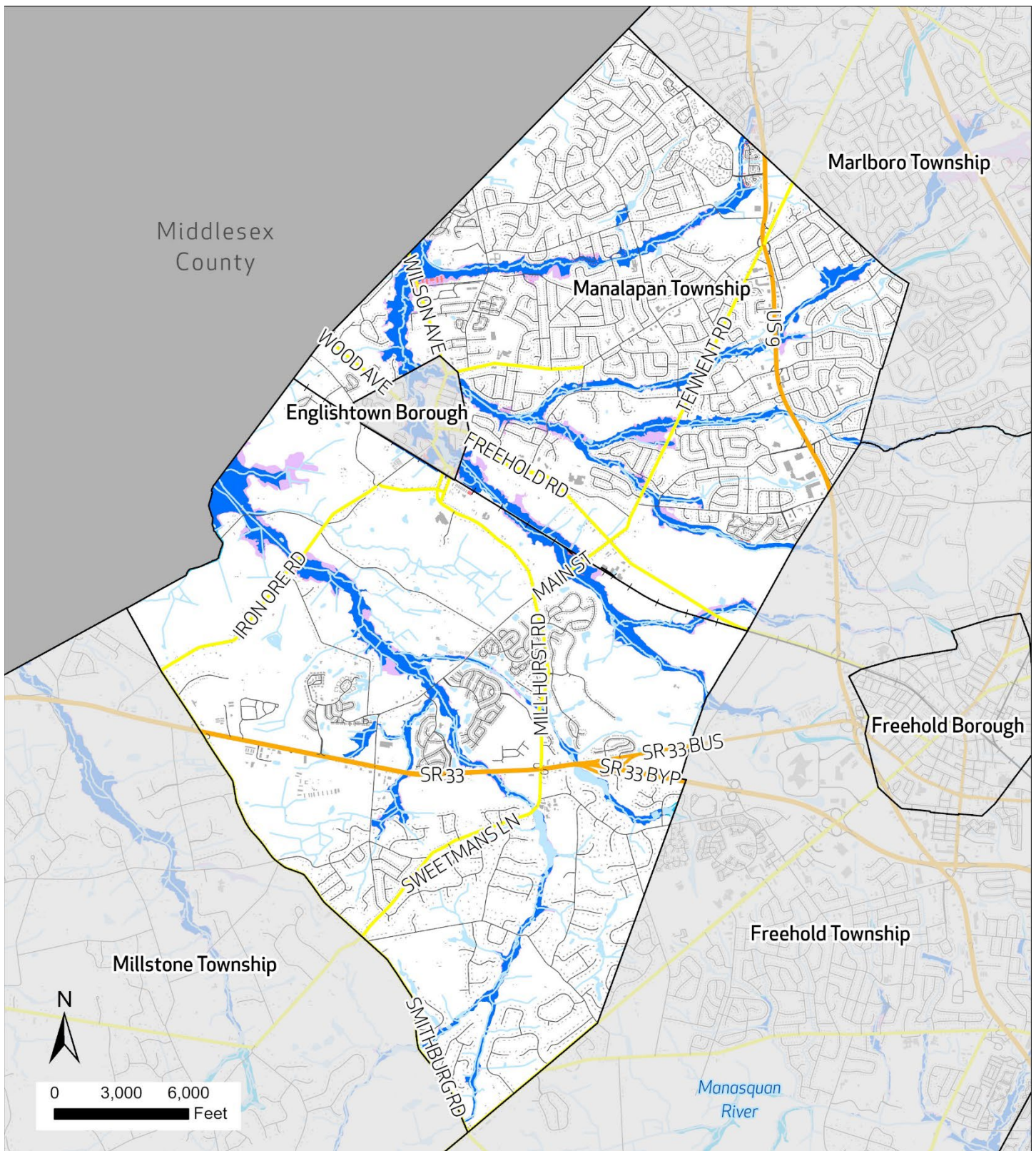
The Special Flood Hazard Area (SFHA) in the Township of Manalapan is primarily located adjacent to the many creeks and brooks which pass through town. Approximately 8.0 percent of the total area of Manalapan lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.7 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 75.7 percent of Manalapan is considered developed. Of the developed parcels of the town, 5.4 percent fall within the 1% annual chance flood zone and 0.8 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	5.4%	0.8%	NA
Exposed Land Area	8.0%	1.7%	NA

During the planning process, Manalapan identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 65 total facilities. Of these facilities, six are located within the floodplain. All six are Water Systems community lifelines, examples of which include dams and water treatment plants.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	5	1	NA



Flood Risk Manalapan Township

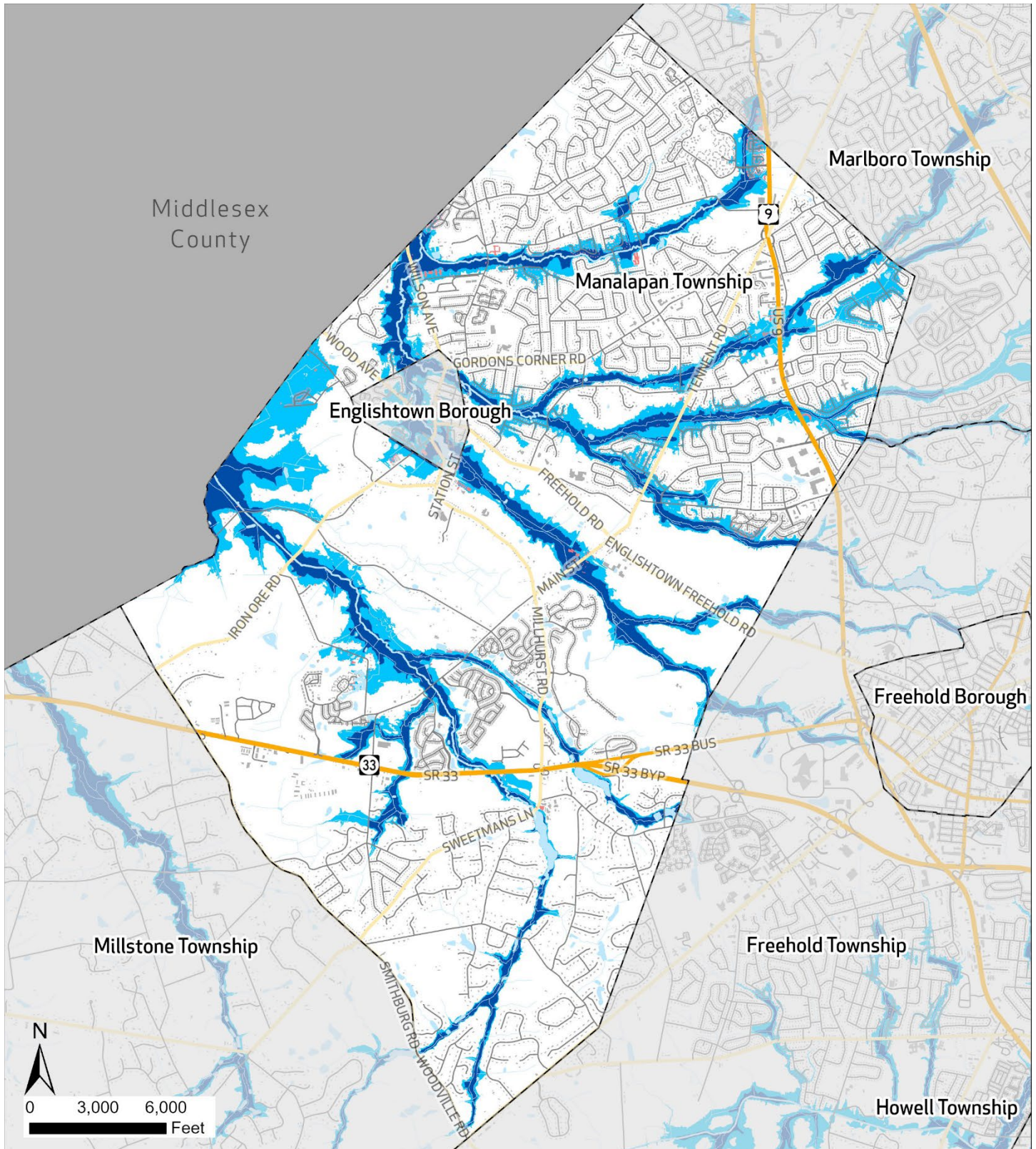
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- State Hwy
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Manalapan Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

State Hwy

Railroad

Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Asbury Park City

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJTransit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Manalapan Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2009	
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan		X		
Floodplain Development Ordinance	X		7/2022	Controls development in the floodplain
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		7/2024	Ensures that stormwater runoff and other stormwater impacts of development are managed consistent with state regulations and other applicable standards
Stormwater Management Plan	X		7/2008	Improve water quality and reduce the risk of flooding
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Manalapan Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Township Engineer
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Manalapan Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Township has a Emergency Management Council & Annex Sub-Committee with links to emergency checklists.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Manalapan Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Following Manalapan Township's last plan update, municipal staff has continued its focus on the Special Flood Hazard Areas, which are primarily adjacent to brooks, creeks & other waterbodies. The Township's mitigation strategies to reduce the impact of potential flooding conditions are as follows: a) inspection of streams, brooks, other waterbodies and storm water outfalls to identify obstructions and confirm flow; b) removal of obstructions when permitted by state guidelines; c) examination and maintenance of municipal detention and retention basins to control storm water runoff as originally designed; d) enforcement of its floodplain management and storm water management ordinances to ensure compliance with corresponding county, state and federal regulations, thereby reducing flood risk and adverse downstream impacts; and e) cooperation and communication with the NJDEP relative to compliance with its land use regulations, including but not limited to the Freshwater Wetlands Protection Act Rules and the Flood Hazard Area Control Act.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
29-01	Acquire Flood-prone Properties Along Birmingham Drive	Purchase properties along Birmingham Drive for the purposes of removing the structures which are located in Pine Brook Floodplain.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township Administrator and Engineer	FEMA HMA	State Blue Acres Program No cost to Twp	1 year	Completed	Completed; preexisting flood-prone dwellings on acquired properties have been demolished.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
29-02	Active Shooter Training and Shelters	Implement an active shooter training at schools and municipal offices and create a shelter for children and staff to take refuge in a moment of crisis.	Terrorism	Medium	Police Chief	Homeland Security grants	Staff time	2 years	Ongoing	
29-03	Target Harden Critical Facilities by Installing Surveillance Cameras, an Access Control System, Security Gates, and/or Bulletproof Glass	Purchase security gates, bulletproof glass, security cameras, and Access Control Systems to target harden against terrorist attack.	Terrorism	Medium	Police Chief and Local Businesses	Homeland Security grants	TBD	2 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
29-04	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Coordinate with residents to mitigate RL/SRL properties through structure elevation, demolition to open space, or other type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township and Property Owners	FEMA HMA	TBD on the property	5 + years	Ongoing	
29-05	Repair, Remove, or Rehabilitate the Millhurst Lake Dam	Repair, remove, or rehabilitate the Millhurst Lake Dam along the Manalapan Brook.	Dam Failure	High	Manalapan Township	Municipal budget, NJDEP Bureau of Dam Safety and Flood Control	TBD	3 years	Ongoing	Emergency Action Plan prepared in 2016 to mitigate dam failure for Millhurst Lake Dam.

30 – MANASQUAN BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Chris Tucker	Hazard Mitigation Program Coordinator	Point of Contact, Workshop #1, Workshop #2, Steering Committee Meeting #1 and #2
Michael Mangan	Mayor	Guidance and review of municipal appendix
Thomas Flarity	Administrator	Guidance and review of municipal appendix
Joseph Raftery	Engineer	Guidance and review of municipal appendix
Frank DiRoma	Construction Official	Review / revise municipal appendix
Carmen Triggiano	Public Works Superintendent	Review / revise municipal appendix

COMMUNITY PROFILE

Overview

The Borough of Manasquan is an oceanfront community, the southernmost town on Monmouth County's Atlantic coastline. A beach town popular with surfers along Manasquan Inlet, the Borough sees a dramatic increase in population from tourists during the summer months. The Borough describes itself as a classic small town, with a thriving Main Street corridor and rivers, lakes, and streams which make Manasquan a unique beachfront community. Manasquan is largely built out with residential and commercial development and has a large conservation area south of Brielle Road (Fisherman's Cove) which borders the Manasquan Inlet. The demolition of traditional beach bungalows and replacement with larger single-family dwellings has helped to turn the Borough into a year-round community. With these physical changes, Manasquan has also seen a decline in once-popular tourist destinations.

Within Manasquan's 2.5 square miles of land area is a commercial corridor along Main Street, which runs east to west through the Borough. Manasquan's downtown has many small businesses, and includes the Algonquin Arts Theater, a historic 540-seat theater built in 1938 and converted to a professional live performance space in 1994. The Atlantic Ocean makes up Manasquan's eastern border, and the National Guard Training center borders Manasquan's north in Sea Girt.

The Borough of Manasquan is bisected by the waterways of Stockton Lake (fed by Judas Creek), Watson Creek, Crabtown Creek, and the eastern terminus of the Manasquan River. These waterways provide recreation and conservation areas throughout the Borough. Manasquan's largest undeveloped area is the Fisherman's Cove Conservation Area, a 55-acre conservation site which is the least developed tract on the Manasquan Inlet. The Park System is currently working to restore wildlife habitat and combat invasive species in this conservation area. With a location southeast of the dam at Manasquan Reservoir, the Borough is potentially impacted by the Manasquan River flow at the Manasquan Reservoir, upstream in Howell Township.

Land Use, Development, & Growth

Manasquan is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; urban or developed land accounted for nearly 75 percent of its total area during this period. Water and wetlands made up nearly 20 percent of the Borough's area, while barren land accounted for 4 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	38.3	40.5	6%
Forest	18.6	18.6	>0%
Urban	754.5	754.7	>0%
Water	115.7	112.6	-3%
Wetlands	75.8	76.3	1%

Recent Major Development and Infrastructure from 2020 to Present

Manasquan reports no major development in the past five years, describing the mostly built-out nature of the Borough. Two smaller developments have begun: *Broad Street Commons*, at 34 Broad Street, which will develop 22 residential units. The site currently falls within NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper). Another site- *33 Union Avenue* which develops 23 elevated residential units, falls under the FEMA 1% and 0.2% annual chance floodplain.

Manasquan's Main Street Repaving Project, which included road resurfacing, drainage improvements, and flood mitigation, was completed in 2020. The Borough's Main Street Business District Streetscape Project extends along Highway 71 and Main Street east to the NJ Transit rail line. This project includes upgrades to traffic signals, signage, pedestrian crosswalks, sidewalks, street lighting, benches, bicycle racks, trash cans, and landscaping. Sections of this site fall within NJ Inland Design Flood Elevation.

In 2022, the Borough celebrated the opening of the Curtis Park playground after undertaking an improvement project funded by the Monmouth County Municipal Open Space Grant Program. Park improvements include ADA-compliant and barrier-free equipment, as well as additional landscaping, seating, walkways, and fencing. The park is within FEMA's 0.2% annual chance floodplain.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Manasquan is currently in the process of updating its Storm Water Management Plan to meet recent New Jersey DEP regulations. Improvements to existing facilities will follow to achieve compliance as well.

Efforts have been made to develop a new NJ Transit train station in Manasquan, with the Borough receiving \$400,000 in NJ Transit funds for the project. A bid specification has been developed that would allow a private company to build and own the station while leasing the land to NJ Transit for 30 years. There is currently no schedule for construction.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Manasquan has a total estimated population of 5,921, of which an estimated 3.8% is under age 5, and 19% is over age 65. The Borough experienced a moderate 1.7% population growth estimated in the period between ACS surveys in 2013-2017 and 2018-2022. With an aging population making up close to twenty percent of their total community, Manasquan may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of Manasquan which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	5,921
Population Change since 2017	1.7%
Percent of Population Age < 5	3.8%
Percent of Population > 65	19.0%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flood	Tornado	Drought
Storm Surge	Extreme Temperatures	Earthquake
Hurricane/Tropical Storm/Nor'easter	Extreme Wind	Wildfire
	Winter Storm	
	Coastal Erosion	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

The Borough ranked Landslide and Dam Failure as N/A.

Hazard Ranking Explanation

As a coastal community with numerous waterways, a primary concern for Manasquan Borough is flooding, both coastal and riverine. This flooding regularly impacts residents, businesses, and travel throughout Manasquan. Flood hazards originate from consistent heavy rain events, which cause water overflow and strain the drainage capacity. Nor'easters and tropical storms have affected the Borough, though recent years have seen no significant property damage. To prepare for future occurrences, Manasquan still considers flooding a high concern with a high potential for damage.

Storm surge and its related impacts are also a high concern for Manasquan Borough, given its location along the Atlantic coastline and bordered by the Manasquan River, Inlet, and Stockton Lake. These low-lying, water-bordered locations present a risk for significant damage from storm surge events. The Borough also notes concerns about sea level rise, which can increase the frequency and severity of nuisance flooding on roadways throughout Manasquan.

Significant Hazard Events Since Last Plan Update

Manasquan experienced tornado impact in April 2020, with some building damage reported to the Army Camp area north of town. This tornado brought high winds and heavy storm activity, resulting in flooding, power failure, and building damage from tornado wind shear.

In February 2024, a coastal flood event impacted wildlife in the area, with local news reporting schools of fish swimming down flooded roadways in the Borough. The reports also linked this event with potential cascading impacts of climate change in the region. Hurricane Ernesto impacted Manasquan communities in August 2024, causing flooded roads and injuries to at least one resident who was washed off a jetty while fishing in Manasquan.

A drought in fall 2024 created dire impacts for Manasquan and the southern New Jersey region as a whole. Experiencing no rainfall between August and November 2024, the Manasquan Reservoir fell to 50% capacity for the first time in 30 years.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Manasquan Borough, particularly in terms of flooding, storm surge, and sea level rise. As a coastal community with numerous waterways, Manasquan is already highly vulnerable to flooding from heavy rain events, nor'easters, and tropical storms. Climate change is likely to exacerbate these hazards by increasing the frequency and intensity of extreme weather events, leading to more severe and frequent flooding. The Borough's location along the Atlantic coastline and the presence of low-lying areas such as the Manasquan River, Inlet, and Stockton Lake further heighten the risk of storm surge and coastal flooding. Additionally, rising sea levels will contribute to more frequent and severe nuisance flooding on roadways and other critical infrastructure, posing a significant threat to public safety and property.

The impacts of climate change are not limited to flooding and storm surge. Increased temperatures and prolonged droughts are also anticipated, which could strain water resources and exacerbate the effects of droughts, as seen in the fall of 2024 when the Manasquan Reservoir fell to 50% capacity. These changes in climate patterns will likely lead to cascading impacts on the local ecosystem, including the loss of wildlife habitat and increased vulnerability of the built environment.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Manasquan Borough	
Initial FIRM	5/13/1972
Effective FIRM	5/12/1972
Number of Policies In-Force:	1,132
Total Losses:	2,224
Total Payments:	\$107,241,313.84
Number of RL Properties:	120
Number of Mitigated RL Properties:	0
RL – Total Losses:	335
RL – Total Paid:	\$10,361,599.78
Number of SRL Properties:	13
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	67
SRL – Total Paid:	\$1,544,087.80

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

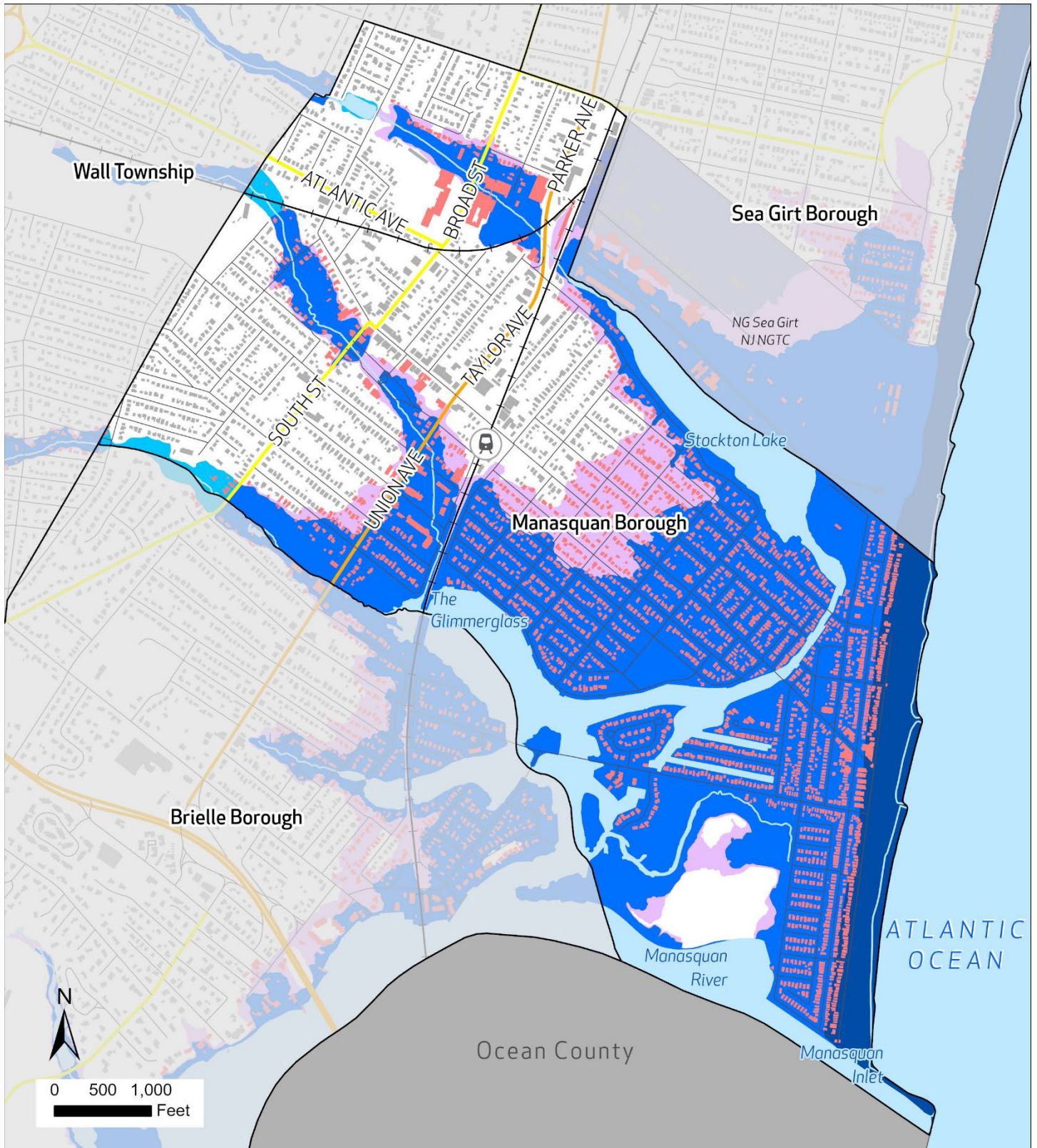
The Special Hazard Flood Area (SFHA) in the Borough of Manasquan covers the majority of town. The areas near the Manasquan River, the Atlantic Ocean, Stockton Lake, and the three streams which cross the town are all contained within the SFHA. Approximately 55.9 percent of the total area of Manasquan lies within the 1% annual chance flood zone as defined by FEMA. An additional 7.4 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 63.0 percent of Manasquan is considered developed. Of the developed parcels of the town, 55.9 percent fall within the 1% annual chance flood zone and 7.4 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	55.9%	7.4%	58.3%
Exposed Land Area	55.9%	7.4%	40.2%

During the planning process, Manasquan identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 11 total facilities. Of these facilities, one, within the Safety and Security lifeline category, is located within the floodplain.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	-	1	-



Flood Risk Manasquan Borough

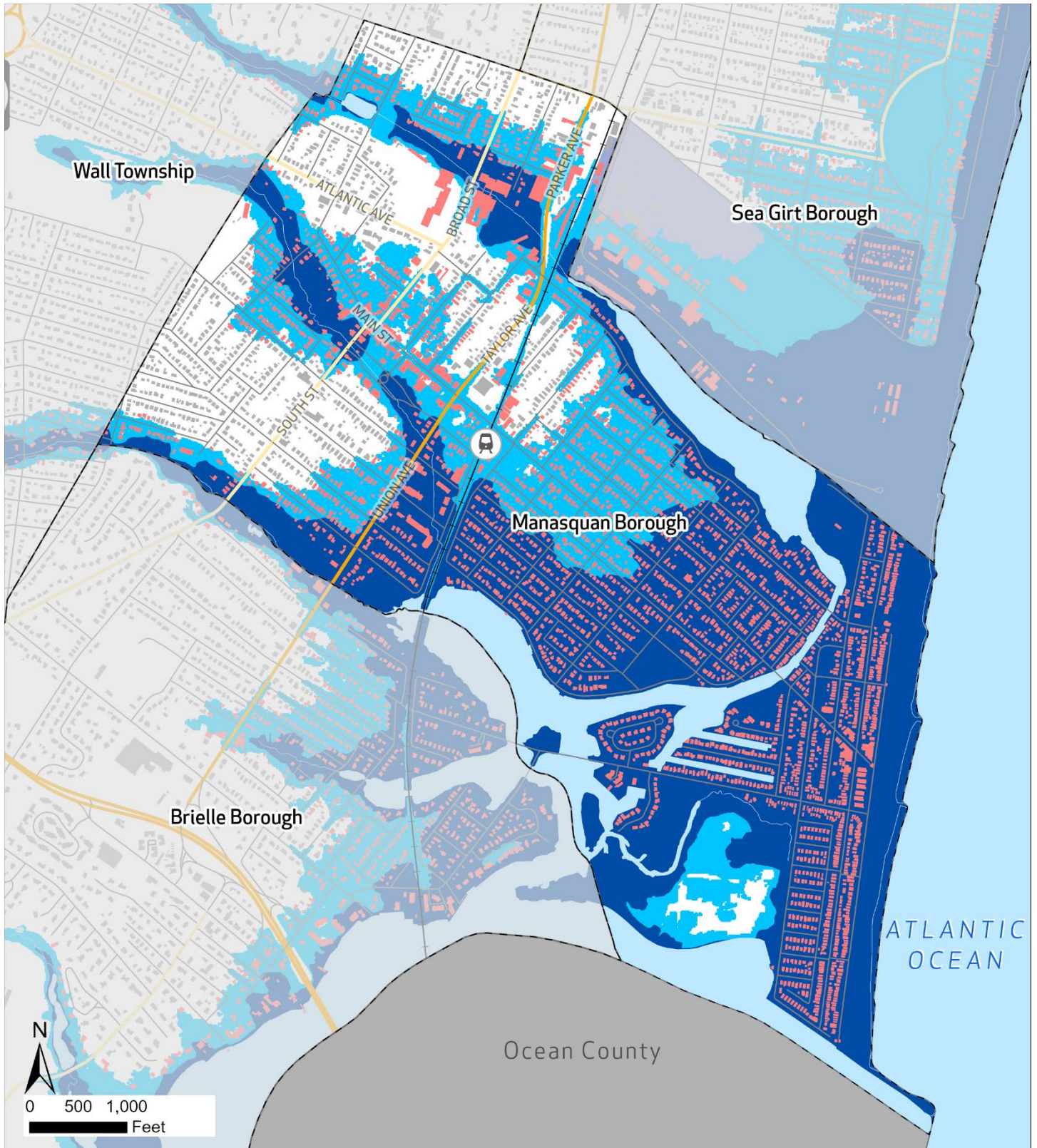
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Manasquan Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

Ⓜ NJ Transit Rail Station

▬ Municipal Boundaries

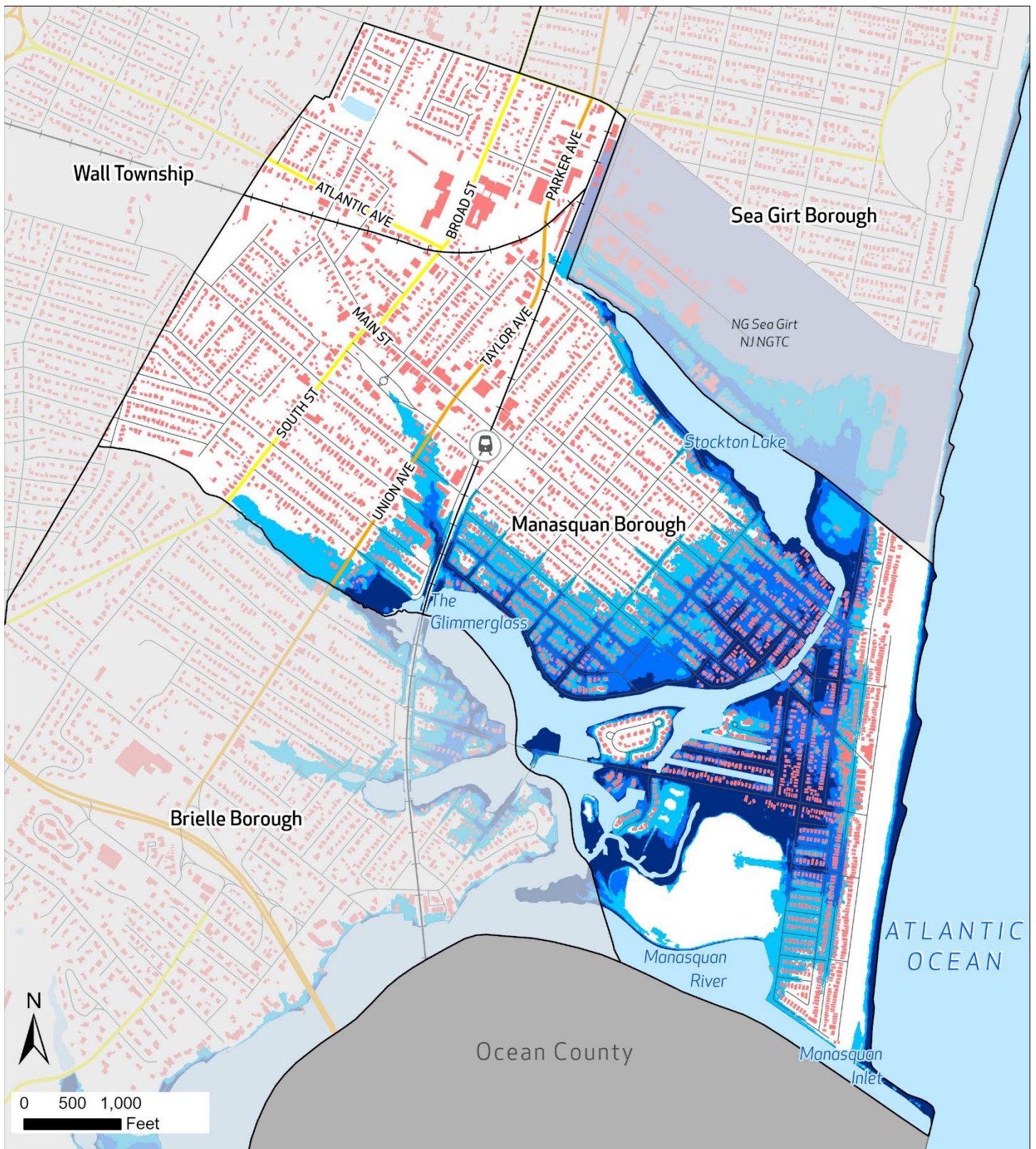
■ Water

■ Department of Defense
Land

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**

Manasquan Borough

- | | | |
|---------------------------------|-------------------------|----------------------------|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | Department of Defense Land |
| | Rail Lines | |
| | NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Manasquan Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Manasquan Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2024	There are several goals, objectives, and recommendations related to flood hazard risk reduction, stormwater management, and mitigating the effects of climate change. The master plan also lists the Borough's 18 actions that were included in the last County HMP; all 18 are marked as either "completed" or "ongoing."
Capital Improvement Plan	X		2024	
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	
Floodplain Development Ordinance	X		5/16/2022	We enforce 1' freeboard above BFE
Floodplain Management Plan	X			
Stormwater Management Ordinance	X		2024	We did adopt higher standards than required
Stormwater Management Plan	X		2008	
Watershed Management Plan		X		
Sheltering Plan	X		2023	
Evacuation Plan	X		2023	
Substantial Damage/Improved Structures Response	X			We evaluate cost of construction. Once it hits 50% of improved value of property, it is SI/SD, and they must comply with floodplain regulations. We start with floodplain development permit, an analysis, violation and/or denial of work permit for SI, and inspections
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		2017	
Tracking elevation certificates and/or Letter of Map Change	X			All elevation certificates are uploaded to Forerunner floodplain software and made public
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			Flood Mitigation Plan
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Manasquan Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Steven Winters Part-Time Municipal employee Also Construction Official He is a CFM No other CFM's employed
Grant Writer	X		Contractor
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		We have agreements with Monmouth County
Non-governmental organizations/other partners	X		Rutgers University

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations	X		Local Ministerium

Education and Outreach Capabilities

Manasquan Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Through website, social media, quarterly mailings, annual mailing to repetitive loss areas, am radio station, variable message sign and public meetings
StormReady	X		
Firewise USA			
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Manasquan Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	X		
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		NJDOT transportation Funding, Community Development Block Grants
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Projects are prioritized based upon risk reduction impacts and available funding
Other ongoing efforts to build additional financial capabilities	X		Exploring local funding opportunities (bonding, establishing a tax district, etc.)

Additional Capability Assessment Information:

- Manasquan is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- Community Rating System (CRS) Classification:** 7
- Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Update

The Borough of Manasquan is prioritizing flood mitigation in this plan update as a multitude of other local mitigation activities have already been completed since the last update, including but not limited to increasing public notification systems, lightning protection, emergency back-up power for critical facilities as well as redundant communication networks. Manasquan is prioritizing flood mitigation actions such as tide valves, road elevations, seawalls, bulkheads and other storm surge barriers due to an observed increase in frequency of storm events as well as documented and sustained sea level rise which has adversely impacted public safety, increased property damage, and impeded local transportation for Manasquan residents. Flooding poses an increased public safety threat as residents often become trapped in their vehicles or homes and also impacts accessibility of public safety functions such as law enforcement, emergency medical services and fire / rescue responses.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 30-01	Complete the Borough Risk Assessment for Structures, Facilities, and Equipment in the Borough	Conduct a hazard-specific, community-wide risk assessment of all structures, facilities, and equipment and identify, map, quantify, and rank vulnerable structures for each of the hazards. This will include identifying and mapping high hazard areas for each hazard addressed. This will also include inventorying and evaluating existing at-risk housing stock, commercial buildings, as well as public facilities and equipment and assessing each for vulnerabilities to each hazard addressed. The action will be a more detailed presentation and assessment of data from what is in the HMP.	Flood, Drought, Earthquake, Coastal Erosion, Extreme Wind, Lightning, Storm Surge, Wildfire, Tornado	N/A	Office of Emergency Management	FEMA HMA, Community Resiliency Grants	\$150,000	N/A	Completed	
Action 30-02	Establish Funding Mechanism for HMP	Establish a permanent funding mechanism and budget for hazard mitigation planning and mitigation actions.	Extreme Temperatures, Flood, Drought, Earthquake, Coastal Erosion, Extreme Wind,	N/A	Office of Emergency Management		\$50,000	N/A	Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
			Lightening, Storm Surge, Wildfire, Winter Storm, Tornado							
Action 30-03	Continue Monitoring the Implementation of the Hazard Mitigation Plan	Monitor the implementation of the hazard mitigation plan and make updates to the plan as required. This includes forming a plan implementation steering committee to monitor progress on local mitigation actions as well as implementation monitoring schedule and outlining responsibilities.	All Hazards	N/A	Office of Emergency Management	Municipal Budget	\$5,000	N/A	Completed	<i>Ongoing maintenance needed – Borough capability.</i>
Action 30-04	Continue Monitoring the Implementation of the Hazard Mitigation Plan	Implement a comprehensive program for public information that systematically distributes hazard awareness information as well as actions that citizens can take to mitigate those hazards. The program will also promote household disaster preparedness as well as private mitigation efforts. The program will include the formation of a public information steering committee and will include specific public outreach goals, responsibilities, and monitoring.	All Hazards	N/A	Office of Emergency Management	Local Hazard Mitigation Program, Hazard Mitigation Planning Grants, Community Resilience Grants, HMGP funding	\$5,000	N/A	Completed	
Action 30-05	Increase Public Warning Capabilities	Increase public warning capabilities through the implementation of FEMA developed IPAWS alerting, upgrade warning siren coverage, implement a Reverse911 system, upgrade electronic warning sign system coverage, and improve use of web-based programs and social media for public warning.	All Hazards	N/A	Office of Emergency Management	Municipal Budget	\$150,000	N/A	Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 30-06	Provide Lightning Protection for Critical Facilities	This action item will include conducting lightning protection of these structures based upon rank (most vulnerable) and importance (most critical). This will include installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities, as well as installing and maintaining surge protection on critical electronic equipment.	Lightning	N/A	Office of Emergency Management	Municipal Budget	\$50,000	N/A	Completed	
Action 30-07	Provide Erosion and Wave Protection along the Oceanfront by Constructing a Dune and Wall System along the Coastline	Fortify a one-mile portion of coastline with and engineered dune and wall system consisting of high-strength steel wall covered by dune system and vegetation.	Coastal Erosion	N/A	Office of Emergency Management	FEMA HMA, Army Corp of Engineers	\$10,000,000	N/A	Withdrawn (Merge with Action 30-17)	<i>Removed to merge with Action 30-18.</i>
Action 30-08	Restore Natural Buffers to Mitigate Flooding Borough-Wide	Provide natural resource restoration to existing dunes, salt marshes, coastal wetlands, maritime forests, stream corridors and natural floodplains in order to enhance natural buffers and flood mitigation. This will include developing a comprehensive approach that combines dune, maritime forest, coastal wetlands, salt marsh, and stream corridor restoration with potential flood mitigation opportunities and integrated high-water controls in order to reduce both riverine and tidal flooding and protect against sea level rise. The project will restore over 60-acres of coastal wetlands and maritime forest and 6-miles of stream corridors.	Flood, Storm Surge, Hurricane/ Tropical Storm/ Nor'easter	N/A	Office of Emergency Management	FEMA HMA, EPA, National Fish and Wildlife Foundation (NFWF), NOAA, New Jersey Corporate Wetlands Restoration Partnership (NJCWRP), North American Wetlands Conservation Council (NAWCC), US Fish and Wildlife Service (FWS)	\$7,000,000	N/A	Completed	<i>Completed as County project with no cost to the Borough. Specific focus on protection against sea-level rise which will increase with climate change.</i>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 30-09	Floodproof Residential and Non-Residential Structures	This action item will include conducting flood proofing of these structures based upon rank (most vulnerable) and importance (most critical). These structures will be protected from flooding by a combination of methods, including, but not limited to wet floodproofing in a basement, wet floodproofing of areas above base flood elevation, using water resistant paints or other materials to allow for easy clean up after floodwater exposure, and by dry floodproofing non-residential structures by strengthening walls, sealing openings, or using waterproof compounds or plastic sheeting on walls to keep water out.	Flood, Storm Surge, Hurricane/ Tropical Storm /Nor'easter	N/A	Office of Emergency Management	FEMA HMA	\$10,000	N/A	Withdrawn (Merge with Action 30-15)	<i>Removed to merge with Action 30-16</i>
Action 30-10	Elevate Residential and Non-Residential Structures & Equipment, especially Repetitive Loss (RL) and Severe Repetitive Loss (SRL) Properties	This action item will include elevating these structures based upon rank (most vulnerable) and importance (most critical). These structures, facilities, and equipment will be elevated at least 1-foot above minimum NFIP base flood elevation requirements to protect from flooding, storm surge, and sea level rise.	Flood, Storm Surge, Hurricane/ Tropical Storm/ Nor'easter	N/A	Office of Emergency Management	FEMA HMA	\$200,000,000	N/A	Withdrawn (Merge with Action 30-15)	<i>Removed to merge with Action 30-16</i>
Action 30-11	Provide Erosion and Wave Protection along the Oceanfront by Constructing a Dune and Wall System along the Coastline	Fortify a one-mile portion of coastline with an engineered dune and wall system consisting of high-strength steel wall covered by dune system and vegetation.	Coastal Erosion	N/A	Office of Emergency Management	FEMA HMA, USACE	\$10,000,000	N/A	Withdrawn (Merge with Action 30-17)	<i>Removed to merge with Action 30-18</i>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 30-12	Develop a Drought Emergency Plan	Develop a drought emergency plan which includes criteria for drought-related actions, identifying local drought indicators, such as precipitation, temperature, guidance from NJDEP, and institute voluntary and mandatory water conservation measures during drought conditions and emergencies.	Drought	Low	Office of Emergency Management	Municipal Budget	\$50,000	1 year	Completed	This action item was implemented in 2024 in coordination with water tank replacement and local drought.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 30-13	Conduct Seismic Retrofitting of Structures, Facilities, and Equipment	This action item will include conducting seismic retrofitting of these structures based upon rank (most vulnerable) and importance (most critical). Such mitigation actions may include, but are not limited to bracing of generators, elevators, and other vital equipment, strengthening and retrofitting non-reinforced masonry buildings and non-ductile concrete facilities that are particularly vulnerable to ground shaking, retrofitting building veneers to prevent failure, anchoring rooftop-mounted equipment, and otherwise retrofitting structures and equipment to make earthquake resistant. This will also include reviewing building codes and structural policies to	Earthquake	Low	Office of Emergency Management	Municipal Budget	\$1,000,000	5+ years	Ongoing	This action does not address socially vulnerable populations. The impacts of climate change does not impact the natural hazard this action item addresses. This action item has not been implemented due to lack of funding.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		ensure they are adequate to protect older structures from seismic damage. This item will also include requiring or encouraging seismic engineering measures and construction techniques that may include the mitigation actions above.								
Action 30-14	Provide Back-up Power Generation for Critical Facilities	Post inventory of all critical facilities and equipment, tasks ranked in order of importance. Emergency back-up generators will be provided and maintained at each of the facilities - Generators need to be updated or replaced.	All Hazards	Medium	Office of Emergency Management	FEMA HMA	\$200,000	2 years	Ongoing	This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the risk item this action item addresses. This action item has not been fully implemented due to lack of funding.
Action 30-15	Enforce Compliance with NFIP's CRS Program	Manasquan participates in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). This project will include increased regulatory standards both in and out of the floodplain, including enacting and enforcing regulations that exceed NFIP minimum standards so that more flood protection is provided for any development. Existing ordinances will be reviewed and made more stringent, including requiring buildings to be constructed above the minimum elevation required by NFIP, requiring foundation protection on new buildings, requiring any new critical facilities to be built outside of flood zone,	Flood, Storm Surge, Hurricane/ Tropical Storm/ Nor'easter	Medium	Office of Emergency Management	Local Hazard Mitigation Program	\$5,000	5+ years	Ongoing	This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the natural hazard this action item addresses. This action item reduces flood risk.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		requiring new development to provide positive drainage away from the structure, updating the definition of substantial improvement to include accumulation of improvements counted over 10 years, as well as formally adopting preliminary FIRMS.								
Action 30-16	Floodproof structures or elevate structures and equipment (especially RL, SRL), Relocate structures, critical facilities, equipment.	This action will include floodproofing of structures based on rank (most vulnerable) and importance (most critical). This action will include elevating structures where appropriate at least 1-foot above minimum NFIP base flood elevation requirements. This item will include relocating structures where appropriate, to lower-hazard areas.	Flood, Storm Surge, Sea Level Rise, Hurricane/ Tropical Storm/ Nor'easter	High	Office of Emergency Management	Community Resiliency Grants, FEMA HMA	\$500,000,000	5+ years	Ongoing	Merge of Actions 30-09 & 30-10. This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the natural hazard this action item addresses. This action item has not been fully implemented due to lack of funding. This action item addresses flood risk.
Action 30-17	Comprehensive Flood Mitigation Plan	This action item encompasses the local flood mitigation plan for the Borough of Manasquan developed for the purpose of protecting life and property, enhancing public safety and providing unimpeded transportation. This action item includes: Elevation of critical infrastructure including access roads; Installation of flood barriers, including seawalls, bulkheads, berms and roadway crowning; Drainage improvements including tide (check) valves, upgraded	Flood, Storm Surge, Sea Level Rise, Hurricane/ Tropical Storm/ Nor'easter	High	Office of Emergency Management	Community Resiliency Grants, FEMA HMA, Transportation Funds	\$15,000,000	15 years	Ongoing	This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the natural hazard this action item addresses. This action item has not been fully implemented due to lack of funding. This action item addresses flood risk.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		<p> piping and drainage structures. </p>								
Action 30-18	Construct a Seawall and Flood Gate, including erosion and wave protection by dune and wall system along coast	This action item includes the construction of a seawall along the Atlantic Ocean and a flood gate across the Manasquan Inlet. This project would protect all communities in the Manasquan River floodplain from coastal flooding, storm surge and sea level rise.	Flood, Storm Surge, Coastal Erosion, Sea Level Rise, Hurricane/ Tropical Storm/ Nor'easter	High	Office of Emergency Management, US Army Corps of Engineers	Federal USACE Funds, NJ Shore Protection Fund	\$8 B	15+ years	Ongoing	Merge of Actions 30-07 & 30-11. This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the natural hazard this action item addresses. This action item has not been implemented due to schedule / lack of funding. This action item addresses flood risk.
Action 30-19	Conduct an Inventory and Retrofit Structures, Facilities, and Equipment to Sustain High Winds	An inventory of public and commercial buildings that are vulnerable to high winds will be identified; this action item will include conducting retrofitting of these structures based upon rank (most vulnerable) and importance (most critical).	Extreme Wind	Medium	Office of Emergency Management	Municipal Budget	\$3,000,000	5+ years	Ongoing	This action does not address socially vulnerable populations. The impacts of climate change may increase or decrease the severity and likelihood of the natural hazard this action item addresses. This action item has not been implemented due to lack of funding. This action item addresses extreme wind risk.

31 – MARLBORO TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Bob Miller	OEM Deputy Coordinator	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Trevor Taylor	Municipal Engineer	Municipal Workshop #1, Municipal Workshop #2
Jonathan Capp	Business Administrator	Update Community Profile
Laura Neumann	Municipal Engineer	Update Community Profile

COMMUNITY PROFILE

Overview

Located in western Monmouth County, the Township of Marlboro has a land area of 30.47 square miles. Marlboro encompasses over 600 acres of preserved farmland and is a primarily single-family residential community with a concentration of commercial development along Route 9 and smaller commercial development along Routes 18 and 79. As transportation infrastructure expanded within the region, e.g., Route 9, residential development increased rapidly, with steady population growth continuing into the 21st century. Marlboro has a Safe Routes to School “First Step” rating.

In 2022, Marlboro, Freehold Township, the County and the State partnered to preserve the 27-acre Van Mater Farm on Route 79. Marlboro’s Agricultural Advisory Committee and the Open Space Committee both meet monthly. With funding from the state, county, and a contribution from the Township's open space fund, 15 more acres were added to the inventory of preserved open space in Marlboro next to an already preserved 34-acre tract between Haven Way and Harrington Terrace. In October 2023 Marlboro adopted a new Farmland Preservation Plan.

Land Use, Development, & Growth

In Marlboro, residential, publicly owned and commercial land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 54 percent of the Township’s total area. In the same year, wetlands, forested land and farmland made up 22 percent, 18 percent and 5 percent respectively of the Township’s total area. From 2015 to 2020, Marlboro lost 86 acres of its barren land, 42 acres of its farmland and 25 acres of its wetlands, while its urban or developed land grew by 2 percent, or 211 acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	922.0	880.0	-5%
Barren Land	222.8	136.0	-39%
Forest	3640.8	3580.5	-2%
Urban	10345.2	10556.2	2%
Water	70.3	73.7	5%
Wetlands	4282.3	4257.0	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

To meet the Township’s affordable housing obligation, several projects are advancing including the 387-unit Hyde Park project and the 120-unit Greenwich Park project. Both developments will mix affordable and market rate housing. The Parc at Marlboro is a single-family development off of County Route 79 that also features 56 affordable units, made up of one-, two-, and three-bedroom apartments.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Marlboro’s Vision Plan and Master Plan Reexamination Report both identify the need for a village center with connections to existing neighborhoods. The Vision Plan, a form-based code, is intended to serve as an outline towards implementing two of the Township’s key concerns: the lack of a community center and the loss of its remaining rural character. During the public visioning process, residents stated this new “Center” should include a mix of commercial and residential uses and become a community meeting area. Residents suggested using existing homes and businesses located within the proposed Village Center as a catalyst for creating a compact, pedestrian-friendly, mixed-use area. The Plan outlines building types, street standards, stormwater management techniques, and design standards for the proposed Center. New, higher density residential development appears to be focused along sections of State Highway 79 in the Morganville section of the Township.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Marlboro has a total estimated population of 41,480, of which an estimated 4.8% are under age 5, and 15.9% are over age 65. The Township saw a growth in population of an estimated 2.5% in the periods of 2013-2017 and 2018-2022 ACS surveys. With an aging population making up nearly sixteen percent of their total community, Marlboro may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. While modest, a growth trend of 2.5% over the last two five-year survey periods alongside knowledge of upcoming residential and commercial development, could highlight potential community vulnerability to hazards related to shifts of the local built environment.

There are four block groups within Marlboro which are identified by the State of New Jersey as overburdened (OBC) according to criteria of Minority populations. There are no parts of the Township which are identified under CDRZ or CEJST criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	41,480
Population Change since 2017	2.5%
Percent of Population Age < 5	4.8%
Percent of Population > 65	15.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium,

low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor’easter	Extreme Temperature	Lightning
Flood	Extreme Wind	Dam Failure
	Hurricane/Tropical Storm	Earthquake
	Winter Storm	Landslide
	Wildfire	Drought
Human-made Hazards		
Power Failure	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Pandemic	

The Township ranked Coastal Erosion, Storm Surge, and Wave Action N/A.

Hazard Ranking Explanation

Marlboro has experienced significant changes in its hazard risks within the past five years. Most notably, power failure has increased from low to high risk in this plan. This is due in part to the age and management of the infrastructure. The Township now consistently experiences power outages for half the day in a third of the town. Additionally, substations regularly fail, and there is no direct service number for these situations.

Landslides, previously labeled as not applicable, have been moved to low risk. Marlboro Township, though low-lying, experiences runoff and erosion from flooding. Nor’easters remain a high-risk hazard compared to hurricanes, which are considered low risk due to the impact of snow. Given the Township's location, hurricanes cause minimal damage, but nor’easters do.

Significant Hazard Events Since Last Plan Update

There have been no significant hazards resulting in damage in the past five years. The biggest issue has been localized rain events producing three to four inches of rain per hour. The main consequence is that roads flood and need to be blocked off, including Texas Road and Fletcher Drive. This is not a stormwater issue, but a stream quality issue.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Marlboro Township, particularly in terms of flooding, extreme weather events, and temperature fluctuations. As a community with a mix of residential, commercial, and preserved farmland, Marlboro is already vulnerable to various natural hazards. Climate change is likely to exacerbate these risks by increasing the frequency and intensity of extreme weather events, such as heavy rainfall, nor’easters, and tropical storms, leading to more severe and frequent flooding. The Township's location and the presence of numerous creeks and brooks further heighten the risk of flooding, with approximately 4.9% of the total area lying within the 1% annual chance flood zone. Additionally, rising temperatures and prolonged droughts could strain water resources and increase the likelihood of droughts, impacting both the natural environment and the built infrastructure.

The impacts of climate change are not limited to flooding and temperature extremes. Increased heatwaves and prolonged periods of high temperatures can exacerbate the effects of extreme weather events, leading to cascading impacts on the local ecosystem and human health. Vulnerable populations, such as the elderly and young children, may face heightened risks during extreme weather events, necessitating robust emergency response and preparedness plans.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Marlboro Township	
Number of Policies In-Force:	104
Total Losses:	92
Total Payments:	\$533,142.20
Number of RL Properties:	7
Number of Mitigated RL Properties:	0
RL – Total Losses:	15
RL – Total Paid:	\$146,347.04
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

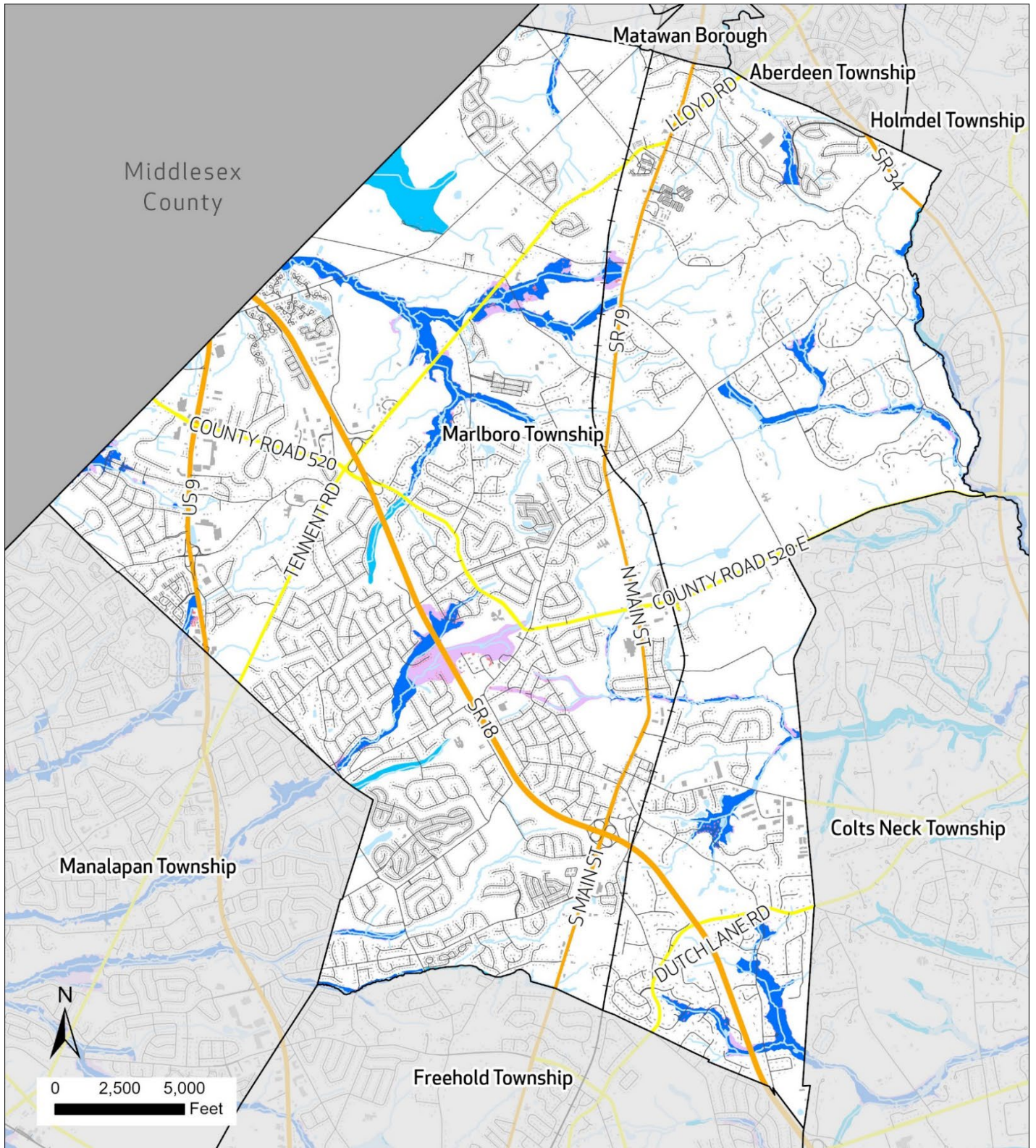
The Special Flood Hazard Area (SFHA) in the Township of Marlboro is primarily located adjacent to the many creeks and brooks which pass through town. Approximately 4.9 percent of the total area of Marlboro lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 73.1 percent of Marlboro is considered developed. Of the developed parcels of the town, 4.2 percent fall within the 1% annual chance flood zone and 0.9 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	4.4%	0.9%	NA
Exposed Land Area	4.9%	1.2%	NA

During the planning process, Marlboro identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 40 total facilities. Of these facilities, none are within the floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	NA



Flood Risk Marlboro Township

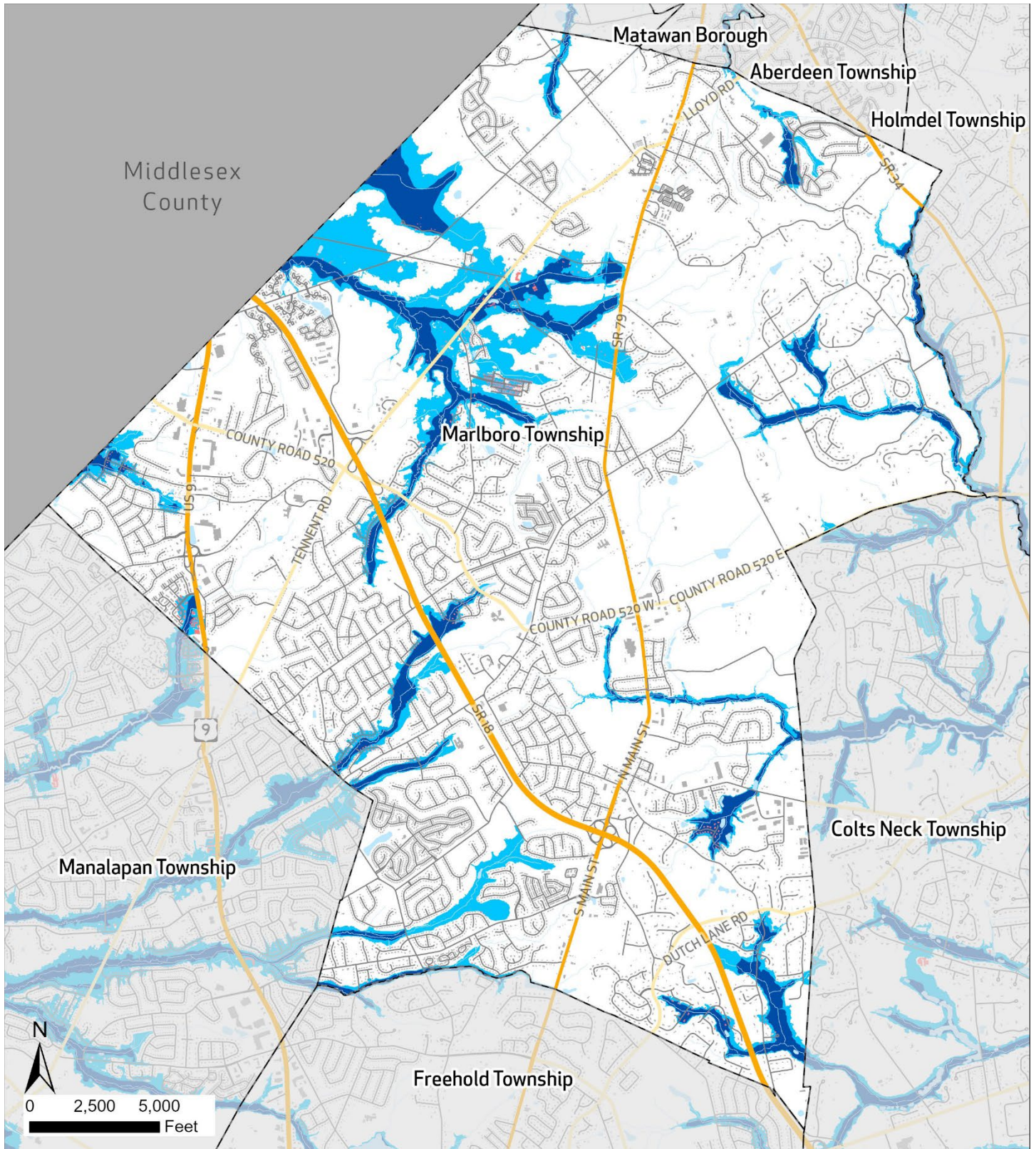
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Marlboro Township

FEMA Flood Zone

Current Base Flood Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3 Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

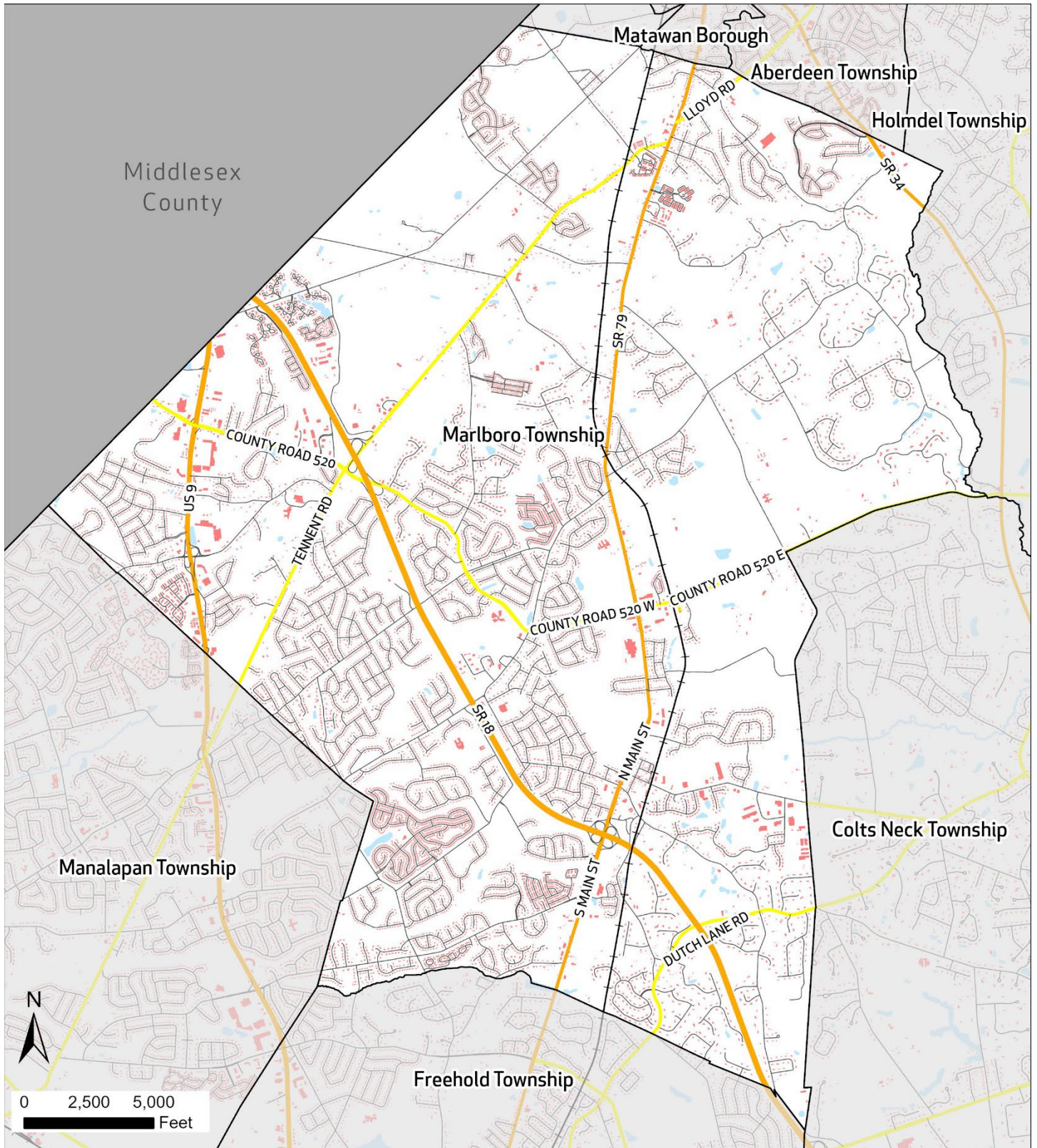
Municipal Boundaries

Water

Building Footprints

Building Footprints within IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



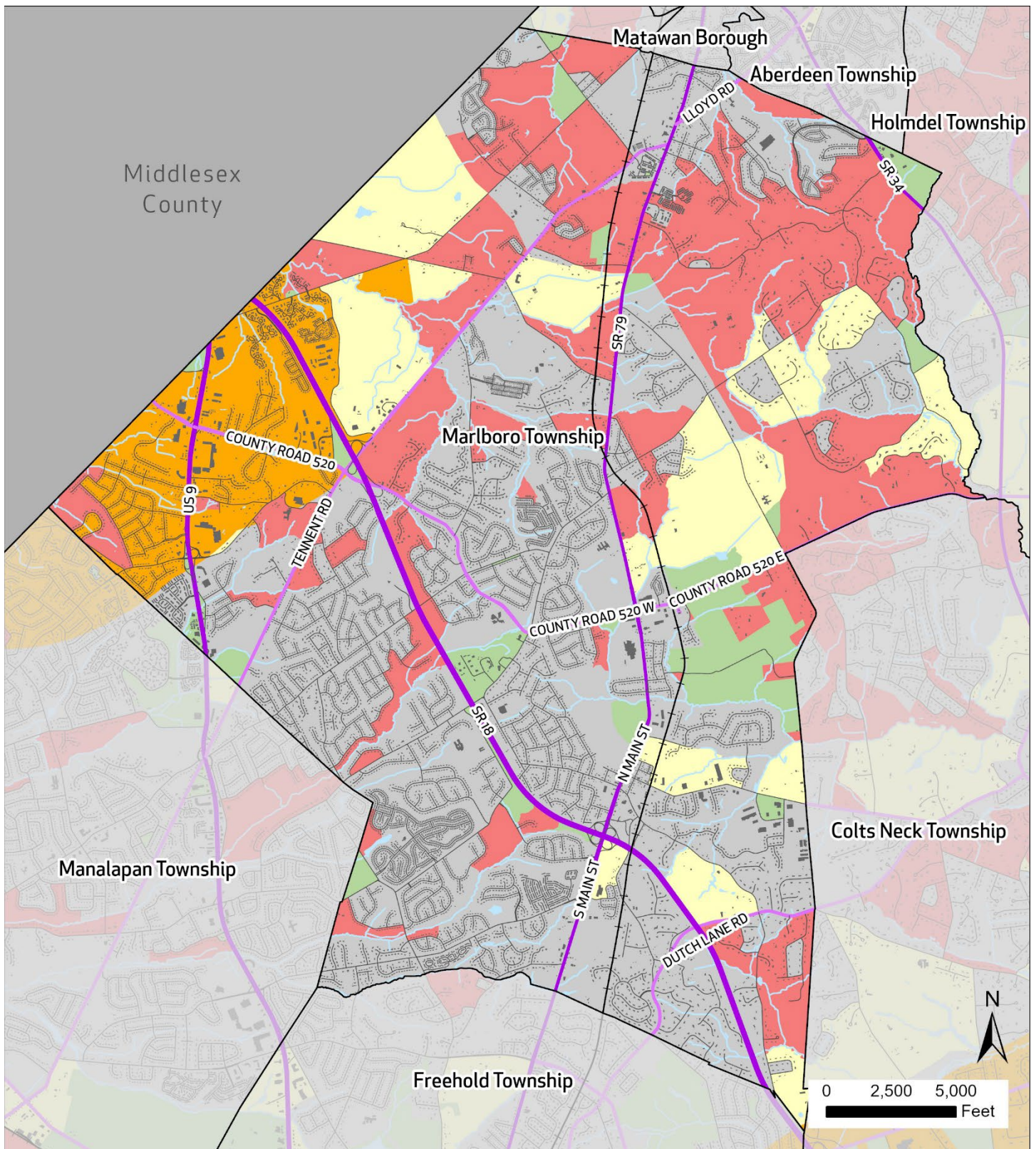
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Marlboro Township

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Marlboro Township

- | | | |
|--|---|---|
| Interface | State Hwy | Municipal Boundaries |
| Intermix | Interstate Highways | Building Footprint |
| High or Medium Density Housing | State Routes | Water |
| Low or Very Low Density Housing | County Routes | |
| No Housing | Local Roads | |
| | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Marlboro Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		1997 with a 2019 Master Plan Re-Examination Report, 2010 Marlboro Community Vision Plan, and 2023 Farmland Preservation Plan	
Capital Improvement Plan	X		Current plan submitted for review with approval expected in April. Capital Plans are updated and approved annually	All Township Departments maintain a Capital Improvement Plan to build resiliency within the Township and redundancy in its operation to enable response capabilities.
Local Emergency Operations Plan/Continuity of Operations Plan	X		Local Emergency Management Council meets quarterly. Emergency Operations Plan approved in 2024	LEMC regularly reviews threats and hazards within the Township with emphasis on protective measures and possible actions to alleviate the risks.
Floodplain Development Ordinance	X		6/16/2022	
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		6/20/2024	
Stormwater Management Plan	X		3/2006	
Watershed Management Plan		X		
Sheltering Plan		X		No formal plan but is discussed in the Municipal Emergency Operations Plan
Evacuation Plan		X		No formal plan but is discussed in the Municipal Emergency Operations Plan
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			2019 Master Plan Re-Examination Report, 2010 Marlboro Community Vision Plan
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			2023 Farmland Preservation Plan

Administrative and Technical Capabilities

Marlboro Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Construction Official with support from Engineering
Grant Writer		X	
Staff trained to support mitigation		X	

Position	Yes	No	Explanation
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Marlboro Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Township regularly communicates with the residents through social media, email, public signage and reverse-911 calls regarding severe weather events, local hazards or incidents and any incident that impacts the community.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Marlboro Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP	X		2015 – Installation of a generator at Recreation Center; 2024 – Streambank Stabilization on Nolan Road
Non-FEMA Federal Funding Programs	X		2019 – PDMC funding for streambank stabilization on Pleasant Valley Road
Other FEMA resources		X	
NJ Infrastructure Bank	X		Funding was used for the construction of a new water treatment plant, the replacement of another treatment plant, for the replacement of one water pipe that was the subject of repeated pipe breaks and for the installation of 800 feet of new water main.
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Marlboro Township strives to improve its resilience through the use of the latest technologies, means, methods and scientific data available. The Township will continue to review and evaluate existing or emerging conditions and work with Federal, State, County and other Local agencies to develop mitigation strategies based on the hazards and threats identified. These strategies are supported through a dynamic 6 year capital plan that is used to prioritize, recommend and direct local resources towards addressing stormwater and stream corridor issues brought about by extreme rainfall events and shifting climate conditions, as well as providing system redundancy in response to disruptions to power and IT infrastructure.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	The Township has no actions that are complete or withdrawn since the last plan update.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 31-1	Provide Awareness and Readiness Information on Hazards and Preparedness	Distribute timely awareness and readiness information regarding seasonal atmospheric hazards and personal preparedness and readiness guidelines.	Extreme Temperatures, Flood, Drought, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Wildfire, Winter Storm, Tornado	High	Administration and Office of Emergency Management	Township budget	\$15,000	5+ years	Ongoing	Continuous. The Township is always finding new ways to publish information through their IT office.
Action 31-2	Provide Public Information on Emergencies	Use all forms of print and social media to provide advanced warning and notification of impending severe weather events and all incidents jeopardizing public safety (including but not limited to Reverse 911, Twitter, and Facebook accounts to provide alert	Extreme Temperatures, Drought, Nor'easter, Hurricane and Tropical Storm, Wildfire, Winter Storm	High	Administration and Office of Emergency Management	Township budget	\$10,000	5+ years	Ongoing	Continuous. The Township is always finding new ways to publish information through their IT office.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 31-3	Purchase and Install Generator at Tennent Rd. Municipal building and Water Treatment Plant and Pump Station	Installation of a generator at the Tennent Road Water Treatment Plant and Pump Station.	All Hazards, Power Failure	Medium	Engineering	FEMA HMA	\$750,000	1 year	Ongoing	Ongoing. Conversations of replacing due to age. In 1970 a generator was put in at about 1,000 KW units.
Action 31-4	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Work with property owners on grants available to mitigate Repetitive Loss properties. There are seven RL properties that still need mitigation.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Construction Official	FEMA HMA	TBD on properties	5 + years	Ongoing	Continuous. There was one structure that the engineer was working to elevate and/or acquire.
Action 31-5	Desnag and Clean Stream Corridors within the Township	Desnagging and cleaning four streams the Township.	Flood, Hurricane and Tropical Storm	High	Township	Municipal budget	\$150,000	5 + years	Ongoing	Ongoing. Part of the tributary starts in Marlboro. This would be a desnagging and desilting. There have been talks with Trenton.
Action 31-6	Construct Flood Measure (e.g. floodwalls or small berms) along Deep Run	Use minor structural projects that are smaller and more localized (e.g., floodwalls or small berms) along Deep Run.	Flood, Hurricane and Tropical Storm	High	Township Engineering	FEMA HMA		3 years	Ongoing	
Action 31-7	Roadway improvements to mitigate roadway erosion.	Use of steel sheeting, gabion baskets rip-rap, and erosion control blankets to stabilize embankments and reduce the likelihood of roadway erosion or failure. Include drainage structures and piping where necessary to collect and discharge stormwater. Install guiderail in accordance with NJDOT guidelines	Flood, Hurricane and Tropical Storm, Nor'easter	High	Township Engineering, Monmouth County if on a county roadway	FEMA HMA, Municipal or County budget	\$2.7M	3+ years	New	

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PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Tom Falco	Chief of Police	Point of Contact, Workshops #1 and #2
Richard Michitsch	Deputy OEM Coordinator	Workshop #1
Jessica Berliner	OEM Administrative Assistant	Workshops #1 and #2

COMMUNITY PROFILE

Overview

Situated at the head of the Matawan Creek, the Borough of Matawan has a land area of 2.26 square miles. The Borough appeals to a wide variety of residents due to its wealth of natural resources and extensive transportation network. The Borough is divided into several neighborhoods by its two lakes (Lake Lefferts and Lake Matawan) and two major roadways (New Jersey Routes 79 and 34).

The Aberdeen-Matawan train station is the county's northernmost stop along New Jersey Transit's North Jersey Coastline and serves as a gateway to the Jersey Shore. The State Department of Transportation designated Matawan as a New Jersey Transit Village in 2003, allowing for financing opportunities for transit-oriented development. Matawan has a Safe Routes to School "Silver" rating.

In 2019, the Borough and the County agreed to upgrade the Lake Lefferts Dam and raise Aberdeen Road above flood levels and entered into a cost share agreement for the project in 2021. Right of way acquisition occurred in 2022, and full completion of the project is expected in 2025.

Land Use, Development, & Growth

Matawan is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, apart from a 3 -acre loss of both barren land and forested land, and a 6 acre increase in urban or developed land, the community underwent minimal change in its land use composition. In 2020, urban or developed land accounted for roughly 84 percent of Borough's total area, while forested land accounted for 11 percent, and water and wetlands together made up 15 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	4.8	1.7	-65%
Forest	165.9	162.9	-2%
Urban	1140.5	1146.7	1%
Water	112.6	112.7	>0%
Wetlands	118.6	118.4	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Taking advantage of its Transit Village designation, the Borough has seen an increased interest in new development. In 2018, construction was completed, and leasing began for The Edge, a mixed-use development located a half mile from downtown. The development consists of 131 luxury apartments with retail on the ground floor. Further supporting downtown revitalization, Chashama, a New York City based non-profit organization that provides space for local artists to work, selected Matawan as the location for its first New Jersey venture. This location features 12 studios and an exhibition space. The space falls within the NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

Matawan has been committed to redevelopment in the area around the Aberdeen-Matawan train station. In 2015 the town added to its 2001 Redevelopment Plan with a Transit Station Redevelopment Amendment.

In 2023 Monmouth County awarded conditional approval to the Matawan Junction mixed-use development. The development, on the corner of Main Street and High Street, would bring 100 new dwelling uses and bottom floor retail, just 750 feet from the Aberdeen-Matawan Station.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The Monmouth County Bayshore Region Strategic Plan (2006) reinforces the borough's prior planning initiatives, including train station area redevelopment, a downtown streetscape program, a capital infrastructure program, and lakefront restoration. In October 2015, the Borough adopted a comprehensive Master Plan, its first since 1965. The 2015 Master Plan focuses on redevelopment, with a special emphasis on Main Street and areas proximate to the train station. The Plan identifies long-term goals to restore its downtown, preserve its historic core, and to redevelop the area surrounding the train station as a transit-oriented village, efforts that will serve to reinforce investments and revitalization in its downtown.

New Jersey Transit officials are planning to create a pedestrian oriented, commuter centric, mixed-use development in the 7-acre parking lot adjacent to the train station between High Street and Main Street. In 2022, Monmouth County and Middlesex County began a Local Concept Development Study to determine appropriate improvements to the Old Bridge-Matawan Road bridge over Lake Lefferts at the border of Matawan and Old Bridge. Matawan continues to take steps toward community revitalization.

Forty-eight residential units and retail space are expected at 160 Main Street. Additional redevelopment is slated for other Main Street properties. None of the developments are in a flood zone. Several other projects are in planning stages. Speedway Route 34 gas station has closed down and the property is for sale.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Matawan has a total population estimated at 9,546. This population is estimated to be 7.0% under age 5 and 12.9% over age 65. The Borough experienced population growth in the periods between ACS surveys of 2013-2017 and 2018-2022, with an estimated 7.3% increase. The borough's population age distribution is relatively broad; while a growth of over seven percent in population over two five-year survey periods, in addition to plans for increased development, may highlight potential local vulnerabilities to hazards based on shifts in the built environment and planned density increases.

There are two block groups within the Borough which are identified as potentially vulnerable due to overburden (OBC), both meeting criteria of overburdened *Minority* populations. There are no portions of Matawan which are identified as CDRZ or CEJST communities.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	9,546
Population Change since 2017	7.3%
Percent of Population Age < 5	7.0%
Percent of Population > 65	12.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Dam Failure	Extreme Temperatures	Drought
Flood	Extreme Wind	Earthquake
Nor'easter	Hurricane/Tropical Storm	Lightning
Storm Surge	Tornado	Wildfire
	Winter Storm	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

The Borough ranked Landslide as N/A.

Hazard Ranking Explanation

Dam failure is ranked as high by Matawan officials because the Borough is home to two high hazard potential dams, meaning their failure or mis-operation would probably cause loss of human life. These dams are Lake Lefferts Dam and Lake Matawan Dam. Both are rated in Poor condition, meaning dam safety deficiencies are recognized under normal operating conditions that may realistically occur. Remedial action is necessary. The term "Poor" may also be used when uncertainties exist as to critical analysis parameters that identify a potential dam safety deficiency. This means investigations and studies are necessary.

Reconstruction of these dams is planned following the raising of Aberdeen Road, a mitigation action from the last plan, which is currently in progress. This project will take around two years to complete and will raise Aberdeen Road by 15 feet. Lake Lefferts Dam will be prioritized, followed by Lake Matawan Dam. Additionally, ravines near Lake Lefferts need to be desilted.

Significant Hazard Events Since Last Plan Update

There have been no major hazard events since the 2020 storm. Hazard mitigation planning in the town has focused on the two high-hazard potential dams mentioned in the previous section.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Matawan Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and heavy rainfall are likely to increase. This will exacerbate flooding risks, particularly in areas already prone to such events, like the

regions adjacent to Gravelly Brook and the low-lying areas within the 1% annual chance flood zone. The increased precipitation and storm surges will put additional strain on the Borough's infrastructure, including the high hazard potential dams at Lake Lefferts and Lake Matawan, which are already in poor condition and require remedial action. The Borough's aging population and vulnerable communities will face heightened risks from extreme temperatures and other climate-related hazards. Older adults and young children are particularly susceptible to the health impacts of heatwaves and severe weather events.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Matawan Borough	
Initial FIRM Date	9/30/81
Effective FIRM Date	6/20/2018
Number of Policies In-Force:	0
Total Losses:	0
Total Payments:	\$0
Number of RL Properties:	7
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

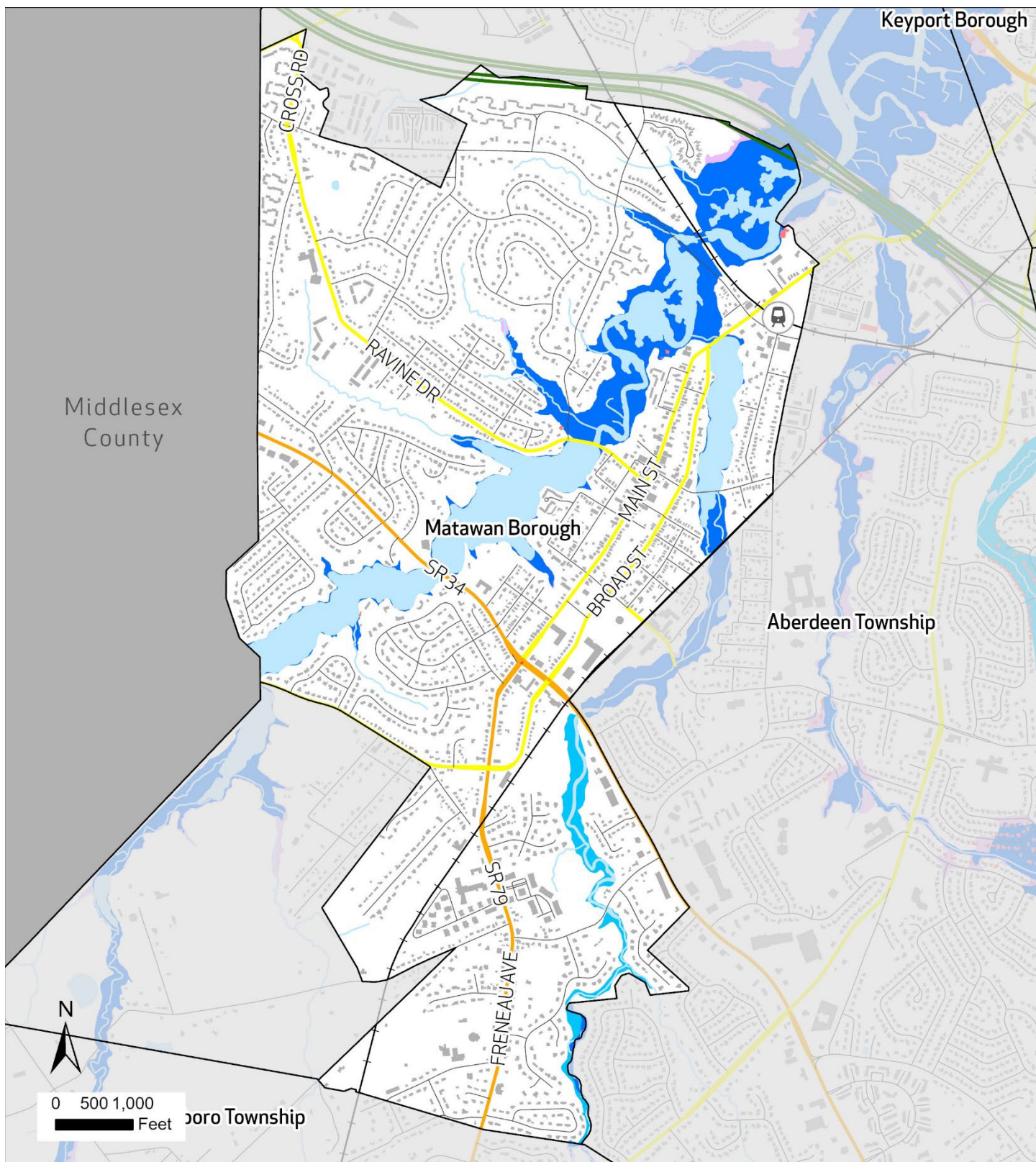
The Special Flood Hazard Area (SFHA) in the Borough of Matawan is primarily located adjacent to the mainstream Gravelly Brook. Approximately 13.8 percent of the total area of Matawan lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 81.3 percent of Matawan is considered developed. Of the developed parcels of the town, 6.8 percent fall within the 1% annual chance flood zone and none are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	6.8%	NA	0.2%
Exposed Land Area	13.8%	0.2%	2.2%

During the planning process, Matawan identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 16 total facilities. Of these facilities, two are within the floodplain. Both are categorized as Water Systems community lifelines. Examples of Water Systems lifelines include dams and pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	2	-	-



Flood Risk

Matawan Borough

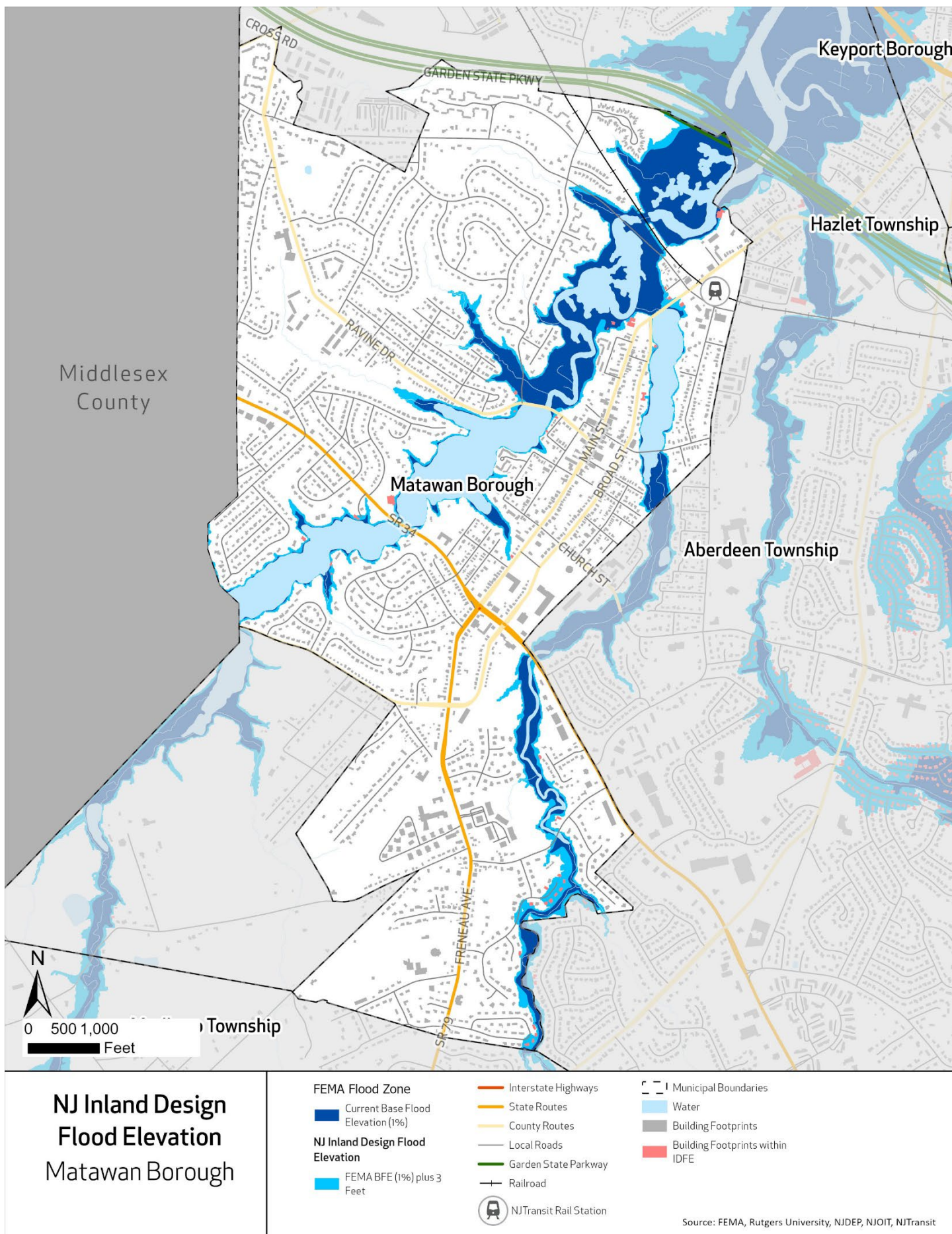
FEMA Flood Zone

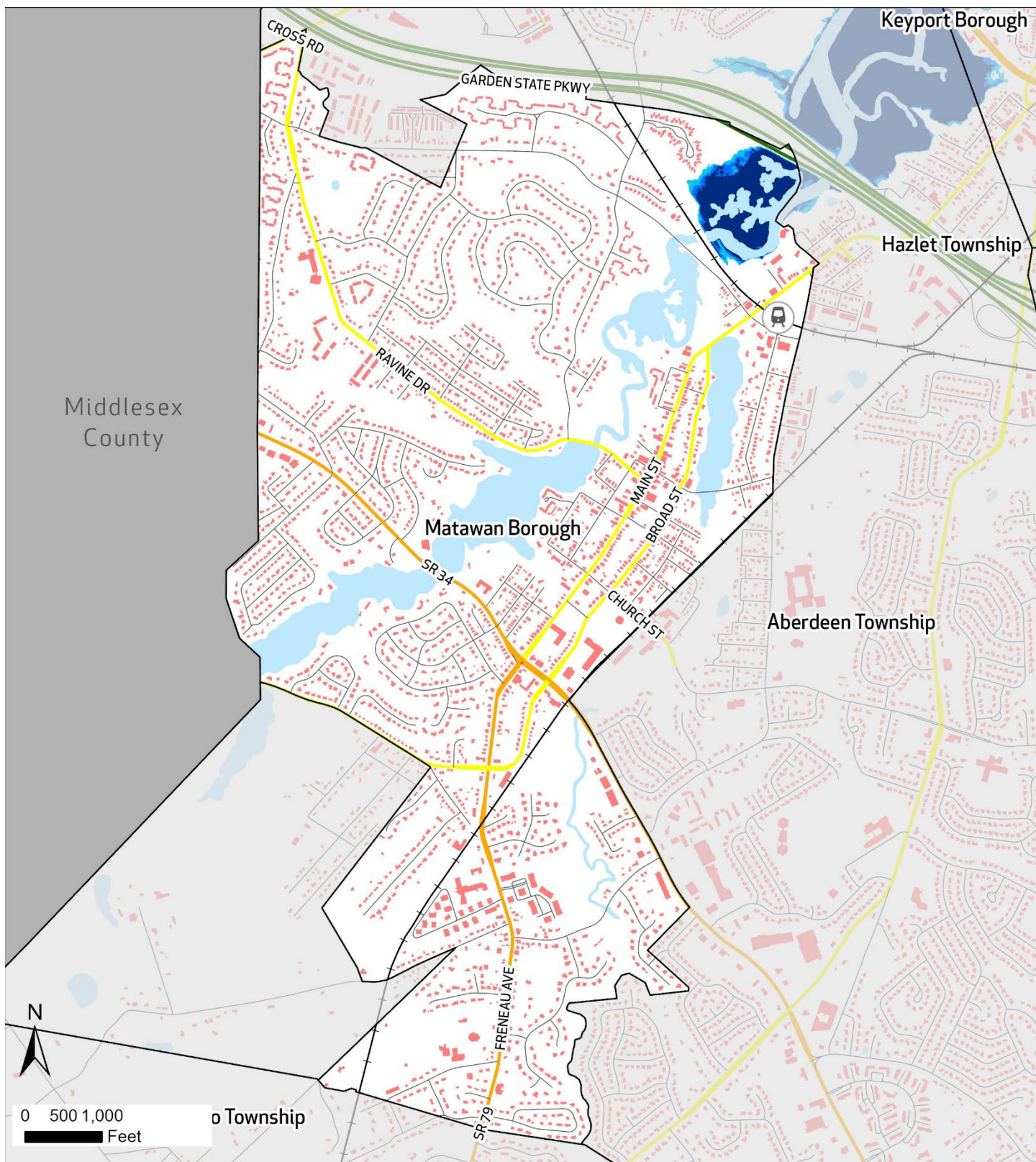
- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit

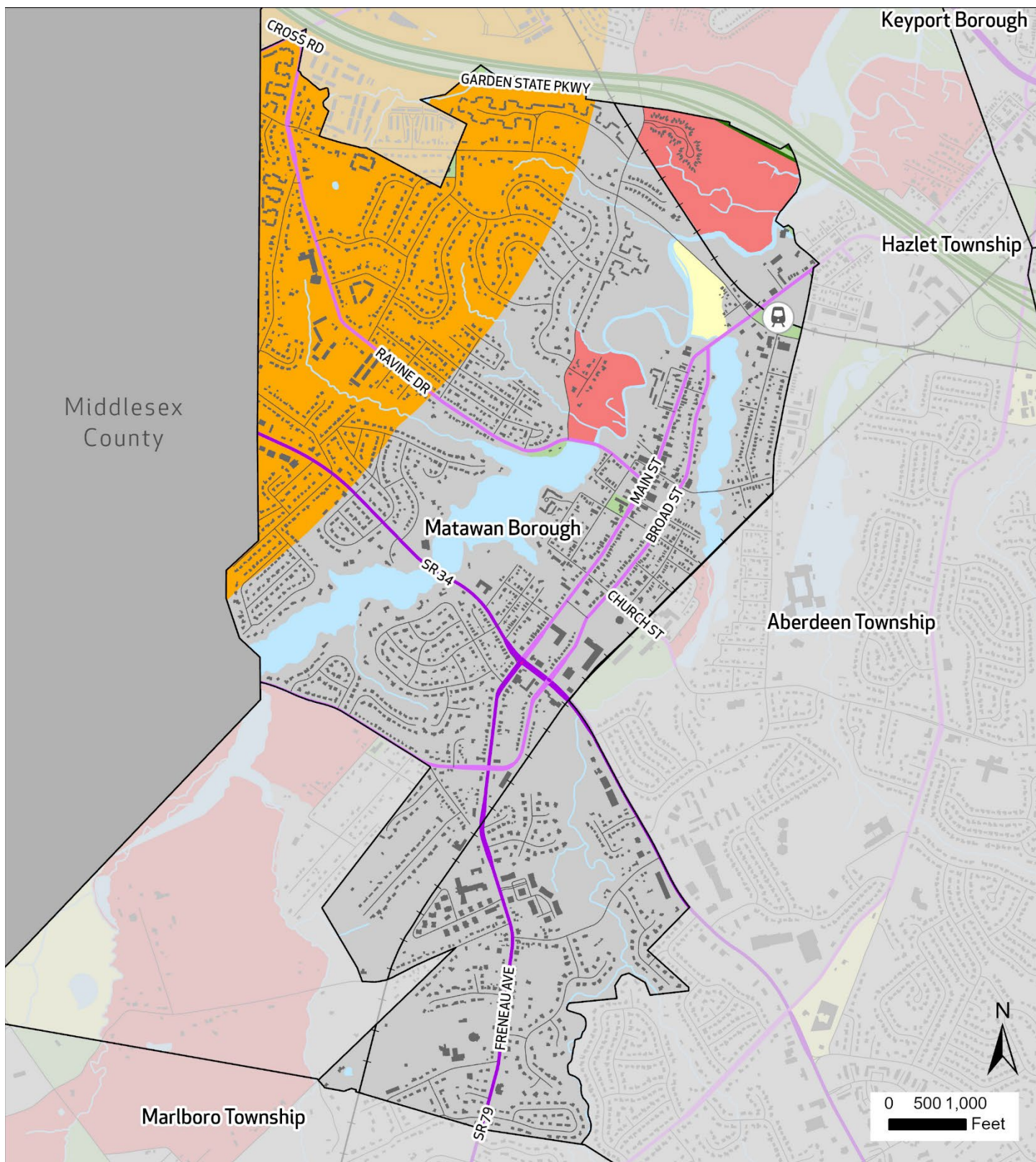




**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Matawan Borough

- | | | |
|-----------------------------------|---------------------------|------------------------|
| ■ Area Inundated Under 2 Feet SLR | — Garden State Parkway | ▭ Municipal Boundaries |
| ■ Area Inundated Under 3 Feet SLR | — Interstate Highways | ■ Building Footprint |
| ■ Area Inundated Under 5 Feet SLR | — State Routes | ■ Water |
| | — County Routes | |
| | — Local Roads | |
| | — Rail Lines | |
| | ● NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Matawan Borough

- | | | |
|---|--|--|
| ■ Interface | — Garden State Parkway | Municipal Boundaries |
| ■ Intermix | — Interstate Highways | Building Footprint |
| ■ High or Medium Density Housing | — State Routes | ■ Water |
| ■ Low or Very Low Density Housing | — County Routes | |
| ■ No Housing | — Local Roads | |
| | + Rail Lines | |
| | NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Matawan Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2016	
Capital Improvement Plan	x		2025	
Local Emergency Operations Plan/Continuity of Operations Plan	x		2025	
Floodplain Development Ordinance	x		1998	
Floodplain Management Plan	x		1998	
Stormwater Management Ordinance	x		1998	
Stormwater Management Plan	x		1998	
Watershed Management Plan				
Sheltering Plan	x		2025	
Evacuation Plan	x		2025	
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan		x		
Disaster Debris Management Plan		x		
Tracking elevation certificates and/or Letter of Map Change		x		
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies	X			In 2015 the town added to its 2001 Redevelopment Plan with a Transit Station Redevelopment Amendment.
Community Wildfire Protection Plan		x		
Climate Adaptation Plan				
Other Plans that discusses hazard mitigation		x		
Other ordinance and regulation that mitigate the impacts of natural hazards		x		

Administrative and Technical Capabilities

Matawan Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		x	
Grant Writer	x		The Aubrey Group
Staff trained to support mitigation		x	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	
Organizations that work with socially vulnerable or underserved populations	x		

Education and Outreach Capabilities

Matawan Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public		x	
StormReady	x		Monmouth County
Firewise USA		x	
Severe Weather Awareness Week		x	
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Matawan Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance	x		
FEMA HMGP	x		
Non-FEMA Federal Funding Programs		x	
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs	x		
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Matawan is a mostly residential community that actively works to implement proactive policy and improvements aimed at increasing Matawan's resilience to damage from natural disasters and adaptation to future climate concerns. Since 2021, the Borough has provided auxiliary power to the Matawan Municipal Community Center and has relocated its Police Headquarters to join Borough Hall and the Office of Emergency Management's Operations Center all under one roof. It has also begun a project to raise Aberdeen Rd. (scheduled completion of July 2025), a necessary improvement prior to replacing existing high hazard dams. These projects promote a flourishing community and further support the municipality's resiliency goals. Moving forward, the Borough of Matawan will remain forward thinking and prioritize the replacement of both Lake Lefferts (scheduled start date of October 2025) and Lake Matawan dams, in addition to other projects regarding the cleaning out of outfall pipes located within the numerous ravines throughout the Borough and the upgrading of critical facility generators (Sewer pumping stations) in addition to coordinating with state and local agencies on the best ways to achieve resiliency within the community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 32-1	Provide Auxiliary Power to the Matawan Municipal Community Center/Borough Hall	Provide auxiliary power to the Matawan Municipal Community Center-Borough Hall (201 Broad Street), to allow for continuity of government operations and public access to the Municipal Complex during a sustained loss of power. Having auxiliary power would also facilitate the use of the complex as a temporary shelter or warming/charging station during a declared state of emergency.	Extreme Temperatures, Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer, Office of Emergency Management	Bonded funding, State, County, federal grant	\$150,000	N/A	Completed	Police HQ has been moved to the Municipal Community Center - Borough Hall.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 32-2	Replace Lake Lefferts Dam	Replace existing Lake Lefferts dam to include realigning of Ravine Dt. To comply with current DOT standards.	Dam Failure, Flood, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm	High	Matawan Borough	State, County and Federal Grants,	\$8M	1 year	Ongoing	Lake Lefferts is scheduled for full rehab with construction beginning in Fall of 25 (DEP).

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
						Bonded funds				
Action 32-3	Replace Lake Matawan Dam	Coordinate with NJDEP to replace existing Lake Matawan dam to include replacement of the Main Street Lake Matawan/Matawan Creek Bridge and adjoining roadway.	Dam Failure, Flood, Nor'easter, Hurricane and Tropical Storm	High	Matawan Borough and Monmouth County	Lake Matawan is eligible for High-Hazard Potential Dam Grant Program.	\$8m	5+ years	Not Started	Construction has not started.
Action 32-4	Elevate Aberdeen Rd	Elevate Aberdeen Rd above the Matawan Creek and BFE.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Matawan Borough and Monmouth County Engineers in conjunction	FEMA HMA, DOT & MC Engineering	\$7.1M	1 year	Ongoing	Started in 2023-24. Construction is ongoing. Expected completion is July 2025.
Action 32-5	Purchase a Jet Vac Ravine Cleaning and Clean Outfall Pipes	Clean outfall pipes and ravines that are clogged (need list from engineer on which outfalls and ravines need cleaning). Additionally, purchase a jet vac (est. \$700,000) for DPW to clean the pipes and ravines from debris.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough DPW	Municipal budget	\$1.5M	1 year	Not Started	Project has not started yet.
Action 32-6	Upgrade Generators at Critical Facilities	Upgrade generators at Police HQ, Somerset Place Sewer Life Station, Victoria Court Sewer Pump Station, and DPW building.	All Hazards	Low	Borough Administration	FEMA HMA	\$200,000	1 year	Ongoing	Police HQ have been moved to the Municipal Community Center - Borough Hall.
Action 32-7	Target Harden Critical Facilities by installing Service Cameras, an Access Control	The Water Treatment Plan needs more security in the form of an upgraded camera system and concrete barriers.	Terrorism	Medium	Borough Administration, DPW	Homeland Security Grants	TBD	1 year	Ongoing	Borough Hall cameras and key card access completed.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	System, and/or Bulletproof Glass	Borough Hall could be more secure with bulletproof glass, an access card system, and an enhanced camera system.								
32-8	Develop a Tree Trimming Program	Create a shared service agreement for tree trimming program with the county or a consultant.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Medium	DPW	Municipal Budget	TBD	2 years	Ongoing	Some work has been completed.
32-9	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL), and Severe Repetitive Loss (SRL) properties.	There is currently no RL or SRL properties in the borough; however, the Borough recognizes that the floodplain changes over time and the risk is always present. If in the next five years properties become RL/SRL, the Borough will coordinate with residents to mitigate properties through structure elevation, demolition to open space, or another type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA	TBD	5+ years	Ongoing	

33 – MIDDLETOWN TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Charles W. Rogers III	OEM Coordinator	Point of Contact, Municipal Workshop 10/28/2024
Charles Ehret	Operations Chief	Municipal Workshop 10/28/2024
Stacy Krause	Floodplain Administrator/CRS Coordinator	Reviewed appendix
Ted Maloney	Department of Public Works Director	Reviewed appendix
Victor Wymbs	Department of Public Works Assistant Director	Reviewed appendix

COMMUNITY PROFILE

Overview

The Township of Middletown is 58.7 square miles and has the largest municipal population in the County (67,106 in 2020). It is one of the original 1693 Townships of Monmouth County (along with Freehold and Shrewsbury Townships). Middletown is divided into several diverse residential neighborhoods, developing at different times over its long history.

The Township participated in two recently completed regional studies. The first is the Joint Land Use Study with Naval Weapons Station Earle that is intended to improve both the development compatibility of areas surrounding the base and storm resiliency. The second study, the New Jersey Fostering Regional Adaptation through Municipal Economics Scenarios (NJFRAMES) program, is a regional collaborative effort in coastal Monmouth County that seeks to understand and address future flood vulnerability.

In May of 2023, a first phase of improvements was implemented at Swimming River Park, including a walking path, kayak launch, boat ramp, and parking lot. The Monmouth County Park System also purchased a 17-acre estate along the Navesink River in April 2023 for \$8.4 million, which will connect to the existing Hartshorne Woods.

Land Use, Development, & Growth

In Middletown, residential, publicly owned and commercial land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 55 percent of the town's total area, while wetlands, water, forested land, and agricultural land together made up the remaining part of the Township's area. Since, 2015, this has largely been the Township's land use composition.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	862.6	851.0	-1%
Barren Land	383.9	382.5	>0%
Forest	4966.5	4893.8	-1%
Urban	15159.6	15272.8	1%
Water	1780.2	1792.0	1%
Wetlands	4716.5	4677.1	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2016, Middletown identified certain properties as an "area in need of redevelopment." The redevelopment area encompasses approximately 450 acres in the vicinity of Port Belford and Ware Creek. In May 2017 a redevelopment plan was presented to and approved by the Township. The project was suspended during the COVID-19 pandemic but, in 2023 Middletown revived and revised its Port Belford Redevelopment plan to prioritize turning the around the ferry terminal into a "seaside village". Sections of these communities fall within FEMA's 1% and 0.2% annual chance floodplain, and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

Since 2019, numerous large-scale residential subdivisions have been constructed throughout the municipality. Toll Brothers repurposed the former Bamm Hollow golf course into a single-family residential neighborhood. Nearing completion, the community will contain 182 single family homes. In addition, Toll Brothers is constructing a new townhouse development off of Kings Highway and Highway 35 named Middletown Walk. This development will include 245 townhomes. American Properties is constructing a townhouse development at Taylor Lane and Highway 35. Heritage at Middletown, consisting of 140 residences and 36 affordable units, was recently completed at Taylor Lane and Highway 35.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Middletown’s Bayshore neighborhoods continue to face numerous challenges related to physical reconstruction, resiliency, long-term sustainability, and affordability. In 2024 Middletown began the process of creating a new Master Plan, with public hearings beginning in February of 2024.

All ongoing or anticipated development is south of 35, on higher ground. None of it will be in the flood zone. This includes Middletown Walk, of 406 units which include affordable housing and a retention pond. There is another similarly large development going in nearby.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Middletown Township has a total population of an estimated 66,952. Of this population, an estimated 5.3% are under age 5, and 17.3% are over age 65. The population of Middletown grew moderately (an estimated 1.5%) over the period between 2013-2017 and 2018-2022 ACS surveys. With an aging population making up nearly twenty percent of their total community, Middletown may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of Middletown which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	66,952
Population Change since 2017	1.5%
Percent of Population Age < 5	5.3%
Percent of Population > 65	17.3%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the

past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Wind	Extreme Temperatures
Nor’easter	Tornado	Lightning
Flood	Winter Storm	Dam Failure
Storm Surge	Coastal Erosion	Drought
	Landslide	Wildfire
	Wave Action	
	Earthquake	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

- **Extreme Temperature:** Many residents have A/C and generators.
- **Dam Failure:** Shadow Lake Dam is only dam in town.
- **Earthquake:** Some sewage pipes damaged in 2024 earthquake. Concern if it were to happen again.

Significant Hazard Events Since Last Plan Update

Several storms and winter storms that caused flooding have occurred (FEMA declaration). Residents are also experiencing more regular flooding that is not associated with storms or hurricanes, with basements and yards frequently getting flooded. Most of the flooding occurs in Bayshore, but also in areas like Lincroft. The water table is rising due to increased precipitation. The Township is trying to work with the state to dredge, but buyouts in some of these areas may be necessary.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is projected to impact the risks and hazards faced by Middletown Township. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, tropical storms, and nor’easters are expected to increase. This will intensify existing vulnerabilities, particularly in flood-prone areas like the Bayshore neighborhoods. Rising sea levels and increased precipitation will likely lead to more frequent and severe flooding, affecting both the built environment and critical infrastructure. The Township's floodplain, which already includes a significant portion of its developed area, will face heightened risks, requiring effective mitigation and adaptation strategies.

Additionally, climate change will increase the risks associated with extreme temperatures, droughts, and coastal erosion. The aging population in Middletown, which includes a considerable percentage of residents over the age of 65, will be especially vulnerable to these hazards. Increased heatwaves and prolonged periods of high temperatures can pose health risks, particularly for those with limited mobility and access to resources. Furthermore, the Township's efforts to manage stormwater and maintain wetlands will become more challenging as climate change affects precipitation patterns and intensifies storm events.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Middletown Township	
Initial FIRM Date	2/15/84
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	1918
Total Losses:	1709
Total Payments:	\$59,622,393.53
Number of RL Properties:	114
Number of Mitigated RL Properties:	0
RL – Total Losses:	269
RL – Total Paid:	\$8,044,543.23
Number of SRL Properties:	8
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	37
SRL – Total Paid:	\$1,173,553.87

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

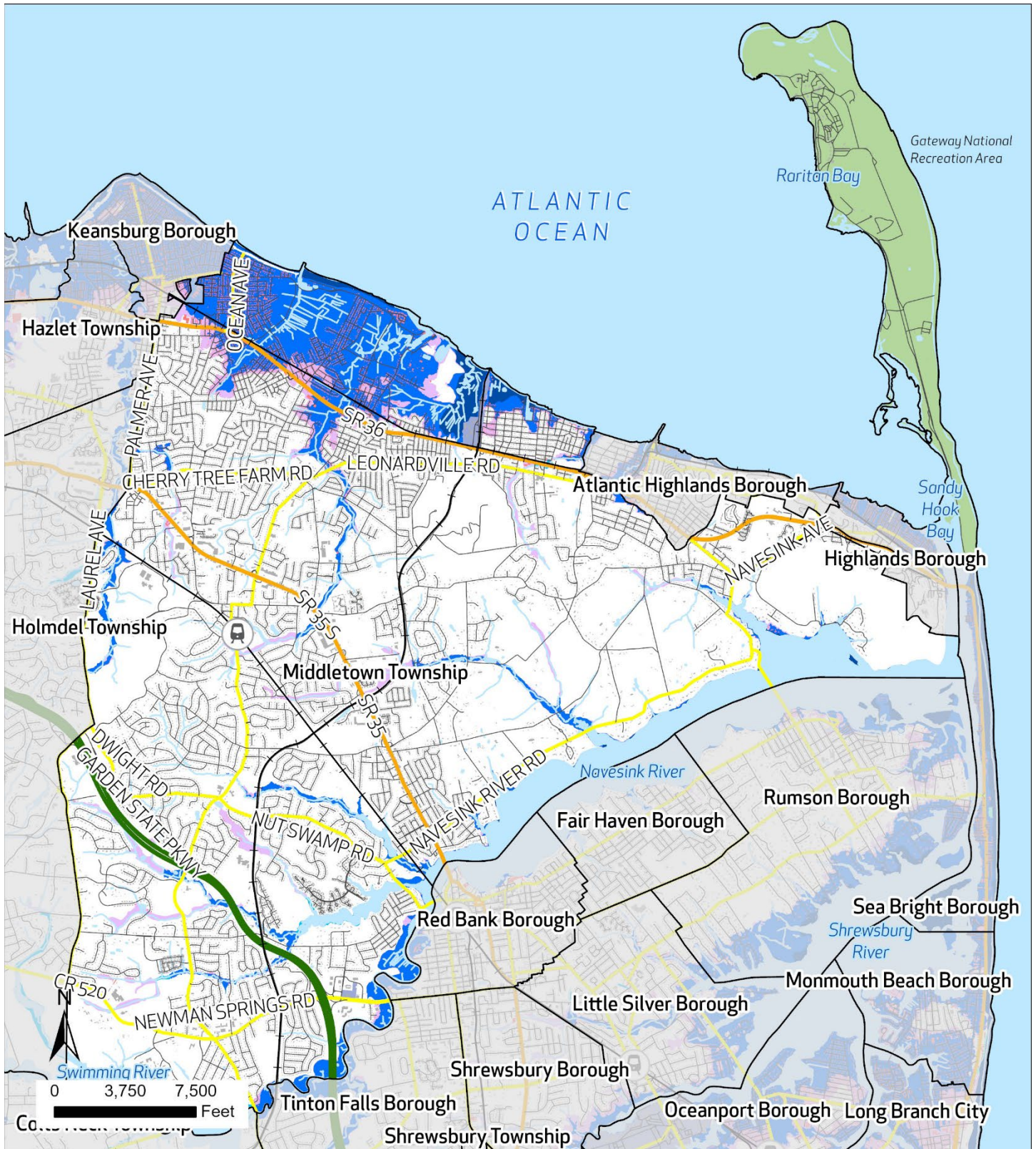
The Special Flood Hazard Area (SFHA) in the Township of Middletown is primarily located adjacent to the many creeks and brooks which pass through town flowing into the Navesink River or Raritan Bay, and the Raritan Bayshore portion of the Township generally. 14.8 percent of the total area of Middletown lies within the 1% annual chance flood zone as defined by FEMA. An additional 2.8 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 75.3 percent of Middletown is considered developed. Of the developed parcels of the town, 16.5 percent fall within the 1% annual chance flood zone and 3.3 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	16.5%	3.3%	10.0%
Exposed Land Area	14.8%	2.8%	13.6%

During the planning process, Middletown identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 100 total facilities. Of these facilities, 16 are within the floodplain. Of these 16, two are also within areas projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Health and Medical	1	1	-
Safety and Security	9	1	1
Transportation	-	1	-
Water Systems	2	1	1



Flood Risk

Middletown Township

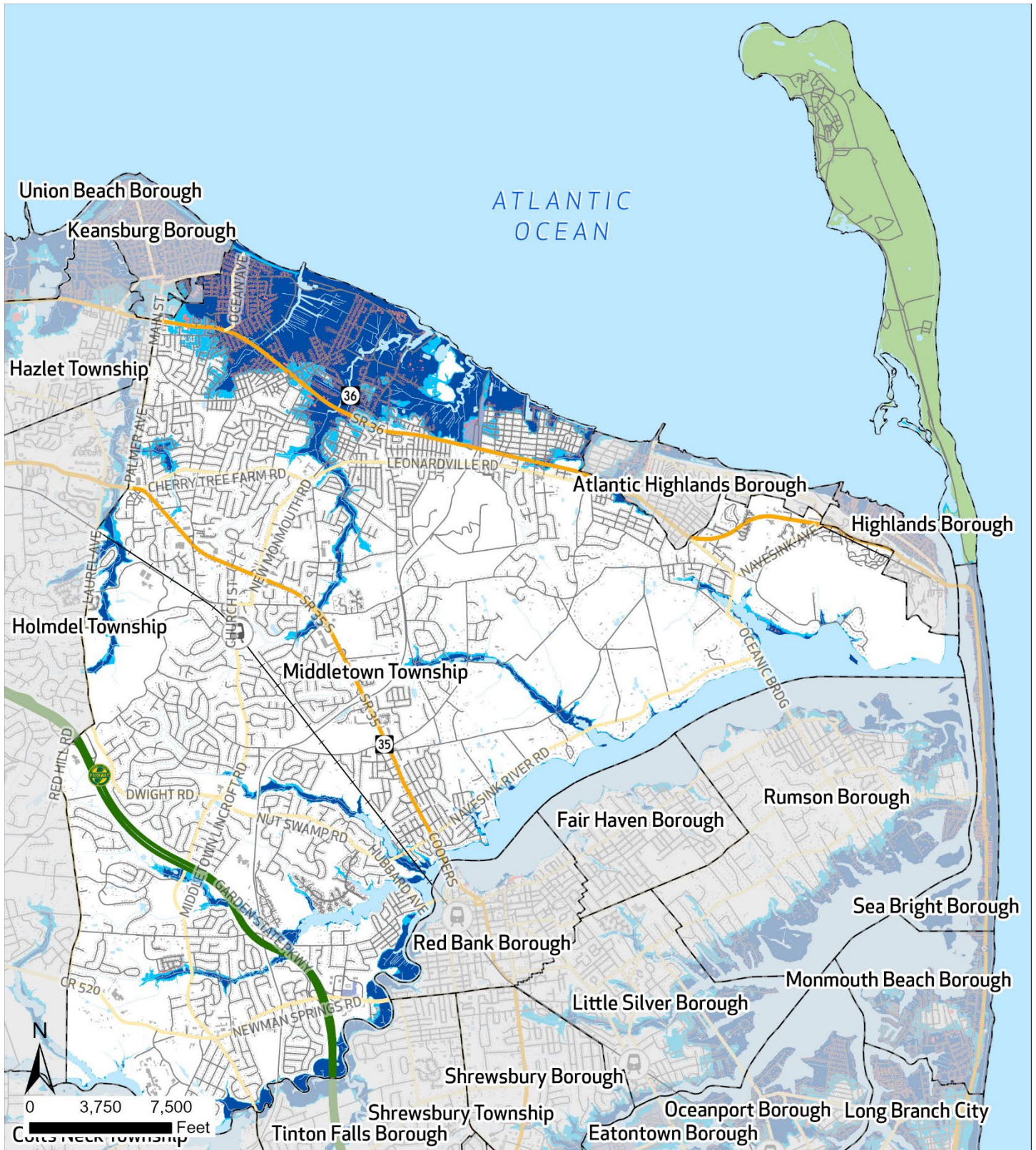
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Middletown Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

Garden State Parkway

Railroad

NJ Transit Rail Station

Municipal Boundaries

Water

Department of Defense
Land

National Park Service

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJ Transit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios

Middletown Township

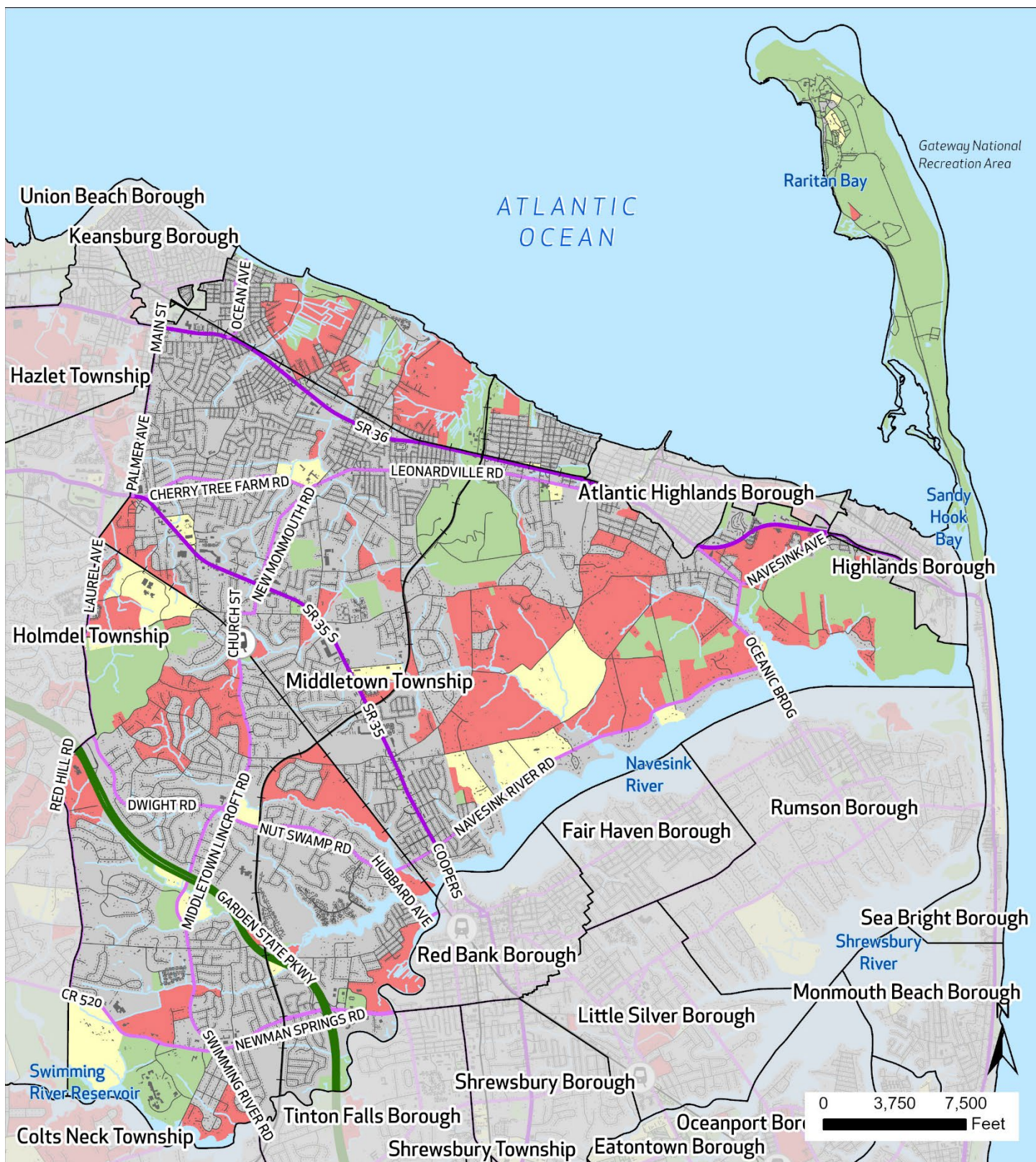
- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Garden State Parkway
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water
- Department of Defense Land
- National Park Service

NJ Transit Rail Station

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Middletown Township

- | | | |
|---------------------------------|-------------------------|----------------------|
| Intermix | Garden State Parkway | Municipal Boundaries |
| High or Medium Density Housing | Interstate Highways | Building Footprint |
| Low or Very Low Density Housing | State Routes | Water |
| No Housing | County Routes | |
| | Local Roads | |
| | Rail Lines | |
| | NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Middletown Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2023 Re-Examination Report	The master plan was completed in 2004 with subsequent master plan reexamination reports 2009, 2011, 2014, & 2023. Also we are currently preparing a comprehensive plan now, planned for approval end of 2024.
Capital Improvement Plan	X			The Township does a Capital Plan implementation every year. Departments are required to have a 5 year projection of their Capital needs.
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	
Floodplain Development Ordinance	X		2022	The Township does a Capital Plan implementation every year. Departments are required to have a 5 year projection of their Capital needs.
Floodplain Management Plan	X			
Stormwater Management Ordinance	X			Updates to the Stormwater Management Ordinance will be completed in end of 2024. Per Ordinance#2024-3340 Middletown Township updated it's Stormwater Management regulations consistent with the NJDEP Inland Flood Protection Rule to ensure that stormwater infrastructure is designed to manage both current and future levels of rainfall, runoff and flooding.
Stormwater Management Plan		X		An updated "Stormwater Management Plan" is currently being prepared as part of the Amended Master Plan currently underway by the Township. The last Stormwater Management Plan was revised May 22, 2007.
Watershed Management Plan		X		An inventory of existing stormwater infrastructure is currently in process of being compiled as required per our NJDEP Tier A MS4 Municipal Stormwater Requirements. This is a multi-year process to locate, compile, map, upload and update watershed information. Middletown does have a Stormwater Outfall Map that was prepared in 2009.
Sheltering Plan		X		
Evacuation Plan	X			The Township has an Evacuation Plan in place which is Annex G of the EOP. Police, Fire, and all emergency personnel have an important part in the Evacuation Plan.
Substantial Damage/Improved Structures Response	X			We use the 50 rule and measure this cumulatively over a 10-year period. Once structures get to the 50%, they must be brought to code/elevate for permits and CO.
Repetitive Loss Plan		X		Township in Process of drafting a plan. Will utilize to direct HM projects.
Disaster Debris Management Plan	X			Middletown Township has seven TDMA (Temporary Debris Management Area) sites registered and certified with the NJDEP for emergency/storm response use. The locations of the TDMA's are at designated areas within Belford Park, Butler Park, Greeley Park, Kunkel Park, West Front Street Park, the Middletown Fire Academy, and the Middletown Train Station. Debris types for these sites include temporary storage of Vegetative Debris, Construction and Demolition Debris and Bulky Solid Waste.
Tracking elevation certificates and/or Letter of Map Change	X			EC's are due to CO issuance and are part of the building permit jacket as well as scanned into our system for upload to the Forerunner Program. LOMCs once approved by FEMA would be kept in our internal system by address/block/lot.
Post-Disaster Recovery Plan	X			
Current/recent redevelopment plans or studies	X			The Township participated in two recently completed regional studies. The first is the Joint Land Use Study with Naval Weapons Station Earle that is intended to improve both the development compatibility of areas surrounding the base and storm resiliency. The second study, the New Jersey Fostering Regional Adaptation through Municipal Economics Scenarios (NJFRAMES) program, is a regional and collaborative effort in coastal Monmouth County that seeks to understand and address future flood vulnerability.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Next Steps to Compatibility Planning Study, Monmouth County, New Jersey (2022) encourages compatible development within the NWS Earle's Military

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
				Influence Area. Among the environmental constraints are natural hazards including wildfire, flooding, and storm surge.
Other ordinance and regulation that mitigate the impacts of natural hazards		X		We have a couple design standards in our Land Use Ordinance to protect steep slopes. We also have storm water ordinances.

Administrative and Technical Capabilities

Middletown Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Stacy Krause PP/AICP/CFM. Full-time municipal employee. Is also Senior Health Planner. Is a CFM, only CFM working for Middletown Township.
Grant Writer	X		Contractor
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		With Monmouth County
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		We are part of the NJ Coastal Coalition (501C3) and Monmouth County Inter-Governmental Community Rating System Users Group. Both can assist in identifying mitigation projects and aid opportunities.
Organizations that work with socially vulnerable or underserved populations	X		Middletown Helps Its Own is instrumental in post-disaster food distribution. We always call on Monmouth County Health Department and OEM to assist WV and/or underserved populations if needed for sheltering and resource distribution, including food and medical needs.

Education and Outreach Capabilities

Middletown Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The town uses social media (Facebook and Instagram), newsletters, the Township website, Nixle, both electronic and non-electronic signs placed around town, and the Township TV station. Our OEM and floodplain management website have this info located throughout the website, specifically here: https://middletownnj.org/867/Protecting-People-from-Hazards-Storm-Pre and https://middletownnj.org/868/Protecting-Your-Property-from-a-hazard .
StormReady	X		Middletown participates in StormReady as part of Monmouth County's certification.
Firewise USA		X	
Severe Weather Awareness Week	X		
Community Rating System (CRS)	X		Middletown is currently rated a 7.

Financial Capabilities

Within the last five years, Middletown Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA	X		Middletown has submitted to FEMA for one FMA elevation grant in the last 2 years and it has not been finalized.
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	

Financial Capability	Yes	No	Explanation
Other state municipal assistance or grant programs	X		NJEM Grants Program
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Capital Planning priorities including risk reduction are discussed every year by a Township Staff committee that ultimately works with the Governing Body to determine, and then implement priorities.
Other ongoing efforts to build additional financial capabilities	X		Most mitigation projects will involve State and /or Federal agencies and there is usually a shared funding of such projects. The Township only uses a small percentage of its capital financing authority, so when a mitigation project comes about, the Township can fund it's portion without great difficulty.

Additional Capability Assessment Information:

- Middletown Township is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Township.
- **Community Rating System (CRS) Classification: 7**
- **Sustainable Jersey Participation Status: Silver**

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township has prioritized and will continue to prioritize the enforcement of our Flood Hazard Ordinance, particularly the substantial improvement process and elevation requirements. We also plan to continue the multi-agency work with NJDEP and the Army Corp to progress the Port Monmouth Flood Control projects, bulkhead repair in Belford, and marsh and dune restoration in Leonardo. Our Municipal Master plan update will be adopted soon, and we continue to include climate resilience and mitigation moving forward into the future.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
33-1	Provide for Continuity of Operations by Elevating Generators and Switches at Fire Stations	Elevate generators and switches at all fire stations located in the flood hazard area.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Each Fire Company, Township	FEMA, HMA	\$300,000	N/A	Completed	Complete per Fire Marshal
33-2	Build Upland Dune Restoration Install Wave-attenuating Oyster Reefs to Protect the Leonardo Neighborhood from Flooding	This action proposes marsh restoration bordered to the west by a maritime forest berm to provide a buffer to Normandy Road and neighboring properties. Upland dune restoration landward of the replenished beach, along with the expansion of the wave-attenuating oyster reefs within the NWS Earle Security Zone could serve as nature-based solutions to mitigate flooding and storm.	Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	NJ Sea Grant	NJ Sea Grant, New Jersey Corporate Wetlands Restoration Partnership, National Fish and Wildlife	\$3M	3 years	Completed	NJDEP and Naval Station built an oyster reef at the Leonardo Pier.
33-3	Create a Plan to Define Steep Slope/High-risk Areas to Manage Development in Landslide Areas	Create a plan to implement reinforcement measures in Landslide Township Municipal budget 3 years new high-risk areas.	Landslide	Low	Township	Municipal budget	Staff time	3 years	Completed	Twp Ordinance passed.
33-4	Develop a Microgrid Feasibility	In August 2020, Middletown Township was awarded a \$150,000	All Hazards	Low	Township	Municipal budget	\$150,000	2 years	Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Study (2017)	grant from the New Jersey Board of Public Utilities to hire experts to conduct an initial study to determine a cost-effective configuration that will allow the Township to use local resources to power critical facilities, especially during times of emergency.								
33-5	Increase the Number of Drones and Provide Drone Training	More drones and drone training for police officers. Two officers have completed the training already.	All Hazards	Medium	Township Police	Homeland Security grants, Municipal budget	\$34,000	1 year	Completed	Police dept maintains drones and conduct ongoing training.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
33-6	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Substantially Damaged, Repetitive Loss (RL), and Severe Repetitive Loss (SRL) properties.	Elevate 248 structures determined to be substantially damaged and mitigate (elevate or acquire for open space) RL and SRL properties.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	State of New Jersey, Monmouth County, Township of Middletown	FEMA HMA	\$13.5M	5+ years	Ongoing	New and substantially improved homes in the RLA are built above the BFE. Township acquired one property (block 202 lot 10), in July 2024. The town also received one property via donation (block 532 lot 45) on March 15, 2024. The town continues to evaluate opportunities to purchase other non-conforming homes in the SFHA.
33-7	De-slug and Desilt Streams and Provide Wetlands Maintenance	Management of riparian buffers along rivers and streams, channel desnagging to preserve the function of natural drainage channels and floodplains, wetlands maintenance and removal of	Flood, Nor'easter, Hurricane and Tropical	High	Middletown Township (in conjunction with Monmouth	Municipal budget, EPA, NFWF, NOAA, New	\$3.3M	5+ years	Ongoing	This is done as needed with storm response and public complaints.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		invasive plant species, desilting and dredging of streams and ditches of the following: <ul style="list-style-type: none"> • Waackaack Creek/L.F. 12,500 • Pew's Creek/L.F. 10,500 • Compton's Creek/L.F. 39,300 • Ware Creek/L.F. 10,800 • Wagner's Creek/L.F. 12,000 • Claypit Creek/L.F. 14,400 • McClees Creek L.F 19,200. The total stream cleaning is 118,700 LF and assumed silt removal rate 0.75 cu.	Storm, Wildfire		County and Army)	Jersey Corporate				
33-8	Purchase Temporary/ Portable Pumps to Remove Stormwater	Installing temporary/ portable pumps in certain areas will allow stormwater from major nuisance flooding events in Leonardo and Belford sections. The goal is to pump stormwater from the system, discharging into Pew's Creek. Once the water level in the system reaches a certain elevation below existing street elevation, pumps would be activated, and system water would be discharged into the creek. Slide gates would be closed during the pumping to prevent stormwater from reentering the drainage systems.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Middletown Township	Municipal Budget	\$110,000	5+ years	Ongoing	The Township owns multiple 750 GPM trailer mounted pumps for dewatering OEM has trained and used them in conjunction with the garage mechanics for the listed purpose. Located at the DPW yard and the fire academy. The ones at the fire academy are not in great shape and need to be moved to the DPW yard and all should be stored inside after servicing. We need to acquire suction hoses for some of these pumps.
33-9	Enhance Security at Township Facilities	Increase surveillance systems in Township critical facilities.	Terrorism	Low	Middletown Township	Homeland Security grants, Municipal budget	\$493,000	2 years	Ongoing	New municipal building and Police Station officially opened summer 2023 with enhanced security measures, key card access, cameras, etc. Drills and training will continue on a rolling basis.
33-10	Conduct Compton Creek Marsh Restoration and build a Maritime	The proposed project is primarily north of Broadway where Compton Creek enters a 2,000-foot-wide Salt Hay Grass-dominated floodplain	Nor'easter, Hurricane and Tropical Storm,	High	Middletown Township and Monmouth County	New Jersey Corporate Wetlands Restoratio	\$13M	2 years	Ongoing	The bulkhead repair at Belford Harbor is under construction and is projected to be complete early summer 2025.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Forest; Repair Bulkhead at Belford Harbor	characterized by historic drainage and mosquito ditches. Current mitigation strategies include an existing bulkhead, a rock groin breakwater, and possible future maintenance dredging by the USACE. However, this area needs marsh restoration, an upland berm maritime forest along Church Road, and repairs to the existing bulkhead along Belford Harbor.	Storm Surge			n Partnershi p (NJCWRP) , FEMA HMA, National Fish and Wildlife				
33-11	Conduct Ware Creek Marsh Restoration and Build an Upland Berm Maritime Forest	The action includes marsh restoration and an upland maritime forest berm along Ware Creek.	Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Middletown Township and Monmouth County	NJCWRP, FEMA HMA, National Fish and Wildlife	\$13M	5 years	Ongoing	Army Corps fifth contract – 2028.
33-12	Coordinate with NWS Earle on Protecting the Navy Base and the Belford Neighborhood through Resiliency and Risk Reduction Projects	The project proposes restoring marshlands to enhance their ability to act as natural buffers to reduce impacts of storm-induced surge and waves, as well as upland restoration to provide a buffer to Normandy Road.	Nor'easter, Hurricane and Tropical Storm	High	Middletown Township and Monmouth County	New Jersey Corporate Wetlands Restoration Partnershi p, National Fish and Wildlife	TBD	5 years	Ongoing	Ongoing as part of the Microgrid Planning. Town working on necessary approvals and funding.
33-13	Repair, Remove, or Rehabilitate the Swimming River Reservoir Dam	Repair, remove, or rehabilitate Swimming River Reservoir Dam, a High-Hazard Potential Dam.	Dam Failure	High	New Jersey – American Water Company	NJDEP, FEMA HMA	TBD	5 years	New	Although the dam is owned by New Jersey American Water Company, this action is getting added if case funding becomes available.
33-14	Elevate Broadway in Port Monmouth & Belford	Local road to be elevated. Sunny day rain and storm flooding. Is important for evacuation in neighborhood. Marsh on both sides.	Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Army Corp	Army Corp/ Town	\$46M	3 years	New	Public alerts are going out to prepare for road closures in conjunction with this project. At this time there is no plan of action to elevate Broadway in Port Monmouth and Belford. Army Corp is installing a floodgate at Broadway under

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
										Contract 5 of the Army Corp of Engineers Flood Protection Plan. Contract 5 is currently due for completion October 31, 2025.

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34 – MILLSTONE TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Michael Maloney	OEM Coordinator, Municipal Fire Chief	Primary Point of Contact, Municipal Meeting #1
Kevin Abernethy	Administrator	Municipal Meeting #1
Dan Specht	CPWM, CRP, SRMP, Public Works and Safety Coordinator	Plan review
Matt Shafai	Township Engineer	Plan review

COMMUNITY PROFILE

Overview

The Township of Millstone is a rural community located in southwestern Monmouth County with a land area of 37.38 square miles. Local land development regulations seek to keep an equal balance between existing farmland and new development, preserving not only the rural way of life, but Millstone's surrounding ecosystems. The township spans five of the State's Watershed Management Areas and contains the headwaters of seven rivers (Millstone River, Toms River, Manalapan Creek, Rocky Brook, Ivanhoe, Assunpink and doctors Creek) that are a source of water for many New Jersey residents. The headwaters, along with large wetland areas, and areas with relatively high elevations and steep slopes, all play a vital role in regulating water quality in the region.

Millstone is recognized by the State as an environmentally sensitive area and its master plan maintains a commitment to many of the recommendations of the 2002 Master Plan, such as zoning for low density residential areas, resisting new infrastructure such as sewer connections, and expanding its continuous network of bridle paths, greenways, and open space. As such, the Township continually works to maintain a balance between preserving farmland and environmentally sensitive land, and population growth and development.

Land Use, Development, & Growth

In Millstone, residential and publicly owned land together constitute a large portion of its area, as do farmland and wetlands. From 2015 to 2020, Millstone lost nearly 143 acres of its farmland, 40 acres of its barren land and 18 acres of its wetlands. Meanwhile, the Township's urban or developed land grew by 179 acres during this period.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	4937.6	4794.2	-3%
Barren Land	236.3	196.5	-17%
Forest	6330.3	6345.7	>0%
Urban	6911.6	7090.3	3%
Water	380.3	387.2	2%
Wetlands	5008.9	4991.0	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Millstone adopted an updated Comprehensive Farmland Preservation Plan in 2020 that emphasizes the protection and preservation of agricultural land throughout the Township. Recent development largely consists of warehouses, especially within the Highway 33 corridor and the southcentral portion of the Township along County Route 526, and several affordable housing projects. A small portion of Highway 33 is in a FEMA regulatory floodway, and a small portion of County Route 526 is in the FEMA 0.2% annual chance floodplain (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Millstone is a rural community characterized by abundant undeveloped land, dedicated open space, and numerous preserved and unpreserved farms containing prime agricultural soils. The township’s most recent master plan, adopted in 2017, prioritizes the care and preservation of its environmentally sensitive areas, natural features, and rural heritage through a green infrastructure approach to planning.

The Master Plan Housing Element and Fair Share Plan indicate the town’s affordable housing obligation will be primarily addressed through 100 percent municipally sponsored development and an inclusionary development along Perrineville Road.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Millstone has an estimated total population of 10,371, of which an estimated 2.5% are under age 5 and 14.5% are over age 65. Millstone experienced moderate population decline (an estimated -1.4%) in the ACS survey periods of 2013-2017 and 2018-2022. With an aging population making up fourteen percent of their total community, Millstone may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. While a population decline of 1.4% is moderate, effects on the built and social environments in Millstone may be present that impact pre-hazard communication and post-disaster response.

There are no areas of the Township which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	10,371
Population Change since 2017	-1.4%
Percent of Population Age < 5	2.5%
Percent of Population > 65	14.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperature	Lightning
Wildfire	Extreme Wind	Earthquake
	Hurricane/Tropical Storm	Landslide
	Tornado	Drought
	Winter Storm	
	Dam Failure	
	Flood	
Human-made Hazards		
Power failure	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Pandemic	

The Township ranked Coastal Erosion, Storm Surge and Wave Action as N/A.

Hazard Ranking Explanation

Dam failure increased in its hazard ranking from the time of the last HMP update. This is primarily due to Prineville Lake Dam, which poses a significant hazard. Landslides also switched from being not applicable to low, due to a new subdivision constructed in old sandpits within the Township. Flood decreased from high to low since there have been no significant flooding events in the last five years that resulted in damages or significant disturbances. However, flooding due to wildlife is a big problem for the Township. Areas within the Township that used to not flood are now experiencing flooding due to beavers constructing dams. Wildfires became a high hazard risk. While there have been no fires resulting in damages to property, the Township is highly wooded with downed trees, dead trees, and roadway blockages, which are highly fire prone. Tornadoes remain a medium-ranked hazard. There has been one EF0 tornado in the Spring of 2024. The tornadoes haven't caused severe damage and have been localized to tree damage and minimal property damage. However, tornadoes remain a prevalent risk. Coastal erosion, storm surge, and wave action remain not applicable as Millstone Township is not a coastal community.

Significant Hazard Events Since Last Plan Update

A straight-line windstorm in August 2022 resulted in widespread power outages within the Township. In the Spring of 2024, there was an EF0 tornado, which caused minimal property damage.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to increase the risks faced by Millstone Township. Rising global temperatures will likely lead to more intense weather events, such as hurricanes, nor'easters, and extreme heat. This will worsen vulnerabilities in areas prone to flooding and wildfires. The township's wooded areas, already at high risk for wildfires, may see more frequent fires due to drought and higher temperatures. Flood-prone areas near creeks and brooks may experience greater flooding from increased precipitation and storms.

Additionally, climate change will impact vulnerable populations, especially the elderly, who are more susceptible to extreme heat and related health issues. Increased heatwaves can cause heat-related illnesses and worsen existing health conditions.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Millstone Township	
Initial FIRM Date	1/20/82
Effective FIRM Date	9/25/2009

Millstone Township	
Number of Policies In-Force:	0
Total Losses:	0
Total Payments:	\$0
Number of RL Properties:	0
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

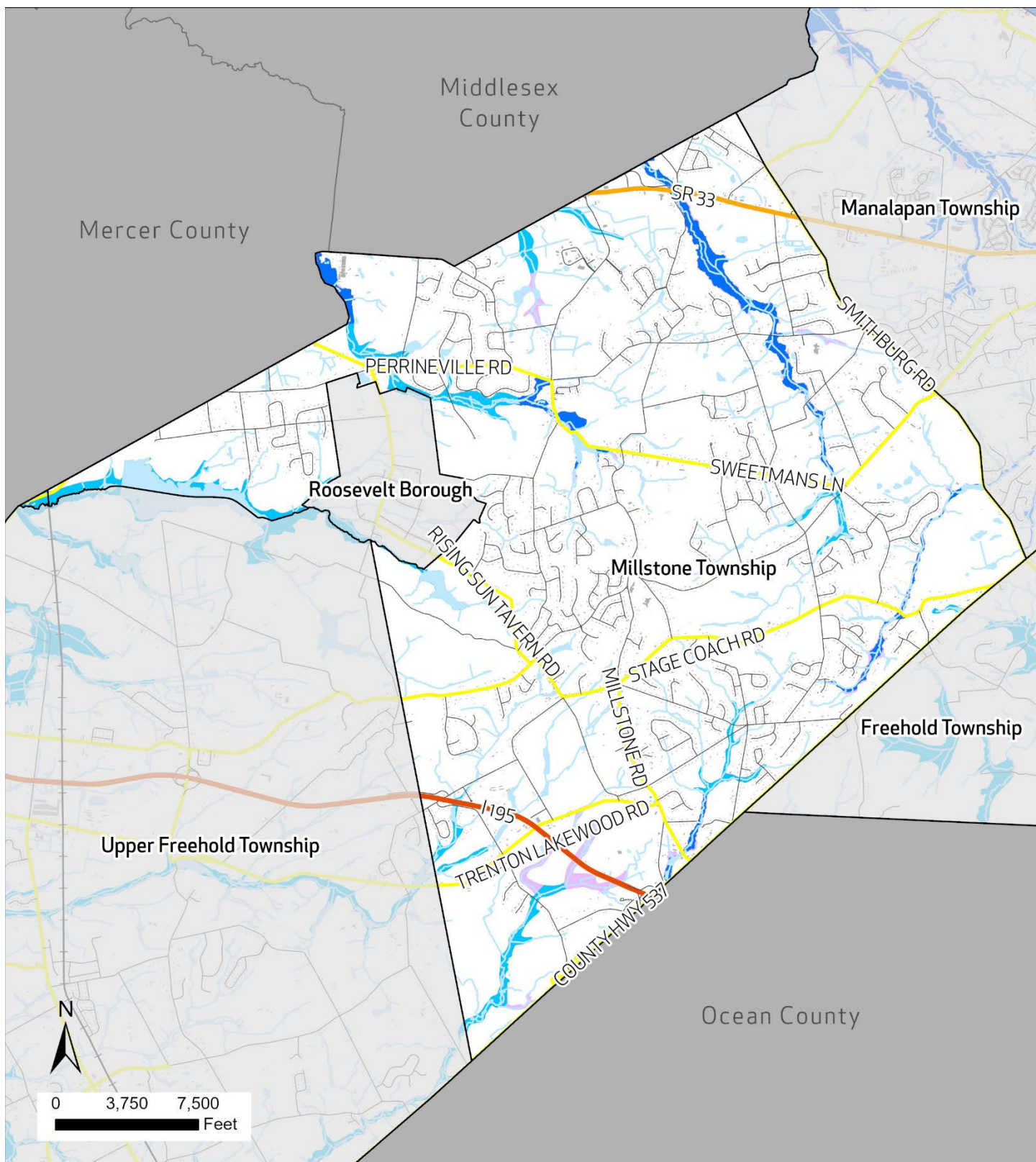
The Special Flood Hazard Area (SFHA) in the Township of Millstone is primarily located adjacent to the many creeks and brooks which pass through town. Approximately 5.3 percent of the total area of Millstone lies within the 1% annual chance flood zone as defined by FEMA. An additional 1 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 68.4 percent of Millstone is considered developed. Of the developed parcels of the town, 6.4 percent fall within the 1% annual chance flood zone and 0.8 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet Sea Level Rise
Developed Parcels	6.4%	0.8%	NA
Exposed Land Area	5.3%	1.0%	NA

During the planning process, Millstone identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 24 total facilities. Of these facilities, four are located within the floodplain. These facilities are categorized as Water Systems community lifelines. Examples of Water Systems community lifelines include dams and pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	4	-	NA



Flood Risk

Millstone Township

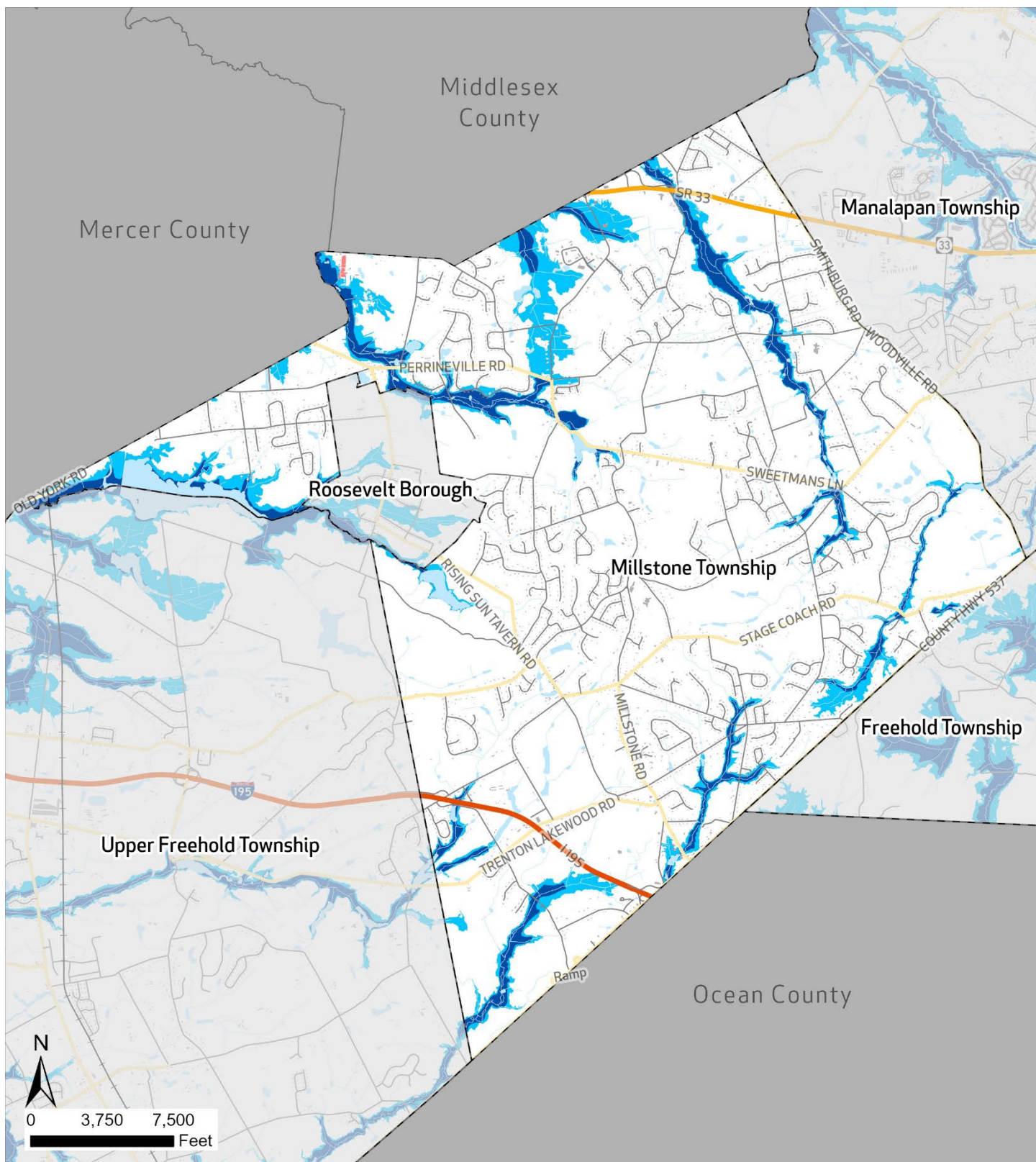
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOT, NJTransit



NJ Inland Design Flood Elevation Millstone Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

Railroad

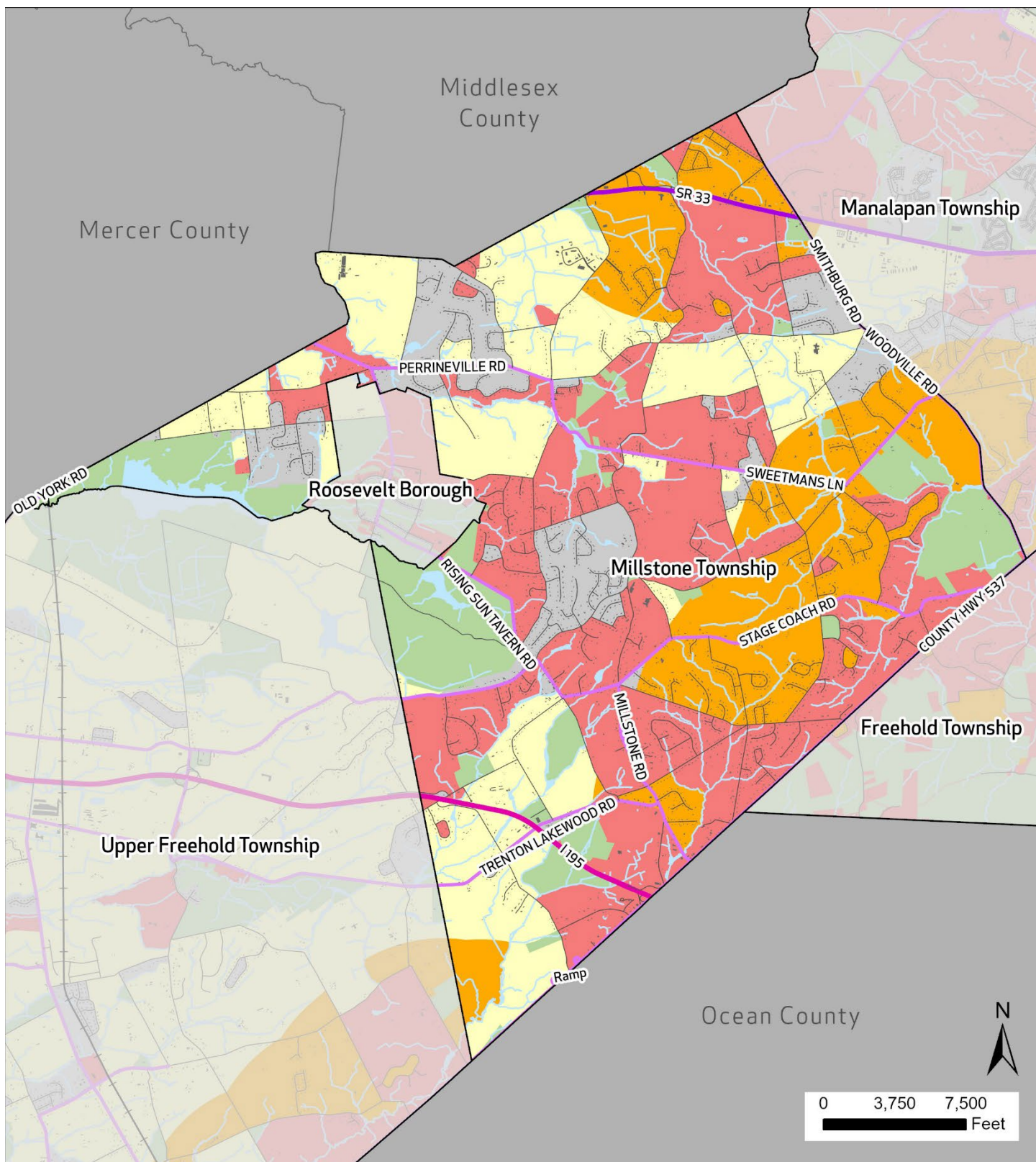
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Millstone Township

- | | | |
|--|--|---|
| Interface | Interstate Highways | Municipal Boundaries |
| Intermix | State Routes | Building Footprint |
| High or Medium Density Housing | County Routes | Water |
| Low or Very Low Density Housing | Local Roads | |
| No Housing | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Millstone Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2017	Commencing next version
Capital Improvement Plan	x		Annually	
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	Overall plan directing municipality of how to handle disaster response as well as address areas of needed improvement.
Floodplain Development Ordinance	X		2020	
Floodplain Management Plan	X		2012	
Stormwater Management Ordinance	X		2024	
Stormwater Management Plan	X		2024	
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan	X		2023	EOP Annex
Substantial Damage/Improved Structures Response	X		2023	EOP Annex
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			Approved temporary debris management area plan
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X			EOP Annex
Current/recent redevelopment plans or studies				
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			2020 Comprehensive Farmland Preservation Plan

Administrative and Technical Capabilities

Millstone Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Township Engineer is our Flood Plain Manager
Grant Writer	X		
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Monmouth County shared services and numerous local contractors
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		Numerous local contractors
Organizations that work with socially vulnerable or underserved populations	X		Affordable Housing Association

Education and Outreach Capabilities

Millstone Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Social media and Nixle messaging system,
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Millstone Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance	X		We have received assistance during Covid and past disasters.
FEMA HMGP			
Non-FEMA Federal Funding Programs	X		DOT
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		NJ Green Acres, NJ Historic, NJUCF Stewardship Grants, Monmouth County; Parks, Historic, Open Space, Recreation Grants, NJ DOT.
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Annual evaluation during budget preparation.
Other ongoing efforts to build additional financial capabilities	X		Always looking at additional Grant opportunities.

Additional Capability Assessment Information:

- **Community Rating System (CRS) Classification:** 7
- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

During our annual budget process, we review and assess risks and potential hazards. During the past few years upgrading some of our arterial roads via milling, paving, and upgrading the drainage structures with the help of NJDOT grants has been our largest capital expenditures.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
34-1	Millstone Road Program	Millstone Road milled and paved, improve drainage structures arterial road.	Poor condition	N/A	Millstone Twp.	NJDOT	\$1.1 M	2022 - 2023	Completed	Action completed w/ DOT assistance

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
34-2	Paint Island and Stillhouse Road Program	Paint Island and Stillhouse (phase IV) milled and paved, improve drainage structures arterial road.	Poor condition	N/A	Millstone Twp.	NJDOT	\$650k	2025	Ongoing	Partial grant approved
Action 34-3	Improve Stormwater Management through Larger Piping and Maintenance of Drains and Basins	Develop mitigation steps to reduce damage and losses due to flooding through stormwater runoff control and more efficient drainage and discharge to the five major streams. Provide larger piping capacity and reduce sediment and debris from entering.	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Township Engineer	Municipal budget	\$200,000	2 years	Ongoing	
Action 34-4	Remove Dead and Hazardous Trees along Township's ROWs	Removal of dead and hazardous trees along Township roads' rights-of-way	All Hazards	Low	Township Engineer	Municipal budget	\$5,000	1 year	Ongoing	
Action 34-5	Mitigate Flooding Behind Township Fire House	Mitigate the flooding issue behind the Fire House and coordinate	Flood, Nor'easter,	Medium	Millstone Township and	Municipal budget, County	\$3,000	2 years	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		with Monmouth County on the flooding that occurs at the Red Valley Rd. bridge.	Hurricane and Tropical Storm		Monmouth County	budget, FEMA HMA				
Action 34-6	Improve Security at Parks and Historic Buildings	Add security cameras to township parks and historic buildings.	Terrorism	Medium	Township Administration	Homeland Security grants	\$50,000	1 year	Ongoing	
Action 34-7	Improve Security by Purchasing and Installing Generators at Parks and Historic Buildings	Upgrade the generator at Department of Public Works and purchase and install a new generator at Wagner Park Farm.	All Hazards	Low	Township Administration	FEMA HMA	\$15,000	1 year	Ongoing	
Action 34-8	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	There are currently no RL or SRL properties in the Township; however, the Township realizes the floodplain changes over time and the risk is always present. If in the next five years properties become RL/SRL, the Township will coordinate with residents.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA	TBD on property	5 + years	Ongoing	
Action 34-9	Repair, Remove, or Rehabilitate the Assunpink #18 Dam (Rising Sun Lake)	Repair, remove, or rehabilitate the Assunpink #18 Dam, a High-Hazard Potential Dam, located on the Assunpink Creek.	Dam Failure	High	State of New Jersey Department of Environmental Protection Division of Fish and Wildlife	Municipal budget, NJDEP Bureau of Dam Safety and Flood Control	\$1 million +	5 years	Ongoing	Emergency Action Plan was conducted in December 2017
Action 34-10	Power Failure Reductions	Continued enforcement of dead trees on private properties	Power Failure	High	Code Enforcement		\$5,000	1 year	New	Code Enforcement continues to issue violation notices

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
Action 34-11	Wildfire Prevention	Reduce wildfire risk through prevention and education	Wildfire	High	Fire Department		\$5,000	1 year	New	Continued social media campaign for prevention, enroll and begin NJ Firewise assessment.

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35 – MONMOUTH BEACH BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Kevin Keeshan	OEM Coordinator	Municipal Meeting #1, Municipal Workshop #2
Edward Junquet	OEM Coordinator	Municipal Meeting #1, Municipal Workshop #2
Bailey Crochet	OEM Coordinator	Municipal Meeting #1, Municipal Workshop #2
Julie Nastasi	Engineer	Municipal Workshop #2
David Stickle	Mayor	Municipal Workshop #2

COMMUNITY PROFILE

Overview

The Borough of Monmouth Beach makes up the southernmost portion of the Sandy Hook Peninsula and barrier island, encompassing approximately 1.10 square miles. Located between the Atlantic Ocean to the east and the Shrewsbury River to the west, about 10 percent of all residences are considered waterfront property.

In 2017 the Borough adopted a Master Plan Reexamination Report and Plan Amendment that emphasizes recovery from Superstorm Sandy and promotes resiliency to future storm impacts, sea level rise, and other natural hazards. Further demonstrating its dedication to these goals, Monmouth Beach was accepted into the FEMA's CRS program in 2017.

In 2018, a lot and impervious coverage study was conducted for the Borough. The study was recommended in the borough's Floodplain Management Plan to determine if the current impervious coverage conditions and regulations are negatively impacting drainage throughout the Borough. Based on the findings of the study, Borough Commissioners can determine which ordinances should be updated. To further protect its coastal resources, Monmouth Beach passed an ordinance in 2018 banning businesses from distributing plastic straws, plastic bags, and polystyrene containers.

Land Use, Development, & Growth

Monmouth Beach is a predominantly residential community and 43 percent of its land is developed. Water constitutes 48 percent of its area. From 2015 to 2020, the community underwent marginal land use changes; its barren land diminished by 15 acres, while its wetlands and urban or developed land grew by 14 acres and 4 acres respectively.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	50.9	35.7	-30%
Forest	0.8	0.8	>0%
Urban	539.0	543.2	1%
Water	607.8	604.9	>0%
Wetlands	63.7	77.5	22%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Most new development in Monmouth Beach consists of rehabilitating its older housing stock or infill development within established neighborhoods. The borough's coastline has been shaped by the currents, tides, and winds of the Atlantic Ocean, the Shrewsbury River, and other adjacent water bodies. The protective seawall that runs along Highway 36 was breached during Superstorm Sandy, bringing sand and rock onto the roadway, and damaging approximately 237 homes and 6 local businesses. Repairs to the seawall and beach replenishment projects were completed in 2020.

Other recent Monmouth Beach rebuilding and resiliency projects include rebuilding municipal facilities and improving drainage. The raising and restoration of Borough Hall was completed in 2018. The historic building was restored, raised

three feet above the base flood elevation, and accessibility features were incorporated. It falls under the FEMA 1% and 0.2% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The overall goals of Monmouth Beach’s Master Plan are to “maintain the shore and resort character of its residential and commercial areas while ensuring the preservation of the riverine and coastal environment Neptune which historically were responsible for the charm and character of the Borough.”

The lots at 63 Riverdale Avenue was subdivided for three developments. This address falls under the FEMA 1% and 0.2% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Monmouth Beach has a total population estimated at 3,199. The Borough saw a moderate population decline in the periods between 2013-2017 and 2018-2022 ACS surveys, with an estimated -1.5% population loss. Of Monmouth Beach’s current population, an estimated 2.4% are under age 5, and 30.4% are over age 65. With an aging population making up over thirty percent of their total community, Monmouth Beach may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of the Borough which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	3,199
Population Change since 2017	-1.5%
Percent of Population Age < 5	2.4%
Percent of Population > 65	30.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/ Tropical Storm	Extreme Wind	Extreme Temperatures
Nor'easter	Tornado	Lightning
Coastal Erosion	Winter Storm	Drought
Flood	Storm Surge	Earthquake
	Wave Action	Wildfire
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Pandemic	
	Power Failure	
	Terrorism	

Hazard Ranking Explanation

Coastal erosion has increased from a medium level of concern to a high level. The entire beachfront in the Borough is subject to erosion. When Superstorm Sandy hit, the ocean breached in two places. Since then, the seawall has been rebuilt and elevated. In 2019, the Borough increased its height from the southern end up through the bathing pavilion. This goes the entire length from Riverdale and Ocean Ave to the north end of the club and is mostly continuous through the whole town. The Borough did not do anything to the seawall at Cottage Road, however.

Power failure has increased from a low to a medium level of concern. It is an ongoing problem, and the system is fragile. Utility poles are above ground and become worn. Typically, replacement does not occur preventatively; it only happens once broken.

Significant Hazard Events Since Last Plan Update

While the Borough has not experienced significant hazard events since the last plan update, nuisance flooding regularly occurs with high tides on a full moon, nor'easters, and hurricanes. The nuisance flooding occurs everywhere in the floodplain, especially on Riverdale Avenue, Griffin Street, Patten Avenue, River Avenue, Sailors Way, Seaview Way, Mann Court, and Anderson Street. It happens over twenty times per year and tends to come from the Manahasset creek.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is anticipated to significantly influence the extent and magnitude of risks and hazards in Monmouth Beach Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and storm surges are projected to increase. This will likely exacerbate coastal erosion, which is already a concern for the Borough, and result in more frequent and severe flooding, particularly in low-lying areas and those within the 1% and 0.2% annual chance flood zones. The rising sea levels may further compound these issues, increasing the vulnerability of critical infrastructure and residential properties located in flood-prone areas.

Additionally, climate change may also elevate the risk of extreme temperatures and droughts, which can strain local resources and infrastructure. The Borough's aging population, which makes up over 30% of its residents, may face increased health risks during extreme heat events and have greater difficulty evacuating during emergencies.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Monmouth Beach Borough	
Initial FIRM Date	5/16/1977
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	1564

Monmouth Beach Borough	
Total Losses:	1729
Total Payments:	\$109,385,092.43
Number of RL Properties:	104
Number of Mitigated RL Properties:	0
RL – Total Losses:	321
RL – Total Paid:	\$15,204,333.93
Number of SRL Properties:	26
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	140
SRL – Total Paid:	\$11,628,889.06

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

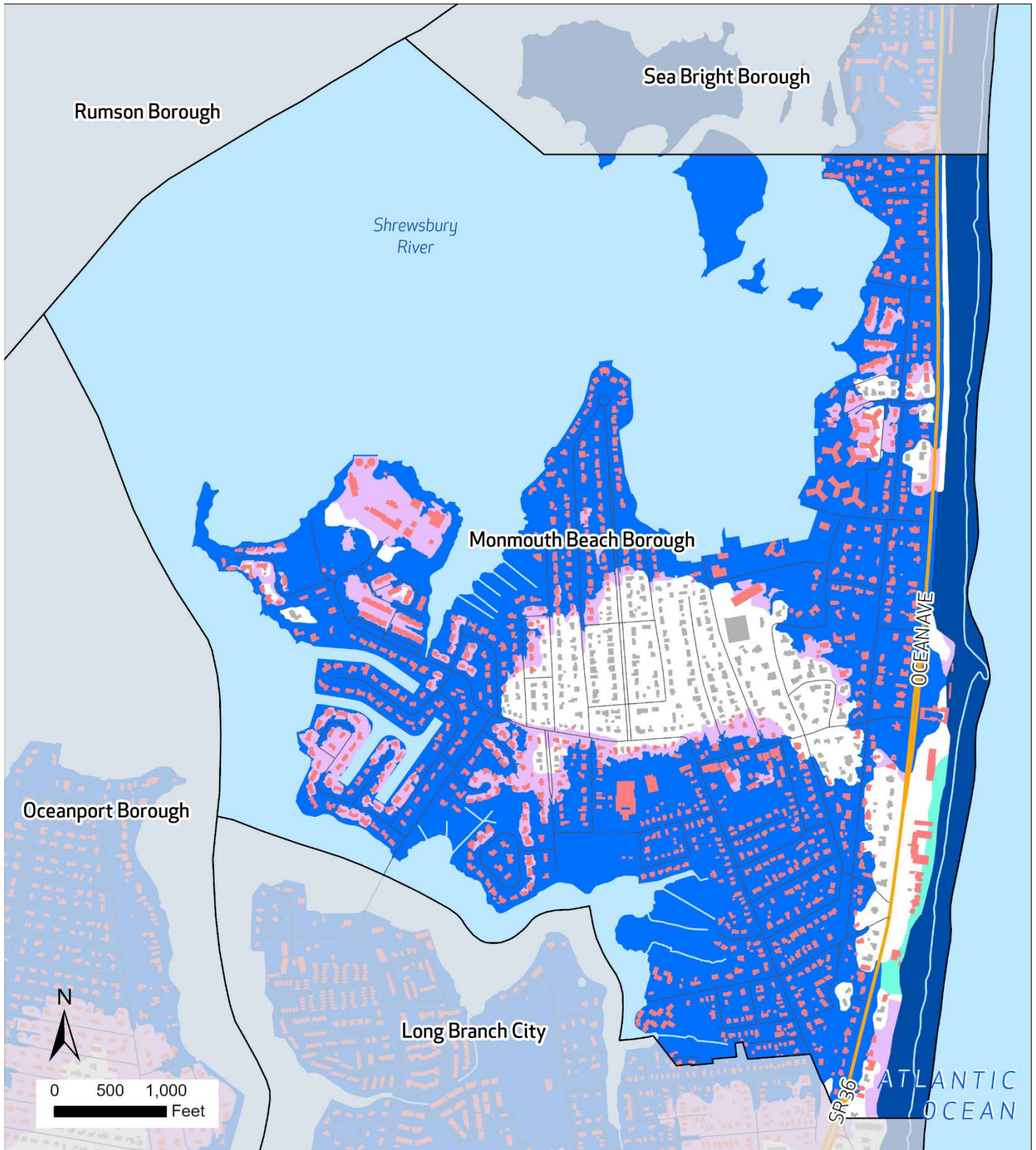
The Borough of Monmouth Beach is surrounded by water on both sides, the Shrewsbury River to the east and the Atlantic Ocean to the West. The Special Flood Hazard Area (SFHA) consists of the majority of the borough. Approximately 64.7 percent of the total area of Monmouth Beach lies within the 1% annual chance flood zone as defined by FEMA. An additional 5.1 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 90.7 percent of Monmouth Beach is considered developed. Of the developed parcels of the town, 68.2 percent fall within the 1% annual chance flood zone and 8.8 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	68.2%	8.8%	64.6%
Exposed Land Area	64.7%	5.1%	74.9%

During the planning process, Monmouth Beach identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 10 total facilities. Of these facilities, seven are within the floodplain. Of those seven, two are also in areas projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Energy	1	-	1
Health and Medical	1	-	-
Safety and Security	4	-	1
Water Systems	-	1	-



Flood Risk Monmouth Beach Borough

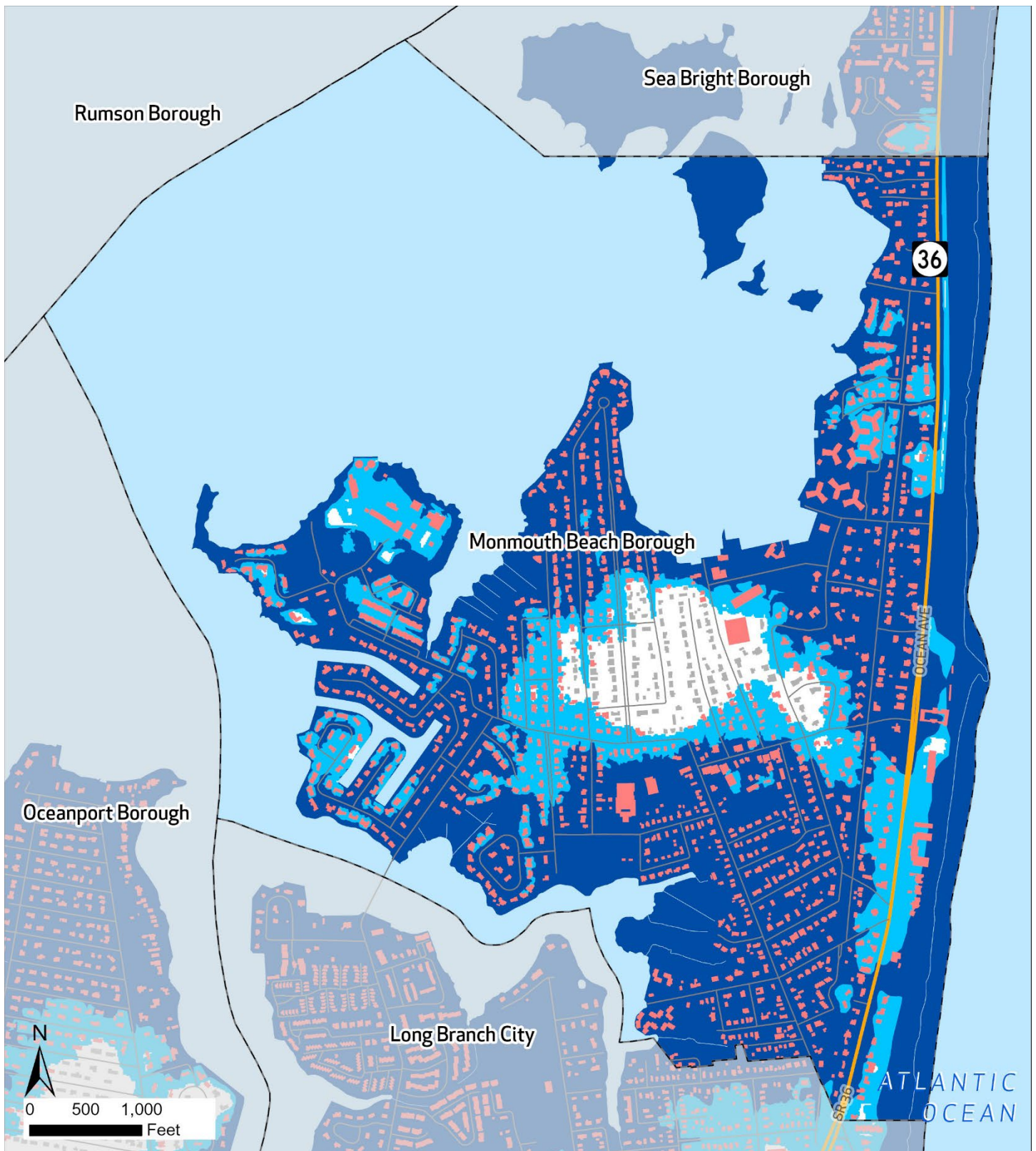
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- AO (1%)
- VE (1%)

- State Routes
- Local Roads

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Monmouth Beach Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood
Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

Local Roads

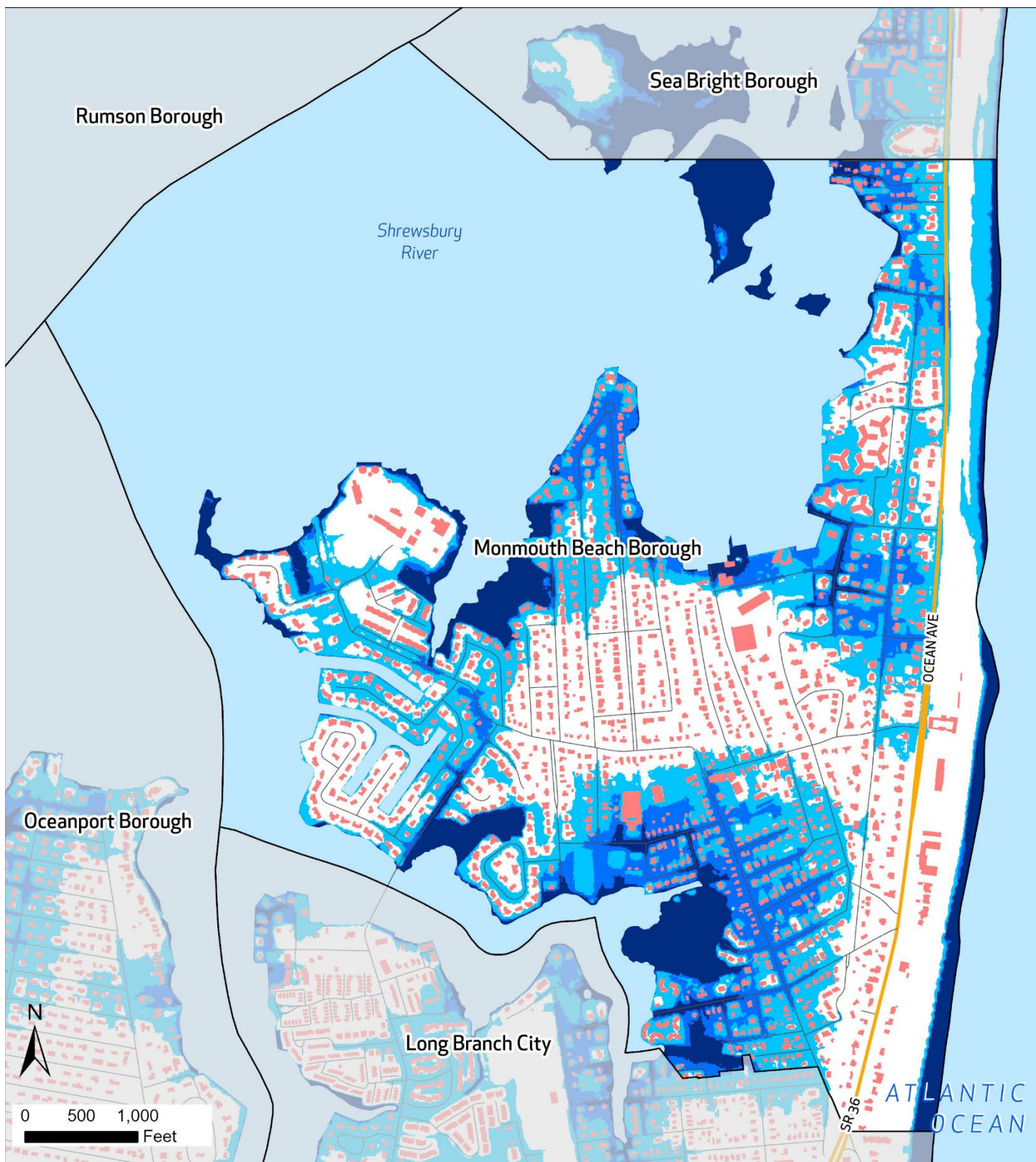
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**

Monmouth Beach Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Monmouth Beach Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Monmouth Beach Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		1978, with a 2017 Master Plan Reexamination Report	
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2019	
Floodplain Development Ordinance	X		2022	Freeboard =3'
Floodplain Management Plan	X		2017	
Stormwater Management Ordinance	X		2024	Model ordinance
Stormwater Management Plan	X			
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan	X			
Substantial Damage/Improved Structures Response	X			Inspection Program and all construction is managed with a Floodplain Development Permit and Inspection Process, in conjunction with the UCC permit inspections.
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			
Tracking elevation certificates and/or Letter of Map Change	X			Construction Official- Forerunner
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			2017 Master Plan Reexamination Report; 2018 Lot and Impervious Coverage Study; Most development (construction) is remodeling/reconstruction of single-family homes throughout the Borough, many of which are in the Special Flood Hazard Area.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Monmouth Beach Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Construction Official, who is a part-time municipal employee and is a CFM. (There are additional CFMs within Engineering Consulting Firm.)
Grant Writer	X		Consultant
Staff trained to support mitigation	X		OEM, Police, Borough Administrator
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners		X	

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Monmouth Beach Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Code Red, social media, email blast, website
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week	X		
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Monmouth Beach Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP	X		Fire Department
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		NJDOT MA Drainage project
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Monmouth Beach is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- Community Rating System (CRS) Classification:** 8
- Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since the last plan update, our mitigation strategy has prioritized enhancing resilience to sea level rise and tidal flooding, as well as strengthening defenses against emerging threats like cyber terrorism. Over the next five years, we will focus on investing in infrastructure improvements to address coastal flooding, implementing floodplain management initiatives, and advancing Artificial Intelligence alternatives and cybersecurity measures to protect critical systems. Our approach is to continually fortify against current vulnerabilities and proactively preparing for future risks.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
35-1	Elevate Existing Retaining Wall & Floodproof Pump Station at Shorelands Park	The existing sunken retaining wall needs to be elevated to a height of 15 feet to protect the park and its existing amenities from flood-related damage.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$1.4M	N/A	Withdrawn	This action is being withdrawn because the cost estimate is too high for the area it would protect.
35-2	Purchase and Install Permanent Roof for Salt Shed	Permanent roof for the Borough's salt shed, which stores the salt for DPW's salt trucks.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm	N/A	N/A	N/A	\$100,000	N/A	Withdrawn	This action is withdrawn because the Borough receives salt from the County and salt shed has been removed.
35-3	Develop an Action Plan to Address Economic Collapse	Plan, develop, and maintain a borough-wide action plan to address the public safety response in the event of an economic collapse. The plan should be all inclusive to safeguard and protect all critical facilities.	All Hazards	N/A	N/A	N/A	\$70,000	N/A	Withdrawn	This action is withdrawn due to a low commercial amount.
35-4	Elevate Evacuation Roadways	Elevate the following roadways (listed in order of importance): (1) Patton Ave, (2) Riverdale, (3) Meadow Ave, and (4) North Rd.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	N/A	N/A	\$12.5M	N/A	Completed	
35-5	Develop a Civil Unrest Response Plan and Preparation	Improve ability to respond to a civil unrest event by purchasing shields, helmets and riot gear.	Terrorism	N/A	N/A	N/A	\$70,000	N/A	Completed	This gear was purchased in 2020 using the municipal budget.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
35-6	Develop an Action plan to Address Pandemic Event Action	Emergency Response to address pandemic event.	All Hazards	N/A	N/A	Homeland Security Grants, Borough Funding	\$70,000	N/A	Completed	The Borough follows CDC guidelines; this action is complete.
35-7	Develop an Action plan to Address Power Failure	Action plan to address and respond to power failure events and install a generator at Monmouth Beach Elementary School	All Hazards	N/A	N/A	Homeland Security Grants, Borough Funding	\$300,000	N/A	Completed	This action was completed. The Borough is currently working with JCP&L to upgrade its infrastructure. There was/is no cost to the town.
35-8	Develop a Terrorism Response Plan	Emergency Response to Terroristic Threat	Terrorism	N/A	N/A	Homeland Security Grants, Borough Funding		N/A	Completed	The Borough has an emergency action plan for one school with grades pre-kindergarten through eight.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
35-9	Conduct Improvements to Drainage Infrastructure at Shorelands Park	Drainage Improvements to mitigate storm-related flooding.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Engineer, DPW	Municipal budget, Monmouth County	\$2M	2 years	Ongoing	The improvements are in the design stage with bids and construction scheduled for later in 2025
35-10	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevate or acquire approximately 1,891 residential structures to new FEMA FIRM maps, specifically RL/SRL properties.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowners and/or Borough Administrator	FEMA HMA	\$1.5M	3 years	Ongoing	Flood risks are reduced by this action.
35-11	Elevate Four Municipal Structures	Elevate the Police Station, Cultural Center, First Aid, and Fire House to new FEMA FIRM maps.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding,	\$10M+	3 years	Ongoing	The Borough still intends to elevate the Police Station. The Cultural Center is state-owned historic property. The First Aid center was rehabilitated but not elevated or floodproofed. A FEMA grant was

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
						Army Core of Engineers				applied to for both the Cultural and First Aid Centers but was denied. The Firehouse was elevated using \$2,600,000 in FEMA funds.
35-12	Install Stormwater Improvements in Low-lying Areas	Install stormwater improvements such as inlets, manholes, and piping for low lying areas such as Johnson St., Anderson St., Drew Ct., and Valentine St.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	Municipal budget. FEMA	\$5M	3 years	Ongoing	Valentine Street was completed but has a new name now. Valentine Street is still the name. This is a miscommunication. The roads listed in the description have been completed. Additional roads that require stormwater improvements include Seaview Ave, River Ave, Sailors Way, and Central Road, including a new outfall at the bulkhead of Central Road, as well as Griffin Street, Tocci Ave, Gull Point Road and Spaulding Place.
35-13	Replace and Elevate DPW Generator	Replace and elevate generator at DPW at least 10ft.	All Hazards	Medium	Borough DPW	FEMA HMA	\$300,000	1 year	Ongoing	
35-14	Purchase Drones for Research & Recovery Attempts	Drone replacement and drone training for officers.	All Hazards	Medium	OEM	Homeland Security grants	\$60,000	2 years	Ongoing	Current Drone is outdated technology and most new officers need to attend training and obtain licenses.
35-15	Install Surveillance Cameras at Critical Facilities	Install security cameras at Griffin Park, Shorelands Park, Bathing Room, and Recycling Center for surveillance of human-based hazards (terrorism, vandalism) and natural hazards (flood, water levels).	All Hazards	Medium	Borough Administration	Homeland Security grants	\$150,000	1 year	Ongoing	The Borough is taking bids. There is local funding in CIP. The Borough is coordination a potential program with County surveillance.
35-16	Develop a Severe Storm Response Plan	Improve capability to respond to severe storm events by purchasing a new salt spreader truck and new inflatable boat.	Winter Storm; Nor'easter; Hurricanes	Medium	Borough Administrator	Borough funding	\$350,000	1 year	Ongoing	The Borough has purchased a new salt spreader truck.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
35-17	Develop a Cyber Attack Response	Update emergency response plans to address, mitigate, and recover from a potential cyber-attack affecting the operation of borough activities.	Terrorism	Low	Borough Administration , OEM, Police	Homeland Security Grants, Borough Funding	\$1M	1 year	Ongoing	
35-18	Install Living Breakwaters	Install a series of Living Breakwaters that would be positioned in the Shrewsbury River.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Oceanport, Rumson, Monmouth Beach, Long Branch	FEMA HMA	See Notes	2 years	New	Rip-Rap and Armor Stone: \$35.9M Oyster Rings: \$5.4M ExoForms: \$3M Oyster Castles: \$1.5M

36 – NEPTUNE TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Michael Bascom	Emergency Management Coordinator	Point of Contact, Attended Municipal Meeting
Keith Daly	Neptune Engineer	Attended Municipal Meeting
Kyle Bascom	Deputy OEM Coordinator	Attended Municipal Meeting
Melvin Fitzpatrick	Director of Public Works	Attended Municipal Meeting
Joe Leone	Asst. Director of Public Works	Attended Municipal Meeting
Albert Fritz	Public Works, Neptune Fire Dept. Chief	Attended Municipal Meeting
Jennifer Beahm	Twp Planner – Leon S. Avakian	Attended Municipal Meeting

COMMUNITY PROFILE

Overview

Neptune Township is a coastal and inland Township in central Monmouth County. It is bounded by the Shark River estuarian environment to the south and southeast. It has a coastal border with the Atlantic at the Ocean Grove community between Bradley Beach and Asbury Park. The Township encompasses just over eight square miles and was established in 1879. There are an estimated 28,115 residents of Neptune Township (as of 2018-2022 ACS estimates).

The Township is home to several unique neighborhood districts including the historic Ocean Grove, a 19th century planned community which now has the largest concentration of Victorian architecture in the country. Shark River Park, in the southern portion of the Township, is the first park established in Monmouth County Park System. Neptune has distinct residential communities and open spaces, as well as commercial corridors along Route 66 in the northwest and east-to-west Corlies Avenue (NJ Route 33) in the south. The HMH Jersey Shore Medical Center is located along the Corlies Avenue corridor near the intersection with New Jersey Route 35.

With many major roads passing through the area, such as State Highways 18, 33, 36, 66, and 71, Neptune is known as the “Crossroads of the Jersey Shore.” A project to widen Route 66 from two to four lanes is anticipated to begin in 2024 and is scheduled to be completed by 2026. The project area ranges between Jumping Brook Road and Bowne and Wayside Roads, where a two-lane roundabout is proposed.

Neptune adopted a Strategic Recovery Planning Report in 2014 in the aftermath of Superstorm Sandy. The Township acquired and preserved land along South Riverside Drive in a flood hazard area that was originally slated for the construction of nine single family homes. In 2021, through a partnership that included Monmouth County, the Township, the Seaview Island Homeowners Association, and the American Littoral Society, work began to restore a salt marsh and create a hybrid living shoreline on Shark River Island. Another living shoreline is under construction along South Riverside Drive in the Shark River Hills neighborhood.

Land Use, Development, & Growth

Neptune Township is a predominantly residential community and home to substantial publicly owned land and commercial properties. From 2015 to 2020, the community experienced minimal change in its land use; although its agricultural land fell by 11 acres and its urban or developed land grew by 10.5 acres, its overall land use composition remained largely the same. During this period, urban or developed land accounted for 72 percent of the Township’s total area, while forested land made up 10 percent and water and wetlands together accounted for 17 percent.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	27.0	15.6	-42%
Barren Land	64.0	67.4	5%
Forest	574.0	571.9	>0%

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Urban	4032.3	4042.8	>0%
Water	445.4	442.3	-1%
Wetlands	493.6	496.3	1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

There have been several major development projects completed in Neptune Township in recent years. These include the Jersey Shore University Medical Center's Hope Tower, and the reconstruction of the Ocean Grove Boardwalk and Pier.

The Ocean Grove section of Neptune was designated by the New Jersey Chapter of the American Planning Association as a "Great Neighborhood" (2017). In 2020, the Ocean Grove Camp Meeting Association funded a parking study to identify and implement solutions to address parking issues resulting from spillover from nearby communities in the densely populated neighborhood. The Association also recently completed the replacement of the fishing pier that was lost during Superstorm Sandy.

Redevelopment Areas

Current redevelopment areas include the following:

- West Lake Avenue - no flood hazard
- Route 66 & Green Grove Road - no flood hazard
- North Channel Redevelopment - river front - under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper)
- North End Redevelopment - ocean front - under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper)
- Redevelopment efforts are underway at the former Coca Cola bottling plant at the Highway 35 circle, as well as the Continental Data site at the corner of Highway 66 and Green Grove Road.

Neptune recently commissioned several investigation reports for underutilized areas to determine if they should be designated as areas in need of redevelopment or rehabilitation, including the vacant site on the north end of Ocean Grove. This site was approved in 2024 to be redeveloped into mixed uses of single-family homes, condos, a hotel, retail, and an underground parking garage.

In 2018, portions of Neptune were designated as Opportunity Zones, which offer tax benefits to investors. Located at the crossroads of several major corridors and consisting of diverse residential neighborhoods, commercial and industrial areas, parks, institutions, and its seaside hamlet of Ocean Grove, Neptune is both a destination and a busy thoroughfare.

In 2023 Neptune began discussions with a Joint Venture of developers to redevelop the North Channel section of the Township with a mixed-use project which will also include a hotel. These redevelopment efforts are still underway which will necessitate an amendment to the existing North Channel Redevelopment Plan.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Neptune's most recent planning efforts established a Township-wide vision for physical and economic revitalization through residential and commercial rehabilitation, creation, and preservation.

An infrastructural project to widen Route 66 from two to four lanes is scheduled to be completed by 2026. The project area ranges between Jumping Brook Road and Bowne and Wayside Roads, where a two-lane roundabout is proposed. A portion of this is in a FEMA regulatory floodway (NJFloodMapper). A new mixed-use development is to be built in the north end of Ocean Grove, to include a hotel and combination of multi-family residential, single-family residential, and commercial uses, including public spaces and amenities. The project aims to create a northern anchor point to Ocean Grove's oceanfront and restore the historic use as a destination point for residents and visitors. This development falls

under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper). All required New Jersey Department of Environmental Protection permits have been obtained.

Plans for development along Route 66 at the site of former insurance buildings are currently in progress. The plans include a warehouse distribution center and space for retail. The site, located at the intersection of Route 66 and Green Grove Road does maintain some environmentally sensitive areas, however it has not been noted as a flood prone property within the Township.

The North Channel of the Shark River has ongoing redevelopment plans which proposes a mixed-use development with hotel and amenity spaces. This is to be in a flood zone, abutting NJ-Route 35 and across the channel from Neptune’s Shark River Yacht Club. This development also falls under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Development planned for West Lake and Springwood Avenue (Asbury) is in the final stages of agreements for 90,000 square feet of retail redevelopment, as well as residential units and a restaurant. This site is not currently in a flood zone but did experience urban flooding in September 2024. It does fall under NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet, low-lying areas (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the Township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Neptune Township’s total estimated population is 28,115, of which an estimated 4.5% are under age 5, and 21.2% are over age 65. The Township’s population has remained steady over the ACS periods of 2013-2017 and 2018-2022, with an estimated 1.4% population growth. With an aging population making up over twenty percent of their total community, Neptune may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

Within Neptune, fourteen block groups are identified as potentially vulnerable through overburden (OBC). Of these block groups, making up the majority of Neptune’s east and north, twelve block groups meet criteria for identifying overburden in Minority communities, and two block groups meet criteria for Low Income and Minority communities. There is one census tract identified under CEJST criteria for Health, Housing, Water and Wastewater, and Workforce Development environmental justice qualities. No parts of Neptune meet designation criteria for CDRZ identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	28,115
Population Change since 2017	1.4%
Percent of Population Age < 5	4.5%

Demographics Summary

Percent of Population > 65

21.2%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm/Nor'easter	Extreme Temperatures	Lightning
Flood	Tornado	Drought
Storm Surge	Winter Storm	Earthquake
	Coastal Erosion	Dam Failure
	Wave Action	Wildfire
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

The Township ranked Landslide as N/A.

Hazard Ranking Explanation

Neptune Township has experienced hazard events through flooding, especially urban flooding and flooding related to hurricanes, tropical storms, nor'easters, and storm surges. The Township's location along both the Atlantic Coast and inland waterways, including the Shark River, makes Neptune susceptible to hazards such as rising storm surges, coastal erosion, wave action, and sea level rise.

Significant Hazard Events Since Last Plan Update

Neptune Township has noted hazard events since the last plan update, including significant urban flooding during September 2023 and December 2023 storm events. Most significant nor'easters or heavy rain events will cause considerable flooding in Neptune, impacting travel and roadways. A regular flooding occurrence happens locally (monthly) during full moon tides, when flooding twice daily for three days aligns with rising tides from the full moon – this has been noted to occur near the Condominiums by the East Avenue bridge. In July 2020, Tropical Storm Fay caused flooding throughout Neptune.

The Township experiences substantial riverine erosion along the Shark River in the Shark River Hills area – this is being addressed by ongoing mitigation efforts, including building a stabilizing living shoreline in the area. Critical infrastructure in the Township has been hit by lightning, including the 911 system and pump station radio systems. This creates concern for other critical infrastructure located at the highest point in Monmouth County, particularly other County communications infrastructure.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to increase risks in Neptune Township, causing more frequent and intense hurricanes, nor'easters, and storm surges. This will worsen coastal erosion and flooding, especially in low-lying and flood zone areas.

Rising sea levels will increase the vulnerability of critical infrastructure and homes near the coast and waterways like Shark River.

The Township will also face extreme temperatures and droughts, straining resources and infrastructure. The aging population, over 21%, may experience higher health risks and evacuation difficulties during emergencies. Additionally, more frequent power failures could hinder disaster response and recovery.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Neptune Township	
Initial FIRM Date	2/16/77
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	592
Total Losses:	422
Total Payments:	\$22,695,181.55
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	10
RL – Total Paid:	\$827,507.42
Number of SRL Properties:	1
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	6
SRL – Total Paid:	\$183,503.94

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

The Special Flood Hazard Area (SFHA) in the Township of Neptune is primarily located adjacent to the many streams which pass through town flowing into the Shark River or Atlantic Ocean, as well as the areas near Fletcher Lake and the Atlantic Ocean in Ocean Grove. Approximately 9.4 percent of the total land area of Neptune Township lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

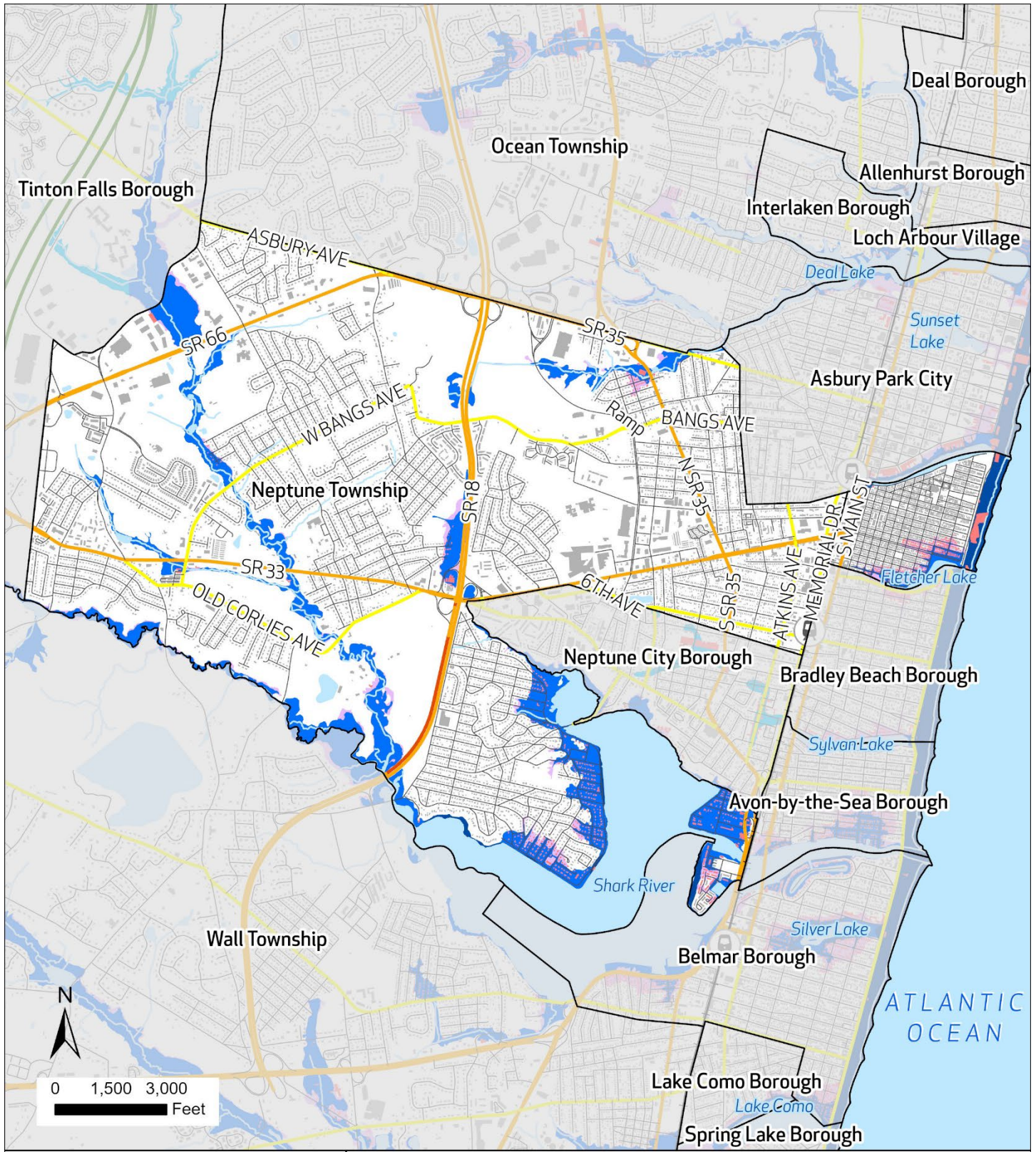
About 74.5 percent of Neptune Township is considered developed. Of the developed parcels of the town, 8.3 percent fall within the 1% annual chance flood zone and 1.6 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	8.3%	1.6%	4.7%
Exposed Land Area	9.4%	1.2%	3.1%

During the planning process, Neptune Township identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 11 total facilities. Of these facilities, five are within floodplain. Of those five, one is also located in an area projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	-	-
Transportation	1	-	1
Water Systems	3	-	-

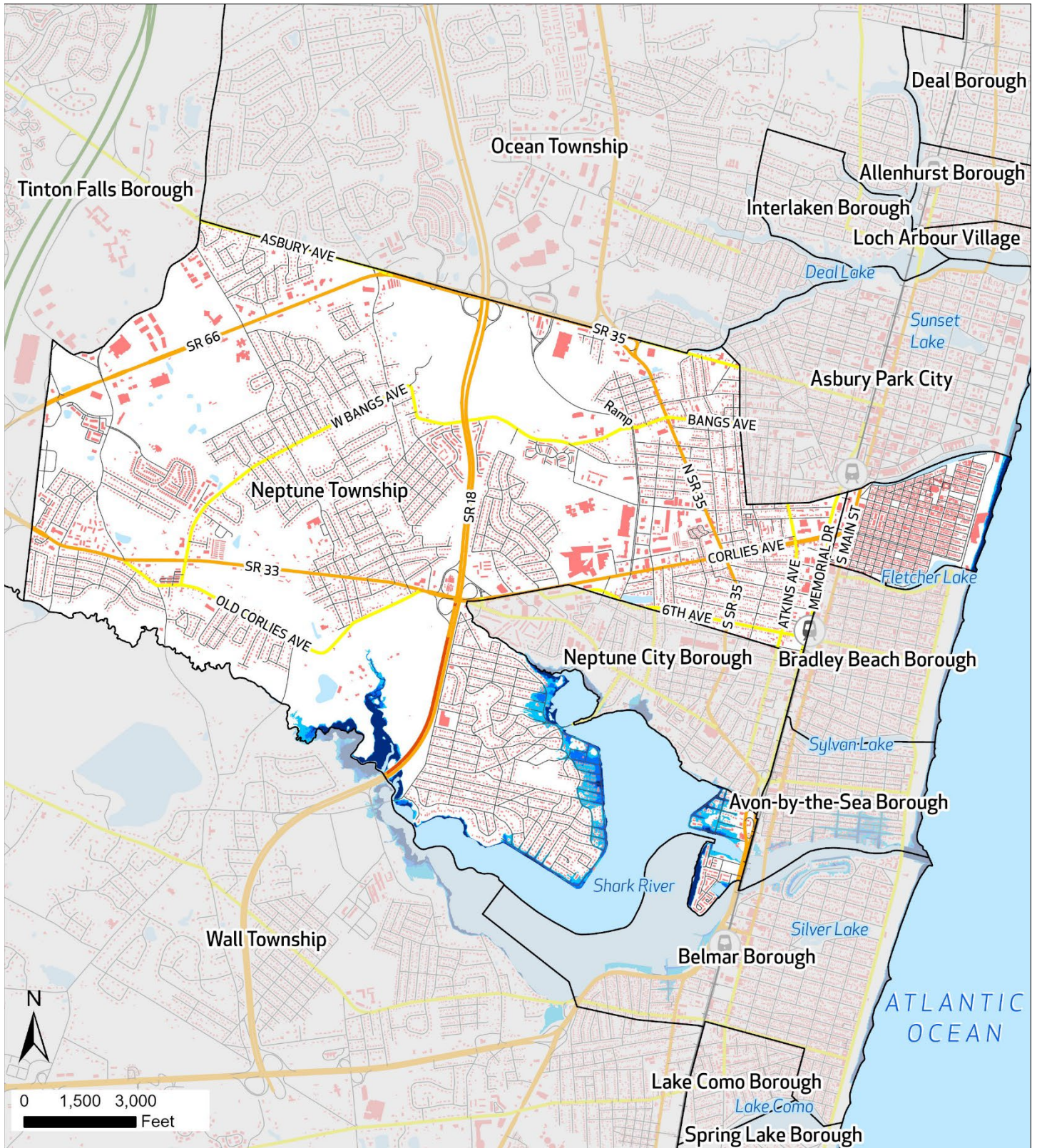
DRAFT



Flood Risk Neptune Township

- | | | |
|------------------------|------------------------|---|
| FEMA Flood Zone | — Garden State Parkway | □ Municipal Boundaries |
| ■ 0.2% Annual Chance | — State Hwy | ■ Building Footprints |
| ■ AE (1%) | — Interstate Highways | ■ Building Footprints within Floodplain |
| ■ VE (1%) | — State Routes | ■ Water |
| | — County Routes | |
| | — Local Roads | |
| | — Rail Lines | |

Source: FEMA NJDEP, NJOIT, NJTransit

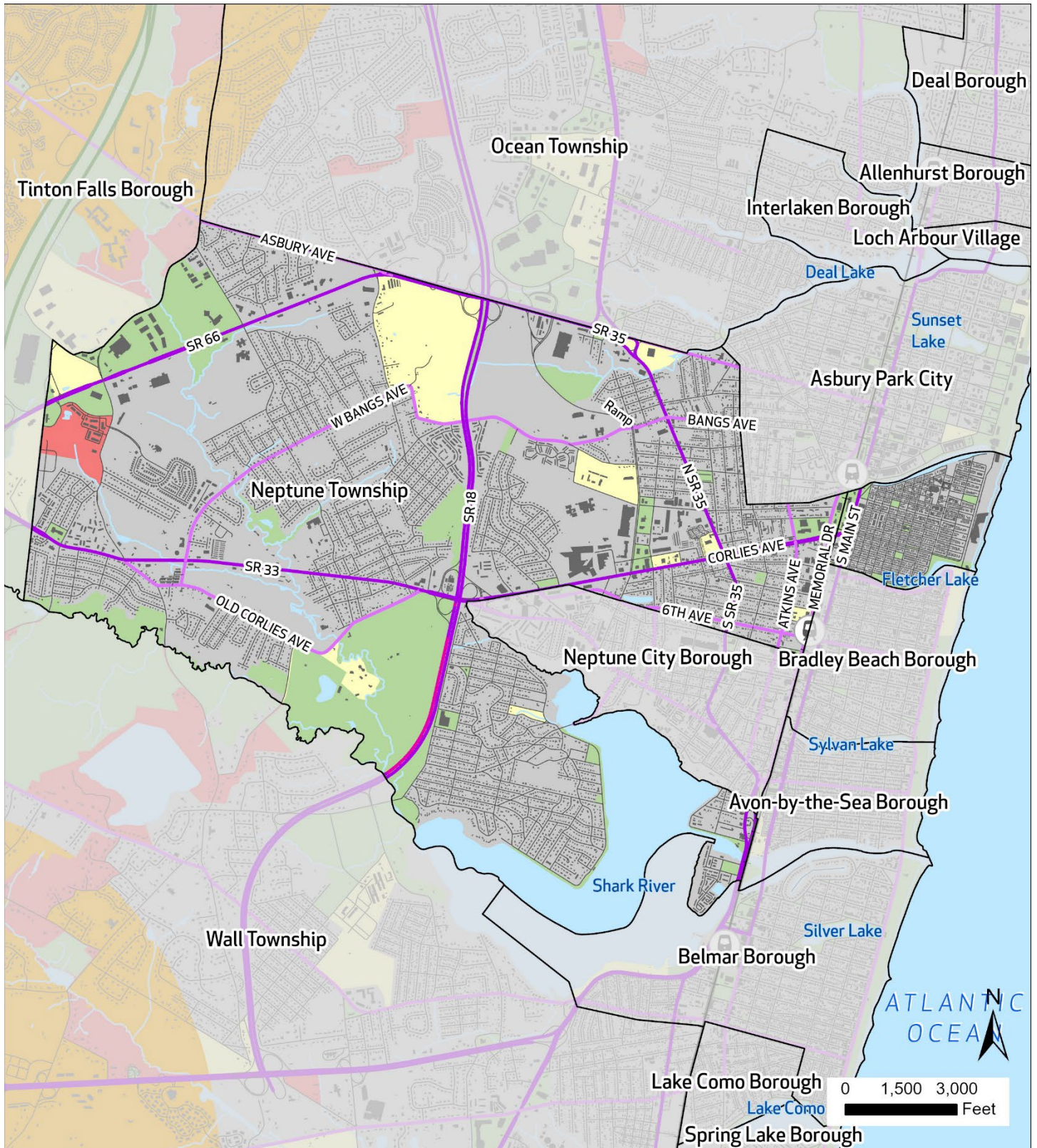


**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**

Neptune Township

- | | | |
|-----------------------------------|---------------------------|------------------------|
| ■ Area Inundated Under 2 Feet SLR | — Garden State Parkway | □ Municipal Boundaries |
| ■ Area Inundated Under 3 Feet SLR | — Interstate Highways | ■ Building Footprint |
| ■ Area Inundated Under 5 Feet SLR | — State Routes | ■ Water |
| | — County Routes | |
| | — Local Roads | |
| | — Rail Lines | |
| | ● NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Neptune Township

- | | | |
|---|---|--|
| ■ Interface | — Garden State Parkway | Municipal Boundaries |
| ■ Intermix | — State Hwy | Building Footprint |
| High or Medium Density Housing | — Interstate Highways | Water |
| Low or Very Low Density Housing | — State Routes | |
| No Housing | — County Routes | |
| | — Local Roads | |
| | — Rail Lines | |

Source: USFS, NJDEP, NJOT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Neptune Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X			Master Plan currently under revision, expected adoption in 2024
Capital Improvement Plan	X		2024	Yes, identifies projects that, if implemented, could reduce the impacts of natural hazards.
Local Emergency Operations Plan/Continuity of Operations Plan	X		2023	
Floodplain Development Ordinance	X		2022	Enforces higher freeboard or other standards.
Floodplain Management Plan		X	2023	
Stormwater Management Ordinance	X		2024	
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response	X			<p>SUBSTANTIAL DAMAGE: damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50%) percent of the market value of the structure before the damage occurred.</p> <p>SUBSTANTIAL IMPROVEMENT: any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50%) percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed.</p> <p>The term does not, however, include either:</p> <ol style="list-style-type: none"> Any project for improvement of a structure to correct existing violations of State or local health, sanitary or safety code specifications which have been identified by the local Code Enforcement Officer, and which are the minimum necessary to assure safe living conditions; or Any alteration of a "historic structure," if designated as a key structure and one that would be adversely affected in terms of historic character as determined by the Municipal Construction Official/Floodplain Administrator. Alteration of a "historic structure" shall not be considered a relocation.
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		2017	
Tracking elevation certificates and/or Letter of Map Change	X			Tracked using County software.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies				
Community Wildfire Protection Plan	X		TBD	In progress – being developed.
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Part of the Regional Flood Mitigation Group that produces flood studies and ongoing mitigation projects.
Other ordinance and regulation that mitigate the impacts of natural hazards	X			Steep Slope

Administrative and Technical Capabilities

Neptune Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Don Clare, Full time, Electrical Sub-Code Official and Asst Director of Code and Construction. Certified as a CFM
Grant Writer	X		Multiple experienced grant writers on staff.
Staff trained to support mitigation	X		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Collaboration with Monmouth County.
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		Have worked with non-profits, the County, and others.
Organizations that work with socially vulnerable or underserved populations	X		Neptune Senior Center – have been involved in Hazard Mitigation planning/recovery. Fulfill Foodbank – has not haven involved in the past.

Education and Outreach Capabilities

Neptune Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		<p>Within the plan there are levels and methods of notification. By practice the LEPC is provided with routine messaging on a near daily basis. Messaging is upgraded to include community notifications pursuant to various OEM, Police, and local government policies and practices. Emergency notification of response personnel and the community is clearly delineated within the plan.</p> <p>Within the plan there are levels and methods of notification. By practice the LEPC is provided with routine messaging on a near daily basis. Messaging is upgraded to include community notifications pursuant to various OEM, Police, and local government policies and practices. The plan empowers certain department heads, including the Public Information Officers, Police Chief, Emergency Management Coordinator, Administrator and Mayor to make decisions regarding appropriate public messaging.</p> <p>In addition to initial training on Nixle®, PIO staff is involved in all actual deployments and training exercises. The next exercise is scheduled for September 27, 2022, and includes emergency responder and public messaging.</p>
StormReady	X		
Firewise USA			
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Neptune Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC	X		Grant Agreement in process
FEMA FMA	X		
FEMA Public Assistance	X		
FEMA HMGP	X		
Non-FEMA Federal Funding Programs	X		
Other FEMA resources	X		
NJ Infrastructure Bank		X	

Financial Capability	Yes	No	Explanation
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities	X		All projects are evaluated by their overall benefit to the Township in general. Areas of prioritization include public safety, public health, cost, public benefit, timing, environmental impact, and protection of public resources.
Other ongoing efforts to build additional financial capabilities	X		The Township includes hazard mitigation projects in the annual capital improvement plans and makes grant submissions to support these improvements.

Additional Capability Assessment Information:

- Neptune Township is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Township.
- Ongoing regional flood study in coordination with other jurisdictions and Monmouth County – to identify areas of flooding and coordinate potential solutions and mitigation actions.
- Township Engineer responsible for implementing Hazard Mitigation Actions
- Township Website has information on reducing vulnerability to natural hazards.

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since the last plan update in 2021, Neptune Township has prioritized infrastructure improvements to reduce flood risk, including the construction of living shorelines, bulkhead replacements, and stormwater management upgrades. Moving forward, the Township will focus on enhancing resilience through continued flood mitigation efforts, upgrades to critical infrastructure, and targeted property acquisitions in high-risk areas. These efforts aim to protect residents, reduce repetitive loss properties, and strengthen the community's ability to withstand future hazard events.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-1	Purchase and Install a Generator at North Island Pump Station	Create elevated platform for new emergency generator to service pump station.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge		Neptune Township Engineering Department/Neptune Sewer Department		\$18,500.00		Completed	
Action 36-2	Elevate 23 Flood-prone Properties, with a focus on Repetitive Loss and Severe Repetitive Loss Properties	Elevate 23 flood-prone residential properties, especially Repetitive Loss and Severe Repetitive Loss properties.	Flood, Hurricane and Tropical Storm, Storm Surge	High	Homeowners, Neptune Township Engineering Department, Neptune Township Administration	FEMA HMA	\$57,500.00	1 year	Withdrawn	<i>Withdrawn to combine with (ongoing) Action 36-08</i>
Action 36-3	Purchase and Install Generators for Critical Infrastructure	Generators for stormwater pumps and at the Township EOC center.	All Hazards	Low	Township	Municipal budget	\$150,000.00	2 years	Completed	<i>Now identify need for generator at library – for warming/cooling center. Opportunity for new mitigation action.</i>
Action 36-4	Reconstruct Deteriorating Bulkheads on S. Riverside Drive and Retrofit Stormwater Infrastructure	Reconstruct deteriorating bulkheads, extend drainage pipes, and retrofit storm drains with Tideflex valves.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Neptune Township Engineering Department, Neptune Township Committee	FEMA HMA	\$2,500,000.00	5 + years	Withdrawn	<i>Withdrawn to prioritize Living Shoreline Project.</i>
Action 36-5	Retrofit Pump stations with Watertight	Retrofit existing pump stations in flood zones with watertight doors and/or windows.	Flood, Nor'easter, Hurricane and Tropical	Medium	Neptune Township Engineering Department/Neptune Sewer Department	FEMA HMA	\$200,000.00	2 years	Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	Doors and/or Windows		Storm, Storm Surge							
Action 36-6	Update ArcGIS Online	Update ArcGIS online and publish on Township website to increase hazard awareness and evacuation routes.	Flood, Hurricane and Tropical Storm, Storm Surge	High	Neptune Township Engineering Department	FEMA HMA	\$2,000.00	1 year	Withdrawn	
Action 36-7	Construct a Living Shoreline along Seaview Island	Construct a living shoreline along the Seaview Island.	Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Township Engineering, DPW	FEMA HMA, The Nature Conservancy (TNC)	\$3,000,000	5 + years	Withdrawn	

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-8	De-slag and Desilt Wesley Lake	Remove/desilt the lake. In coordination with Asbury Park.	Flood, Hurricane and Tropical Storm, Storm Surge	Medium	Neptune Township Engineering Department	Municipal budget, State, and Federal Grants	\$1,500,000	5 + years	Ongoing	Requires ongoing coordination and funding. Reduces flood damage Reduces flooding in nearby socially vulnerable residential and commercial areas. Increased rainfall may accelerate sediment buildup.
Action 36-9	Construct an Elevated Bulkhead and a Living Shoreline Stabilization Around Wesley Lake, including repair of pedestrian bridges; elevated and reinforced west of western foot bridge.	Construct or elevate a structural or earth berm bulkhead around the lake along with a living shoreline.	Flood, Hurricane and Tropical Storm, Storm Surge	High	Neptune Township Engineering Department; Neptune Township Committee	FEMA HMA, The Nature Conservancy (TNC)	\$2,500,000	2 years	Ongoing	Requires ongoing coordination and funding. Reduces erosion and flood damage Reduces flooding in nearby socially vulnerable residential and commercial areas. Rising sea levels and stronger storms may increase stress on shoreline defenses

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-10	Construct a Living Shoreline along Shark River	Construct a living shoreline along the Shark River in the Shark River Hills neighborhood, extending into Neptune City. Phase III will incorporate flood pumps to enhance flood resilience.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Neptune Township Engineering Department	FEMA HMA, The Nature Conservancy (TNC)	\$6,000,000	1 year	Ongoing (Phase 1 of 3 is complete)	Requires ongoing coordination and funding Reduces coastal erosion and storm surge flooding Sea level rise and stronger storms may increase erosion and property damage
Action 36-11	De-slag and Desilt Fletcher Lake	Remove/desilt the lake.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township Engineering	Municipal budget, State, and Federal Grants	\$1,500,000	5 + years	Ongoing	Requires ongoing coordination and funding. Reduces flood damage Reduces flooding in nearby socially vulnerable residential and commercial areas. Increased rainfall may accelerate sediment buildup
Action 36-12	Construct an Elevated Bulkhead and a Living Shoreline Around Fletcher Lake	Construct or elevate a structural or earth berm bulkhead around the lake along with a living shoreline, needed at Clark Avenue to foot bridge west.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Neptune Township Engineering Department; Neptune Township Committee	FEMA HMA, The Nature Conservancy (TNC)	\$2,500,000 (around \$1,000 per linear foot).	2 years	Ongoing	Requires ongoing coordination and funding. Reduces flood damage Reduces flooding in nearby socially vulnerable residential and commercial areas Sea level rise and stronger storms may increase erosion
Action 36-13	Establish and Install Warning System and Flood Gauges	Install flood gauges with warning lights in rivers and lakes in or near flood-prone areas, specifically along Shark River, Alberta Lake, and Fletcher Lake. Connect the flood gauges to automatically communicate warnings.	Flood, Hurricane and Tropical Storm, Storm Surge	Low	Engineering and Planning/OEM	Municipal budget, State, and Federal Grants	\$700,000	3 years	Ongoing	Requires ongoing coordination and funding. Improves early flood detection and response Provides advance warning to at-risk residents More frequent extreme weather events increase the need for real-time flood monitoring

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-14	Acquire and Demolish or Relocate Buildings and Infrastructure in flood-prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties. Elevate properties with focus on RL, SRL.	Identify and target properties of willing sellers in Special Flood Hazard Areas or flood-prone areas, especially Repetitive Loss and Severe Repetitive Loss properties, and obtain appraisals and funding for acquisition. Upon acquisition, maintain as dedicated open space.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Neptune Township Administration	FEMA HMA	\$1,200,000	3 years	Ongoing	Requires ongoing coordination and funding. Reduces flood damage and repetitive loss claims Protects residents in high-risk flood areas Increasing flood frequency makes this action more critical
Action 36-15	De-slag and Desilt Hollow Brook	Removal of dense overgrown vegetation, dead fallen trees, silt, and sediment from Hallow Brook	Flood, Nor'easter, Hurricane and Tropical Storm	Low	Township Engineering, DPW	Municipal budget, State, and Federal Grants	\$1,000,000	5 + years	Ongoing	Requires ongoing coordination and funding. Reduces blockages that cause flooding helps prevent localized flooding in residential areas Heavier rainfall may accelerate sediment buildup
Action 36-16	Target Harden Critical Facilities by Installing Surveillance Cameras, Barriers, Window Film, an Access Control System, and/or Bulletproof Glass	Install and improve surveillance equipment and CCTV, barriers, bulletproof glass, access control, window film on entrance-facing access points, and surveillance footprints on the ground for Township schools and municipal buildings.	Terrorism	Medium	Neptune Township, Neptune Township School System	Homeland Security grants	\$2,000,000	5 years	Ongoing	Requires ongoing coordination and funding. Reduces vulnerability to attacks and unauthorized access

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-17	De-slag and Desilt Alberta Lake	Remove/desilt the lake.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Neptune Township Engineering Department; Neptune Township Committee	Municipal budget, State, and Federal Grants	\$1,500,000	5 + years	Ongoing	Requires ongoing coordination and funding. Reduces flood damage Reduces flooding in nearby socially vulnerable residential areas. Increased rainfall may accelerate sediment buildup
Action 36-18	De-slag and Desilt the Shark River Tributary, Jumping Brook, and Musquash Brook	Removal of dense overgrown vegetation, dead fallen trees, silt, and sediment from the Shark River Tributary, Jumping Brook, and Musquash Brook.	Flood, Hurricane and Tropical Storm, Storm Surge	Low	Neptune Township, Neptune City, Wall, Belmar, and NJDEP	Municipal budget, State, and Federal Grants	\$4,000,000	5 + years	Ongoing	Requires ongoing coordination and funding. Reduces blockages that cause flooding helps prevent localized flooding in residential areas Heavier rainfall may accelerate sediment buildup
Action 36-19	Create a Permanent Confined Disposal Facilities (CDF) and Structural Earthen Berm	Identify and target properties that have the characteristics that can be used for a Confined Disposal Facility (CDF) and construct an Earthen Berms out of materials and form a stable slope. Berm to be stabilized with seed.	Flood, Hurricane and Tropical Storm, Storm Surge	Low	Engineering and Planning	Municipal budget, State, and Federal Grants	\$350,000	2 years	Ongoing	Requires ongoing coordination and funding. Reduces flood impacts and manages dredged material Rising sea levels may increase demand for flood protection.
Action 36-20	Desilt and Dredge Shark River	Dredge or pump siltation from entire Shark River Basin to Confined Disposal Facility (CDF).	Flood, Hurricane and Tropical Storm, Storm Surge	Medium	Neptune Township, Neptune City, NJDEP, Wall, Belmar, NJDOT	Municipal budget, State	\$10,000,000	5 years	Ongoing	Requires ongoing coordination and funding. Improves drainage and reduces flood impacts Mitigates flooding in nearby socially vulnerable communities Increased sedimentation from stronger storms may require ongoing dredging

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-21	Create Hazard Overlay Zones and Update ArcGIS Online	Work with GIS Consultant and in-house staff to overlay Special Flood Hazard Zones on Township Maps. Distribute as handouts to residents at Neptune Day, at Township counters, and to Homeowners Associations in Special Flood Hazard Zones. Update ArcGIS online and publish on Township website to increase hazard awareness and evacuation routes.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Neptune Township Engineering Department/GIS Consultant	Municipal budget	\$12,000	1 year	Ongoing	Requires ongoing coordination and funding. Increases awareness of flood hazards and evacuation routes Improves access to critical hazard information Changing flood zones may require future updates.
Action 36-22	Purchase Stormwater Pumps and Appurtenances	Purchase stormwater pumps and appurtenances to reduce flood risk in the special flood hazard area.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Neptune Township Engineering Department, DPW	Municipal budget, State, and Federal Grants	\$2,000,000	1 year	Ongoing	Requires ongoing coordination and funding. Reduces flooding by improving stormwater management Protects flood-prone neighborhoods. Increased rainfall and storm intensity will heighten demand for pumping capacity
Action 36-23	Conduct a regional flood study and identify projects coming from study.	An ongoing multi-jurisdictional flood study will allow Township to identify flood areas, prioritize projects, and define mitigation solutions	Flood	High	Multi-jurisdictional, Neptune Township.	State Grant	\$100,000	1 year	New	Identifies and prioritizes flood mitigation projects Helps target solutions for high-risk communities Changing flood patterns may influence mitigation strategies

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		related to Township flooding.								
Action 36-24	Forest Fire Management Plan	Develop a forest fire management plan for defensible areas of the Township. Targeted areas of concern include wooded area behind Beverly Way, around the Garden State Parkway/66, and Oceanview Electrical Station with overhead wires.	Fire	High	Neptune Township	Municipal budget, State, and Federal Grants	\$50,000	2 years	New	<p>Lowers wildfire risk and protects critical infrastructure</p> <p>Reduces fire hazards in socially vulnerable residential areas</p> <p>Increasing temperatures and drought conditions may heighten fire risk.</p>
Action 36-25	Neptune Library Generator Project	Install an emergency backup generator at the Neptune Library to ensure reliable power during outages, allowing it to function as a community cooling and heating center.	Extreme temperature	High	Neptune Township	Municipal budget, State, and Federal Grants	\$425,000	2 years	New	<p>Provides emergency power to protect residents from extreme temperatures</p> <p>Offers a safe heating and cooling center for at-risk residents</p> <p>Increasing heat waves and extreme cold events make this facility more essential.</p>
Action 36-26	Neptune Municipal Court	Enhance security at Neptune Municipal Court by installing reinforced entry points, access controls, and surveillance systems to reduce vulnerability to security threats.	Terrorism and Security Threats	Medium	Neptune Township	Municipal budget, State, and Federal Grants	\$500,000	2 years	New	Reduces the threat of unauthorized access and attacks

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 36-27	Alberta Lake Flood Pumps	Install flood pumps at Lake Alberta to improve stormwater management and reduce flooding in surrounding residential areas.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Neptune Engineering	Municipal budget, State, and Federal Grants	\$2,000,000	3 years	New	Reduces flooding and improves stormwater drainage Protects nearby socially vulnerable residential areas from flood damage and evacuation Increased rainfall and storm intensity will heighten demand for flood control
Action 36-28	Alberta Lake Shoreline Stabilization	Stabilize the shoreline at Lake Alberta to prevent erosion, protect water quality, and enhance the lake's natural resilience.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Neptune Engineering	Municipal budget, State, and Federal Grants	\$500,000	2 years	New	Reduces flooding and improves stormwater drainage Protects nearby socially vulnerable residential areas from flood damage and evacuation Increased rainfall and storm intensity will heighten demand for flood control
Action 36-29	Alberta Lake Drainage Capacity Improvements	Upsize the piping network at Lake Alberta to improve flow capacity, reduce restrictions, and enhance stormwater management.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Neptune Engineering	Municipal budget, State, and Federal Grants	\$1,000,000	2 years	New	Reduces flooding and improves stormwater drainage Protects nearby socially vulnerable residential areas from flood damage and evacuation Increased rainfall and storm intensity will heighten demand for flood control

37 – NEPTUNE CITY BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Richard Maher	Emergency Management Coordinator, Neptune City	Point of Contact, Attended Municipal Meeting
Michael McGlennon	Monmouth County OEM	Attended Municipal Meeting
Stephanie Seymour	Monmouth County OEM	Attended Municipal Meeting
Rachel McGreevy	Mayor, Neptune City	Attended Municipal Meeting
Albert Jardine	Borough Administrator, Neptune City	Attended Municipal Meeting
Michael Vollbrecht	Police Lieutenant, Neptune City	Attended Municipal Meeting
Daniel Harker	Director of DPW, Neptune City	Attended Municipal Meeting

COMMUNITY PROFILE

Overview

Neptune City is a borough in eastern Monmouth County, surrounded on three sides by the larger Neptune Township, and on the east by Avon-By-The-Sea and Bradley Beach Boroughs. Neptune City's southern border is largely coterminous with the Shark River, which flows eastward from the Musquash Brook toward Neptune's west end. The borough has a land area of just under 1 square mile (.90 mi²), and features a variety of land uses, including single family and multi-family residential to the west, commercial properties along NJ Routes 33 and 35, and industrial uses along Sylvania Avenue.

The borough was incorporated in 1881, and at the time included what is now Avon-By-The-Sea and portions of Bradley Beach. These coastal municipalities incorporated independently by 1907. Neptune City began as a working-class community for local tourism and factory workers. During the 20th century, industrial uses grew with factories and businesses along Steiner Avenue. As factories closed, the borough's proximity to beaches, transit lines, and highways, helped its transformation into a popular residential community. Today there are an estimated 4,619 residents (as of 2018-2022 ACS estimates).

The Shark River, which makes up Neptune City's southern border, originates from Musquash Brook towards the borough's northwestern corner, running under East End Avenue. This brook and surrounding marshland empty into the Shark, which ultimately flows out of the Shark River Inlet, an estuary that feeds into the Atlantic in Avon-By-The-Sea and Belmar municipalities. This river is also described as a tidal basin or small bay—a tidal, salty body of water separated from open sea by a barrier or land formation. In addition to the Musquash Brook, other freshwater sources to the Shark (Jumping Brook, Shark River Stream, Laurel Brook) drain a sizeable watershed, but are relatively small freshwater additions in comparison to the saltwater of the Shark River itself.

Land Use, Development, & Growth

Neptune City is a predominantly residential community and most of its land is developed. From 2015 to 2020, the community underwent minimal change in its land use composition, with urban or developed land accounting for nearly 95 percent of its total area, and forested land and wetlands making up its remaining land base.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	0.8	1	25%
Forest	13.4	13.4	0%
Urban	1430.8	1430.6	>0%
Water	28.5	28.5	0%
Wetlands	22.9	22.9	0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Neptune City contains defined residential and commercial areas with scattered industry throughout the Borough. Concentrations of commercial development occur along major roadways (Route 35, 33, Memorial Drive), and industrial land use clusters around Sylvania Avenue to the south and Memorial Drive to the east. Due to the built-out density of Neptune City, development opportunities largely consist of infill uses of vacant properties or lots. A large portion of the Borough to the south falls under the FEMA 1% annual chance floodplain, NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet, and the 5 feet SLR (Sea Level Rise) Low-Lying area zone (NJFloodMapper). There is also a portion to the east that falls under the FEMA 0.2% annual chance floodplain and NJ Inland Design Flood Elevation (NJFloodMapper).

The Borough has faced challenges in formulating a district-wide approach and has adopted the Steiner Avenue Scattered Sites Redevelopment Plan (2010) and the 142 Steiner Avenue Redevelopment Plan (2017). These plans encourage mixed-use development compatible with adjacent neighborhoods and surrounding the Bradley Beach train station.

An intersection improvement project at Memorial Drive and Evergreen Avenue included widening approach lanes, and installing concrete curbs, ADA compliant ramps, drainage improvements, and a new traffic signal linked to NJ Transit to coordinate traffic flow with train schedules.

In 2018, the Borough adopted a Master Plan Reexamination Report, which discusses ongoing efforts to redevelop underutilized industrial properties and eliminate incompatibilities between adjacent residential uses.

A dredging project covering the Shark River concluded in 2017 – this project restored the navigable channel and made the waterway safer and more attractive to boaters.

In 2018, all census tracts within Neptune City were designated as an Opportunity Zone, a federal designation which offers tax benefits to investors within these boundaries.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

An upcoming development is anticipated to be complete in Fall of 2025. This development, located at 5th Avenue and Memorial Drive along the eastern border of Neptune City, is positioned to offer 70 luxury units. This development is not in a flood zone – the lot is currently cleared for building, as of Fall 2024.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Neptune City's total population is an estimated 4,619, with 5.3% of these residents estimated to be under age 5 and 13.5% aged over 65. The Borough saw a moderate population decline over two ACS survey periods (2013-2017, 2018-2022), with an estimated -2.7% loss. Though this population loss may be moderate, impacts on the built environment may be present which impact pre-hazard communication and post-disaster response.

Neptune City has two block groups which meet designation criteria as potentially vulnerable through overburden (OBC) – one block group identified for Low Income population vulnerabilities, and the other for Low Income and Minority population characteristics. There are no parts of Neptune City identified through CDRZ or CEJST criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,619
Population Change since 2017	-2.7%
Percent of Population Age < 5	5.3%
Percent of Population > 65	13.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm/Nor'easter	Extreme Temperatures	Drought
Flood	Tornado	Wildfire
Sea Level Rise	Winter Storm	Earthquake
Storm Surge	Coastal Erosion	Landslide (N/A)
	Wave Action	Dam Failure (N/A)
	Lightning	
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	

The Borough ranked Landslide and Dam Failure as N/A.

Hazard Ranking Explanation

The borough's primary hazard concern is flooding, especially as a cascading impact of storms, storm surges, and sea level rise. Urban flooding has caused significant impacts for residents, businesses, and travel in the borough, often with several feet of water in roadways due to an undersized stormwater system. County Route 35 experiences coastal flooding, which is another concern due to Neptune's coastal border with the Atlantic.

Some critical infrastructure in the borough has been hit by lightning, such as Neptune's hospital, which is now outfitted with lightning rods. There is also concern for other critical communications infrastructure (911 system, pump station radio systems) that are susceptible to lightning due to their locations at the highest point in the county.

Significant Hazard Events Since Last Plan Update

Neptune City's primary hazard concern in recent years has been flooding, especially as a result of nor'easter storms and heavy rains throughout the borough. Urban roadways, particularly under bridges and along Brighton Avenue in neighboring Neptune Township, have experienced significant flooding. Specifically, the East End Avenue Bridge area has seen several feet of water during flood events. Additionally, Central Avenue often faces flooding due to storm drain overflow.

A backup storm overflow system, which releases water near Route 35 and 3rd Avenue, has frequently been overwhelmed by excessive rain. Coastal flooding remains a concern for the borough due to its location along Shark River, despite having no direct frontage along the Atlantic coast. Consequently, New Jersey Route 35 has also experienced flooding, prompting planned roadway elevation projects in response.

In August 2024, the borough witnessed notable flooding caused by torrential rain, leading to street closures, particularly at the intersection of 3rd Avenue and NJ Route 35.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the extent and magnitude of risks and hazards in Neptune City Borough. As global temperatures rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and storm surges are likely to increase. This will exacerbate coastal erosion and lead to more frequent and severe flooding, particularly in low-lying areas and those within the 1% and 0.2% annual chance flood zones. The rising sea levels will further compound these issues, increasing the vulnerability of critical infrastructure and residential properties, many of which are in flood-prone areas. Additionally, the borough's location along the Shark River makes it susceptible to hazards such as rising storm surges, coastal erosion, wave action, and sea level rise.

Climate change will also heighten the risk of extreme temperatures and droughts, which can strain local resources and infrastructure. The borough's aging population, which constitutes over 13.5% of its residents, may face increased health risks during extreme heat events and have greater difficulty evacuating during emergencies. Additionally, the increased frequency of power failures, now a medium concern, could further complicate disaster response and recovery efforts.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Neptune City Borough	
Initial FIRM Date	8/11/78
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	50
Total Losses:	49
Total Payments:	\$2,553,964.26
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	10
RL – Total Paid:	\$827,507.42
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

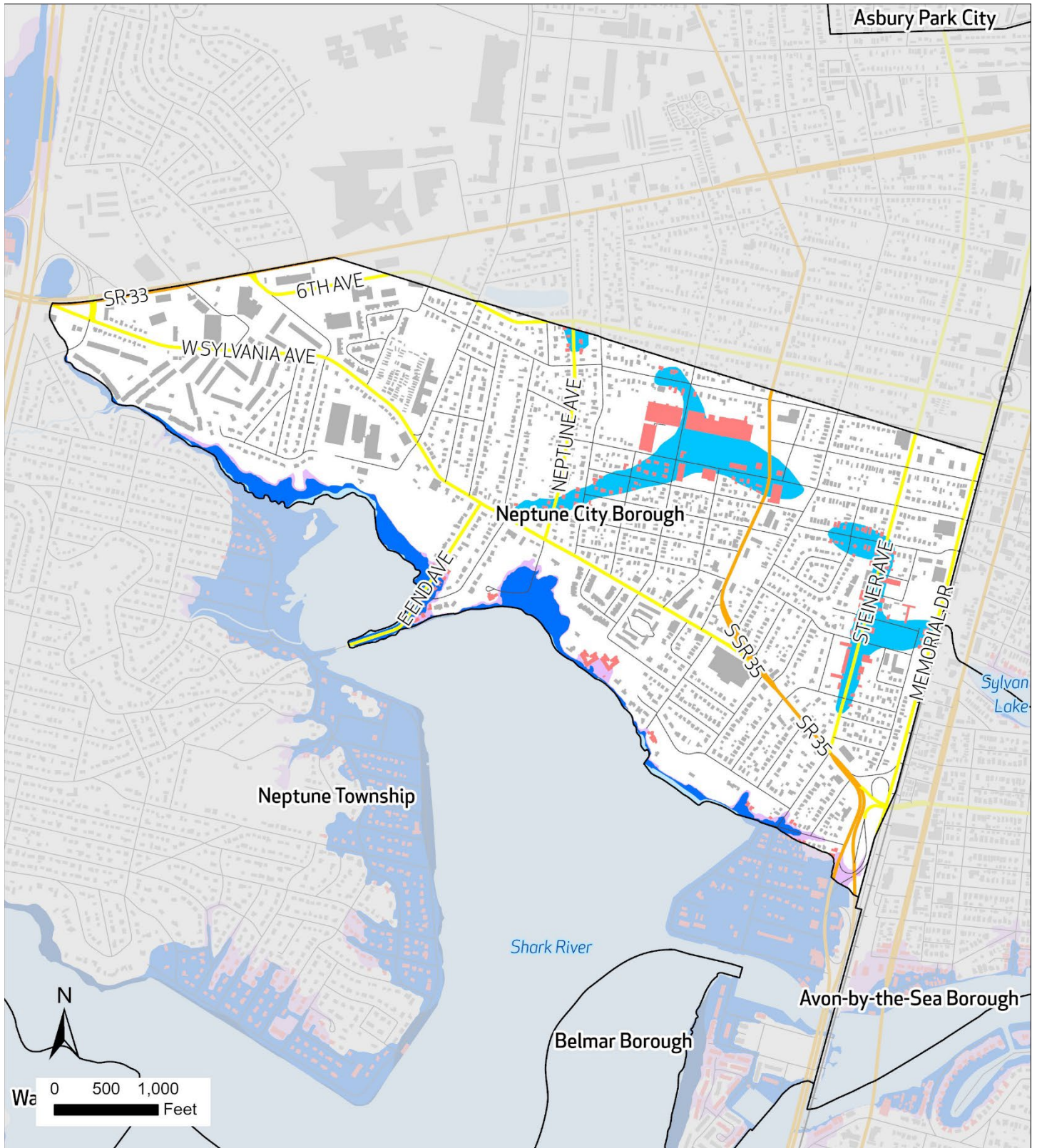
The Special Flood Hazard Area (SFHA) in the Borough of Neptune City is primarily located adjacent to the main water body of town, the Shark River, however, a portion consists of low-lying land in the center of town. 10.4 percent of the total area of Neptune City lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.1 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 93.3 percent of Neptune City Borough is considered developed. Of the developed parcels of the town, 11.4 percent fall within the 1% annual chance flood zone and 0.9 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	11.4%	0.9%	3.2%
Exposed Land Area	10.4%	1.1%	3.5%

During the planning process, Neptune City identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 7 total facilities. Of these facilities, none are within floodplain or the area projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk

Neptune City Borough

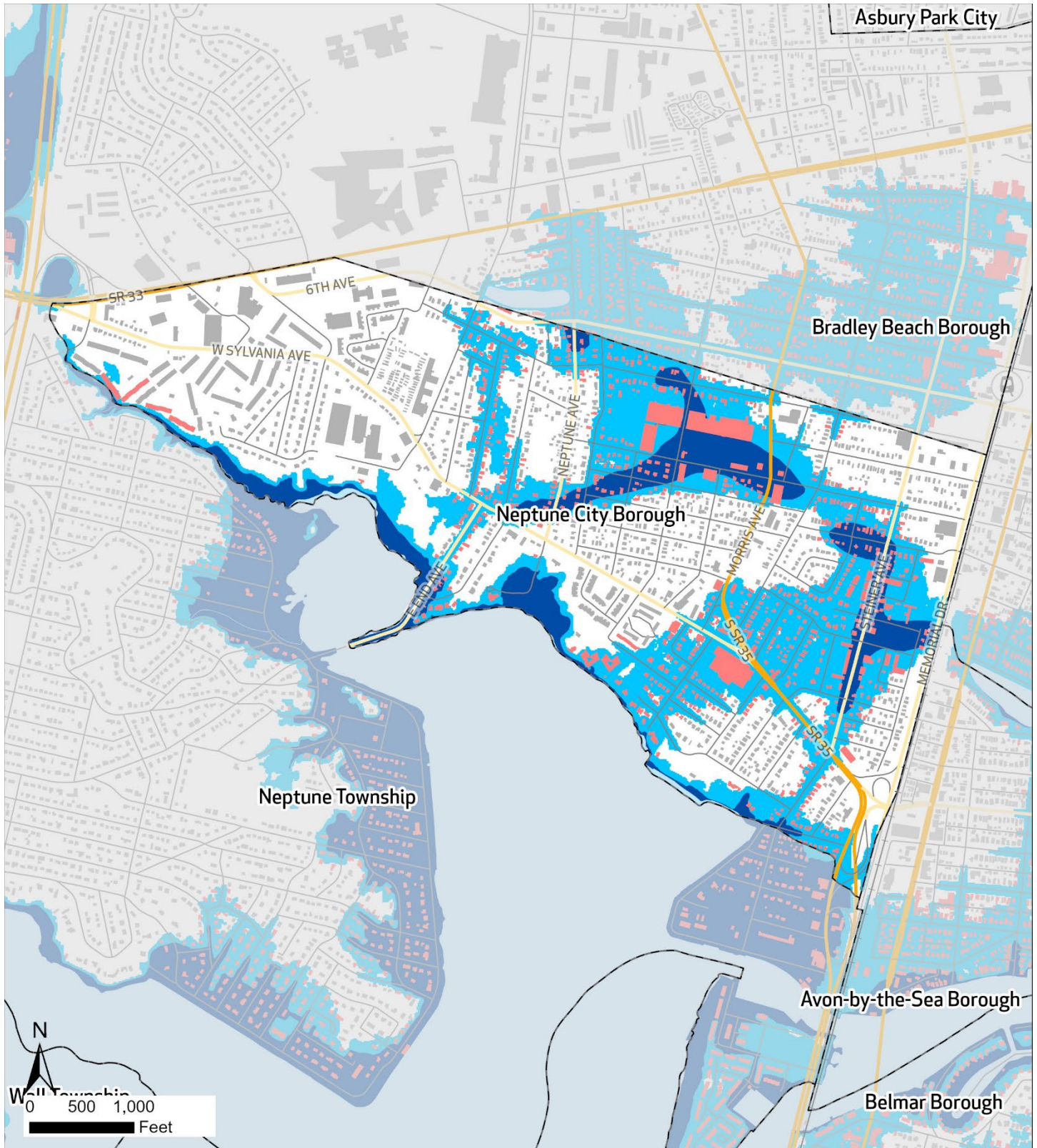
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- State Hwy
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Neptune City Borough

FEMA Flood Zone

 Current Base Flood Elevation (1%)

NJ Inland Design Flood Elevation


 FEMA BFE (1%) plus 3 Feet

 State Routes

 County Routes

 Local Roads

 State Hwy

 Railroad

 NJ Transit Rail Station

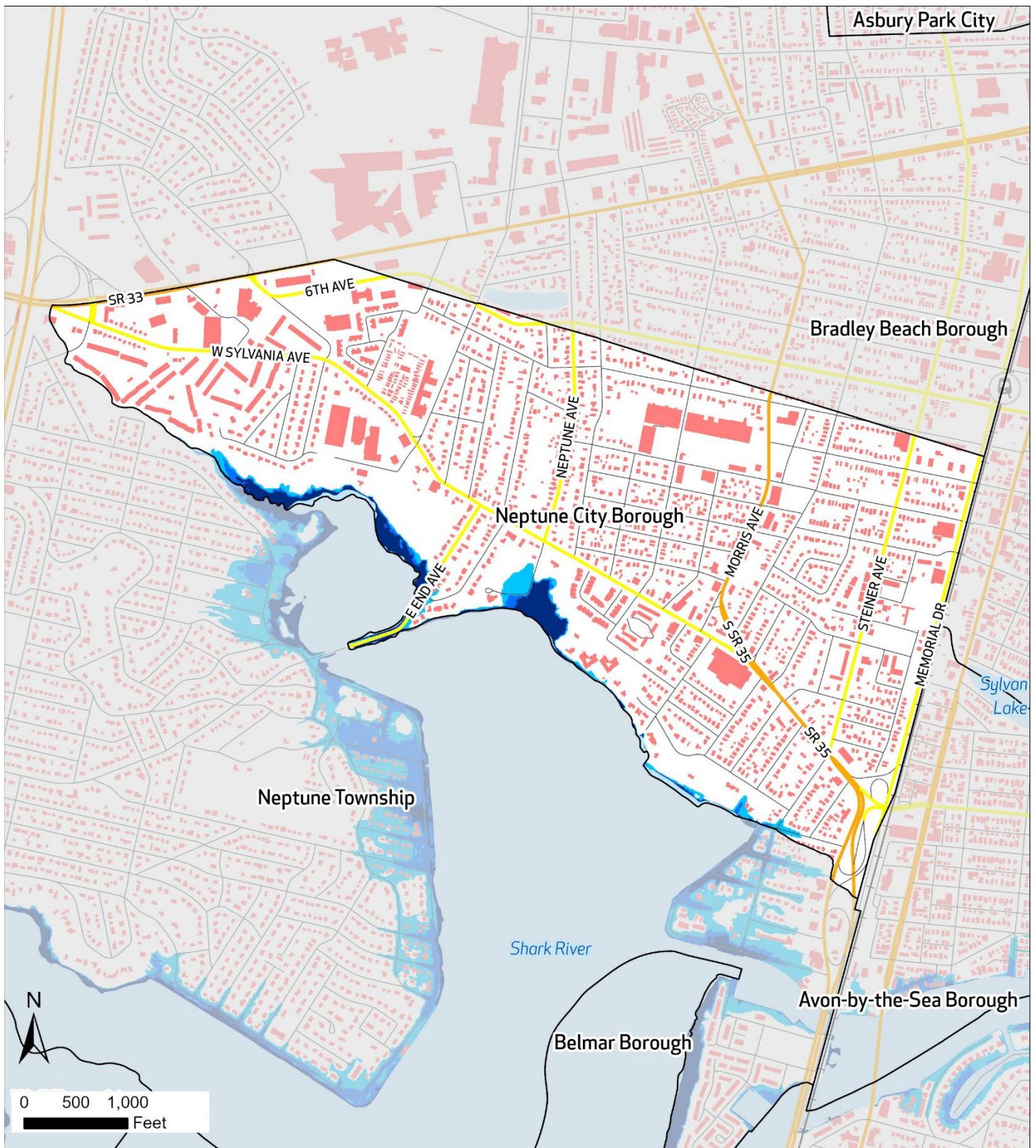
 Municipal Boundaries

 Water

 Building Footprints

 Building Footprints within IDFE

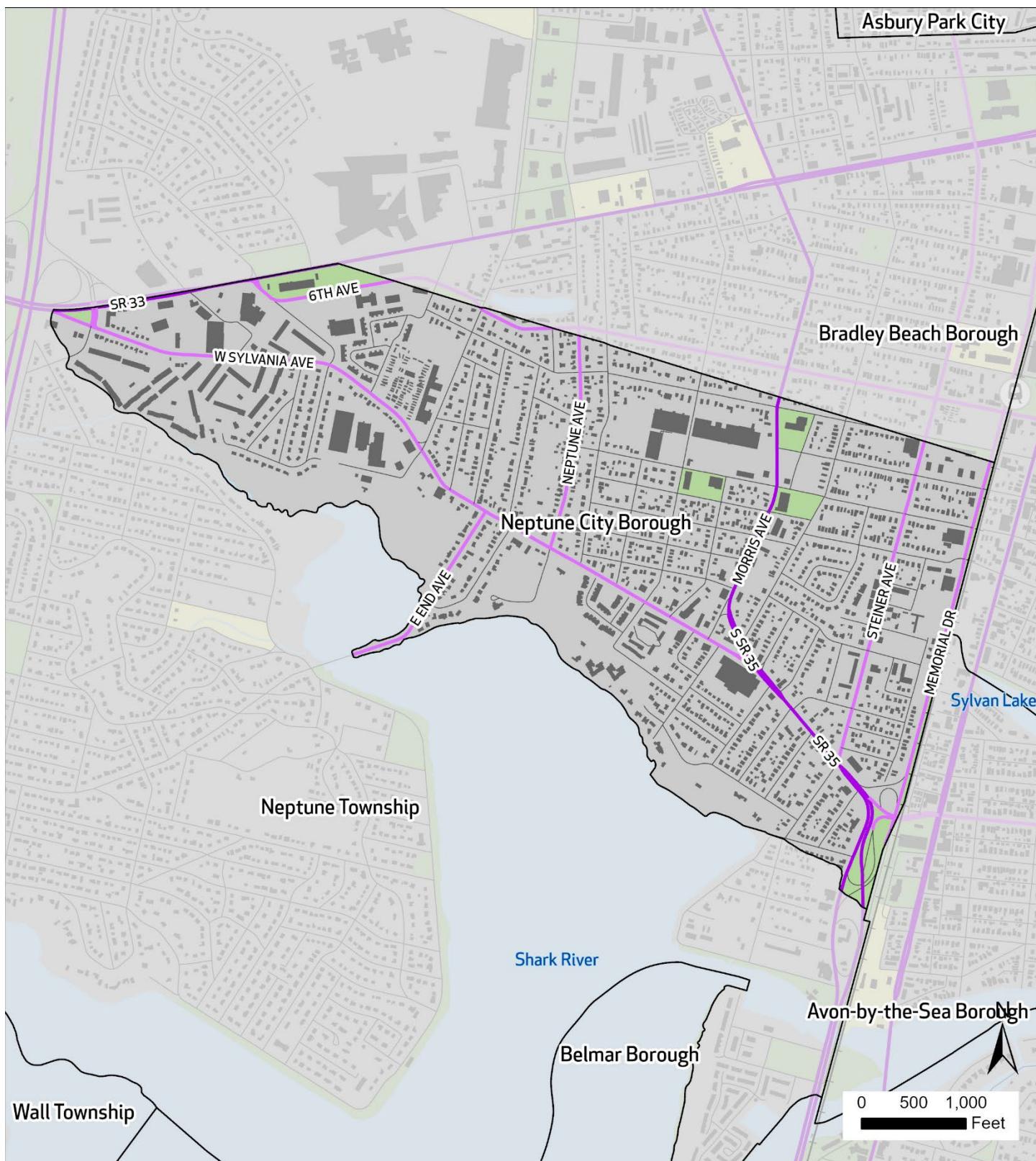
Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Neptune City Borough

- | | | |
|---|---|--|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Neptune City Borough

- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Hwy
- State Routes
- County Routes
- Local Roads
- Rail Lines



- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Neptune City Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017 Master Plan Reexamination Report	
Capital Improvement Plan	X		2025	Upgrades to infrastructure and equipment to aid in response to natural disasters and support hazard mitigation.
Local Emergency Operations Plan/Continuity of Operations Plan	X		2025	Plans and procedures set in place to mitigate natural and manmade disasters within the Borough.
Floodplain Development Ordinance	X		2022	
Floodplain Management Plan	X		2022	
Stormwater Management Ordinance	X		2024	
Stormwater Management Plan	X		2008	
Watershed Management Plan		X		
Sheltering Plan	X		2025	Allows temporary placement of residents and visitors of the Borough away from the effects of a disaster or hazardous area.
Evacuation Plan	X		2025	Allows for residents and visitors to safely and effectively evacuate the Borough or area in the event of a disaster.
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			2010 Steiner Avenue Scattered Sites Redevelopment Plan, 2017 142 Steiner Avenue Redevelopment Plan
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X		2025	The Borough is consistently evaluating plans and methods to assist with hazard mitigation; specifically flooding and is part of the Regional Flood Mitigation Group that produces flood studies and ongoing mitigation projects.
Other ordinance and regulations that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Neptune City Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Part time
Grant Writer	X		Committee
Staff trained to support mitigation	X		Emergency Management Committee, DPW
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Neptune Township

Position	Yes	No	Explanation
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		Comprehensive Flood Study with multiple organizations involved
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Neptune City Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Outside Warning Siren, Nixle (reverse 911) New System, fire safety and emergency preparedness
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Neptune City Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Neptune City is actively working on several projects with the ultimate goal of assisting with and increasing resilience against damage from natural disasters and having the ability to adapt to future climate concerns. Since 2020, the Borough has entered into a Comprehensive Drainage Study to help mitigate flooding throughout the community. Furthermore, the Borough intends to upgrade critical infrastructure to increase resiliency towards natural disasters in this coastal community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 37-01	Increase Piping Capacity and Reduce Sediment/Debris within Watershed	The Borough improves their stormwater system every year with their yearly roadway program. Develop mitigation steps to reduce damage and losses due to flooding through control of stormwater runoff and more efficient drainage and discharge to Shark River.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer		\$80,000	N/A	Completed	DPW Superintendent informs that they have replaced majority of catchment basins in the borough - this has reduced debris. However, increased volume of water is still happening in key areas (listed). Large amount of standing water remains in these areas. Several actions in plan reflect the same problem (01, 03, 06, 07).
Action 37-02	Purchase and Install Generators at Borough Hall, the Fire Station, and the School	To maintain police, fire, and medical service throughout the municipality, the Borough seeks to provide temporary power for Borough Hall, the Fire Station, and the School. The Office of Emergency Management and a Central Command is within Borough Hall.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	OEM Director	FEMA HMA, Municipal Budget		N/A	Completed	Completed for Borough Hall and Fire Department (2020, 2021). Not completed for School; evacuation center switched from school to community center, so deprioritized.
Action 37-03	Elevate and Waterproof Sewer Pump Station	Elevate the sewer pumps within the building and to waterproof the building to mitigate any future damage.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer	FEMA HMA, Municipal Budget	\$47,000	N/A	Complete	DPW Director reported complete in 2021, for all 3 pump stations. Also completed 2 access points to Laird Avenue Pump Station, all waterproofed and completed in 2021.
Action 37-04	Create a Safe House for OEM Equipment	To maintain police, fire, and medical EMS services throughout the municipality, the Borough	Flood, Nor'easter, Hurricane and Tropical	N/A	Borough Engineer, OEM Director	Municipal Budget		N/A	Withdrawn	Withdrawn, merged with Action 37-10, Still no location to house equipment (most are outside, secured but open to the elements).

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		seeks to provide a centralized building "AKA Safe House" for critical OEM equipment. Currently this equipment is stored outside and subject to the daily elements.	Storm, Storm Surge							

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 37-05	Implement Improvements to Designated Shelters	Neptune City seeks to provide key sleeping and shower facilities to emergency personnel and evacuated residents during a storm event. Three key buildings within the Borough have been identified within the action plan: Borough Hall, Fire Station and the EL.	Flood, Lightning, Hurricane/Tropical Storm/Nor'easter	Low	Borough Engineer and OEM Director	Municipal budget	\$30,000	1 year	Ongoing	School was removed from this goal; incorporate community center as shelter (short term).
Action 37-06	Develop a Comprehensive Drainage Study to Mitigate Borough Flooding	The Borough would like to develop a comprehensive mitigation study to reduce damage and losses due to flooding. The study will provide the necessary data to determine the larger piping needed to provide a better overall volume/ flow throughout the system.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Engineer	Municipal budget	\$1,500,000	1 year	Ongoing	
Action 37-07	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe	Elevation and/or acquisition of Flood-prone residential structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List and Severe Repetitive Loss list. New Jersey is committed to continuing the reduction of RL and SRL	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Mayor and Council	FEMA HMA	TBD	1 year	Ongoing	Ties to 37-06; new flood maps released and waiting on input from council and mayor.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	Repetitive Loss (SRL) properties									
Action 37-08	Target Harden Critical Facilities by Installing Surveillance Cameras, an Access Control System, and/or an Alarm System	Improve alarm, access control and camera systems located at all Borough Facilities, Specifically DPW, Borough Hall, Fire Station, First Aid Squad, Community Center and Three sewer Pumping Stations.	Terrorism	Low	Borough	Homeland Security grants	\$300,000	2 years	Ongoing	Partially complete. Have completed access control and alarms; cameras remain. Improved alarm systems and access control to Borough Hall and Fire Station. Alarms also improved at Pump Stations. Working to explore access control systems for DPW and community center. Camera systems need to be updated throughout facilities. Police are working to secure funding from municipal budget (Cost Estimate unknown).
Action 37-09	Cross-Jurisdictional Study	Cross jurisdictional study and program: Working with Bradley Beach and Neptune Township, develop plans for a study to understand stormwater pipes and how flooding causes shared issues across municipal boundaries.	Flooding	High	Cross-Jurisdictional, County DPW, County Engineering	Neptune Township has secured a grant (Amount?)	TBD	Ongoing	New	Includes County DPW + Engineering as well as State Officials.
Action 37-10	DPW Build - Municipal Structure (Pole Barn)	Ongoing DPW capital improvement project to build municipal structure will allow proper storage of emergency management assets.	Terrorism, Flood, Hurricane and Tropical Storm	Medium	DPW	Municipal Budget	\$100,000	Ongoing	New	A structure to protect assets from the elements. This will also allow for proper storage and keep the equipment readily

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
										accessible for emergency response.
Action 37-11	Replace Roof + Drain Systems in Critical Infrastructure	Replace roof and drain systems at Borough Hall, Fire Department, and DPW -all critical infrastructure locations.	Flooding, Hurricane/Tropical Storm/Nor'easter	High	DPW	Municipal Budget - Secured	\$600,000	1-2 years	New	Perform upgrades and rehabilitate critical infrastructure within the borough.

DRAFT

38 – OCEAN TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Tom Reu	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
David G. Brown, II	Township Manager	Final Review
Greg Blash	Avakian Engineering, Twp Engineer	Review & Final Review
James Higgins	Higgins Associates, Planner	Final Review
Stephen Higgins	DPW Director	Final Review

COMMUNITY PROFILE

Overview

The Township of Ocean, with a land area of 11.2 square miles, was officially established by an act of the New Jersey State Assembly in 1849. Today, Ocean is primarily a residential community with self-identifying neighborhoods, such as Wayside, Wanamassa, Oakhurst, Colonial Terrace, Deal Park, and West Allenhurst.

The township was awarded a Sustainable Jersey grant to complete its first Environmental Resource Inventory in 2018, and has achieved a Bronze rating for its overall planning initiatives, which include a bicycle and pedestrian network plan, improving public engagement at planning and zoning board meetings, making digitized public documents available on the township's website, assessing flooding risks due to climate change, and installing two electric vehicle chargers in the parking lot that serves Township Hall.

Land Use, Development, & Growth

In Ocean Township, residential, publicly owned and commercial land together constitute a large proportion of its area. As a result, in 2020, urban or developed land accounted for nearly 76 percent of the Township's area. In the same year, wetlands and forested land made up 14 percent and 7 percent respectively of Ocean Township's total area.

Since 2015, the community has experienced marginal land use changes; its forested land, barren land and wetlands diminished by 24 acres, 14.5 acres and 10 acres respectively, while its urban or developed land grew by nearly 51 acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	26.6	25.2	-5%
Barren Land	41.1	26.6	-35%
Forest	546.6	522.6	-4%
Urban	5306.7	5357.2	1%
Water	88.2	88.2	>0%
Wetlands	1022.4	1011.8	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

In 2023, construction on the Ocean Commons began on the corner of Route 35 and Deal Road. The mixed-use development features 6 commercial spaces area, a hotel, and 70 luxury townhomes. Sand Hills, an industrial park at end of Sunset Avenue in west part of town, is being constructed.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Ocean Township continues to experience economic growth throughout the municipality, with commercial development primarily concentrated along its State Highway 35 corridor and industrial development in an area enclosed by Highway 18 to the west, Highway 35 to the east and the Seaview Square Shopping Center to the south. Portions of State Highway 35 fall under the FEMA 1% and 0.2% annual chance floodplain and regulatory floodway and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

An 11-unit apartment building on Monmouth Road has been approved. This will have an impact on drainage.

Ocean Township adopted a new Master Plan in 2023, and the plan has many planning highlights, including:

- Expanding the townships municipal facilities,
- Working alongside the state government to repair roads under state jurisdiction,
- Expanding the municipalities utilities network,
- Reclaiming appropriate township owned vacant land as open space, and
- Maintaining existing land use patterns.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Ocean Township has a total population of an estimated 27,733 people. Of Ocean's residents, an estimated 7.7% are under age 5, and 21.1% are over age 65. The Township experienced moderate population growth over the 2013-2017 and 2018-2022 ACS survey periods, with an estimated 2.7% increase. With an aging population making up over twenty percent of their total community, Ocean may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. A 2.7% population increase may be moderate yet may present impacts to the built environment that should be considered alongside pre-hazard communication and post-disaster response.

There are four block groups within the Township which meet criteria for overburden (OBC) according to the State of New Jersey; two for criteria of Minority communities, one for Low Income, and one for Low Income and Minority neighborhood characteristics. A single census tract is identified as potentially vulnerable for indicators of Workforce Development (CEJST). There are no parts of Ocean Township which are identified under CDRZ definitions.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	27,733
Population Change since 2017	2.7%
Percent of Population Age < 5	7.7%
Percent of Population > 65	21.1%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Township's hazard ranking. The full risk assessment is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
Storm Surge	Tornado	Earthquake
	Winter Storm	Wildfire
	Hurricane/ Tropical Storm	Landslide
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	
	Power Failure	
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Tornadoes remain a medium level of concern due to the straight-line winds experienced in 2021. Power failure has increased to a medium level of concern from a low due to major substation issues, which occasionally arise from equipment problems.

Significant Hazard Events Since Last Plan Update

During the week starting September 23, 2023, the area was impacted by a rain event brought by Tropical Storm Ophelia. This system, along with its remnants, caused a considerable amount of rain over the week. Despite the significant rainfall, the storm water management system managed the event with only minor difficulties. The remnants of Ophelia, combined with a low-pressure system developing along the Carolina Coast, created a substantial rain event affecting the Township and its surrounding communities. Between September 23 and September 28, approximately 3.25 inches of rain fell, while on September 29 alone, the Township experienced 7.9 inches. This resulted in notable flooding, particularly in West Deal, where many roads were shut down. Brookside Ave in Oakhurst saw unprecedented flooding, leading to the evacuation of four houses with assistance from local fire departments.

On May 13-14, 2023, heavy rain saturated the ground, causing Whalepond Brook at the West Long Branch border to flood and Popular Brook on Whalepond Road to overflow into the park, though it did not reach the roadway. The flooding receded as the rain stopped in the late morning.

On April 30, 2023, the Township experienced heavy flooding, with the east side receiving 5.2 inches of rain and the west side 7.8 inches. In December 2022 and January 2024, heavy rain events caused usual hot spots to flood but resulted in minimal or no property damage.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to increase the risks and hazards for Ocean Township. Rising global temperatures will likely lead to more frequent and severe hurricanes, nor'easters, and heavy rainfall, exacerbating flooding issues. Currently, 8.8% of the township lies within the 1% annual chance flood zone, which may experience even more frequent and severe flooding events. Additionally, stronger storms could cause greater storm surge, threatening coastal and low-lying areas.

Higher temperatures can also increase the risk of heatwaves, posing significant health risks to vulnerable populations, especially the elderly and young children. With 21.1% of residents over the age of 65, the township's aging population may be particularly susceptible to heat-related illnesses.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Ocean Township	
Initial FIRM Date	10/14/77
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	176
Total Losses:	269
Total Payments:	\$4,893,574.84
Number of RL Properties:	16
Number of Mitigated RL Properties:	0
RL – Total Losses:	37
RL – Total Paid:	\$791,555.80
Number of SRL Properties:	7
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	38
SRL – Total Paid:	\$1,211,648.60

Source: FEMA Policy and Loss Data, August 2024

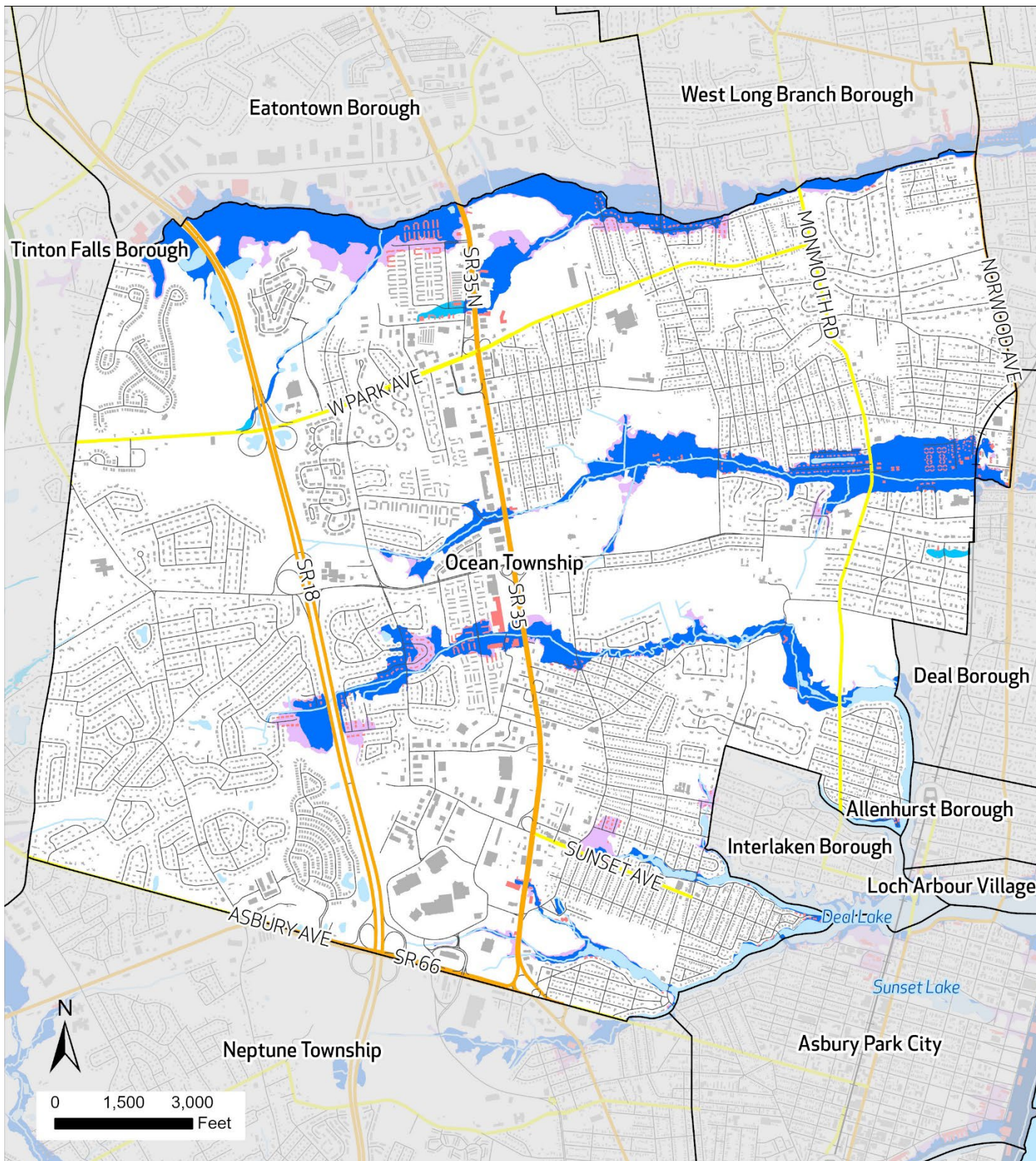
Vulnerability of the Built Environment

The Special Flood Hazard Area (SFHA) in the Township of Ocean is primarily located adjacent to the many streams which pass through town flowing into Deal Lake or the Atlantic Ocean. Approximately 8.8 percent of the total area of Ocean Township lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.9 percent of the area of the municipality is in the 0.2% annual chance flood zone. About 79.9 percent of Ocean Township is considered developed. Of the developed parcels of the town, 6.2 percent fall within the 1% annual chance flood zone and 1.4 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	6.2%	1.4%	NA
Exposed Land Area	8.8%	1.9%	NA

During the planning process, Ocean Township identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 50 total facilities. Of these facilities, four are located within the floodplain. These four facilities are categorized under the Water Systems community lifeline. Examples of Water Systems includes dams and pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	4	-	NA



Flood Risk Ocean Township

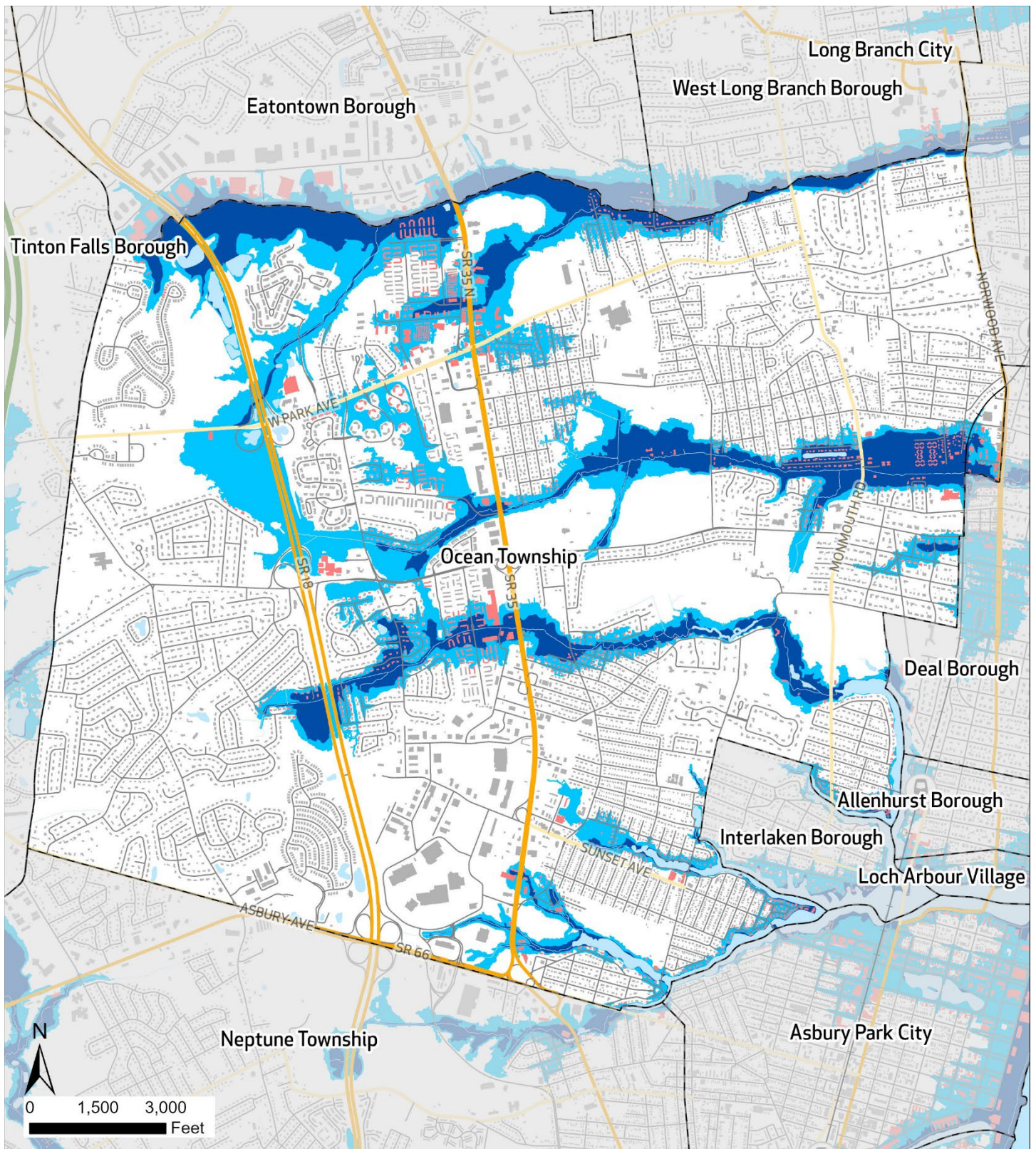
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Rail Lines
- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Ocean Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Railroad



NJ Transit Rail Station



Municipal Boundaries



Water

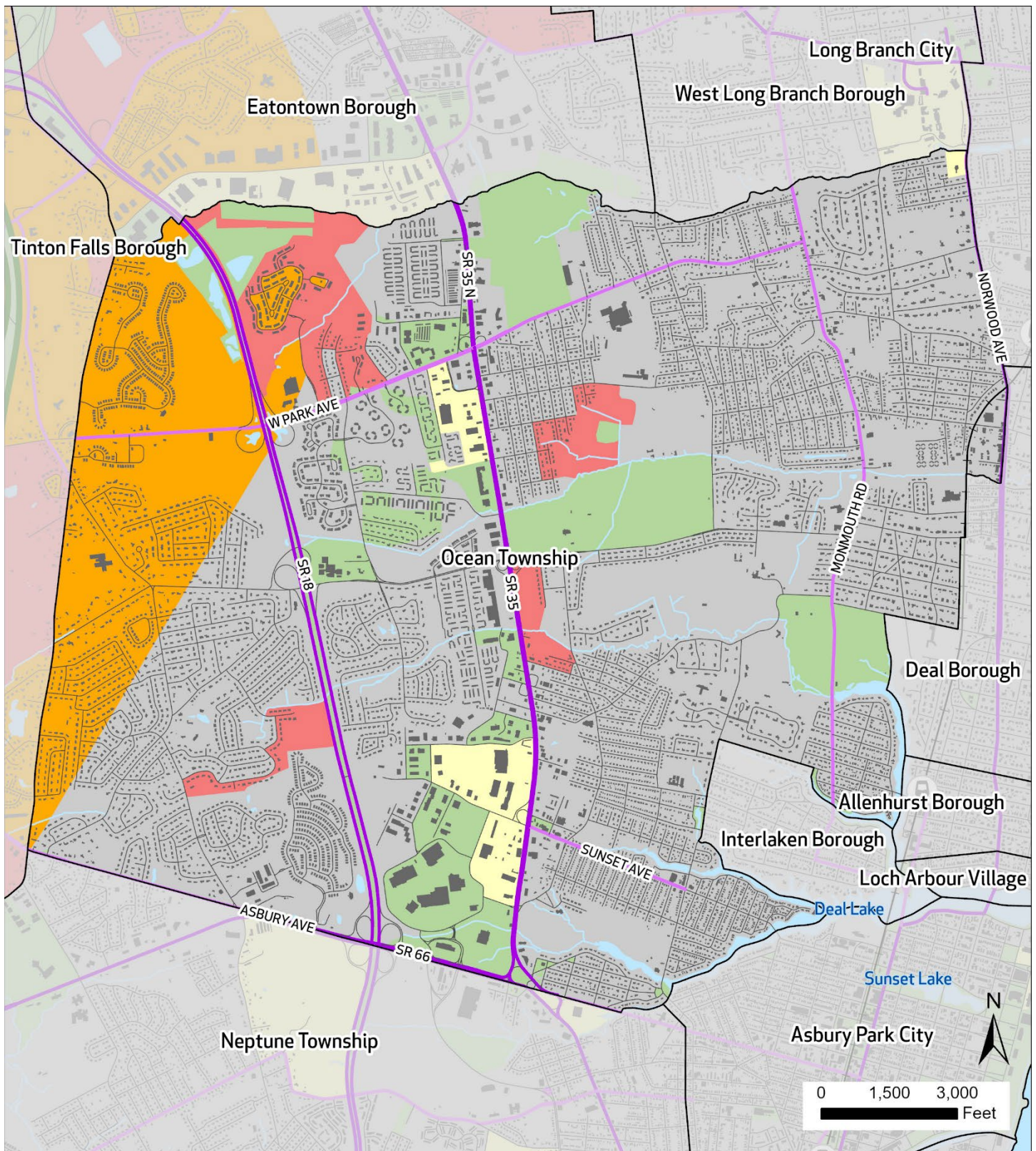


Building Footprints



Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJ Transit



Wildland Urban Interface (WUI) Classification Ocean Township

- | | |
|---|--|
| Interface | Garden State Parkway |
| Intermix | State Hwy |
| High or Medium Density Housing | Interstate Highways |
| Low or Very Low Density Housing | State Routes |
| No Housing | County Routes |
| | Local Roads |

- | |
|--|
| Rail Lines |
| NJ Transit Rail Station |
| Municipal Boundaries |
| Building Footprint |
| Water |

Source: USFS, NJDEP, NJOIT, NJ Transit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Ocean Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2023	
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2025	
Floodplain Development Ordinance	X		2022	
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		2024	Adopted higher standards
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response	X			Twp Engineer manages this
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X			Twp keeps hard copies in the Construction office
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		Community is experiencing development/redevelopment in both housing and commercial. This area does not have known exposure to natural hazards.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards	X			The Township is currently implementing a 5-year plan to clean the existing stream corridors as well as working with the Borough of Deal in an attempt to alleviate flooding in the community.

Administrative and Technical Capabilities

Ocean Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Twp Engineer from Avakian Engineering. In addition, he is supported by a person in his office who is a CFM.
Grant Writer	X		
Staff trained to support mitigation	X		Building Department, Community Development Department, Twp Engineer, Public Works
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Ocean Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Social media, website, Reverse 911, NIXLE, Community Events
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		Class 6

Financial Capabilities

Within the last five years, Ocean Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Ocean Township is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Township.
- **Community Rating System (CRS) Classification:** 6
- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township of Ocean (Monmouth County) is a sustainable community that actively integrates scientific evidence into proactive policymaking. Its objective is to enhance the Township's resilience to natural disasters and adapt to evolving climate concerns. Since 2020, the Township has been actively engaged in cleaning primary brooks and streams within its jurisdiction to improve stormwater runoff. Furthermore, various projects are currently in various stages of planning and implementation to further enhance stormwater management. As the frequency and severity of storms and other events continue to increase, the Township will prioritize projects that contribute to life safety, property conservation, and other essential objectives.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
38-1	Create a Detention Pond near Joe Palaia Park	An area needs to be created large enough to hold stormwater runoff during and after a severe storm and then the stormwater be released at a slower pace not to cause any flooding.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	N/A	N/A	N/A	N/A	N/A	Withdrawn	We were working with the Army Corp on this, and they withdrew from the project because they said it would not reduce flooding.
38-2	Create a Detention Pond for Whalepond Brook	An area needs to be created that is large enough to hold stormwater after a heavy storm and slowly release back into the proper detention system.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Medium	Monmouth County officials, OT Township Manager, DPW, and Engineer	Municipal budget	\$3M	1 year	Withdrawn	
38-3	Purchase and Install Generators for Other Critical Facilities	Acquire emergency generators for critical facilities, including the gym, high school, recreation center, and elementary school.	Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Low	Township Manager, School administration, DPW, and Engineer	FEMA HMA	\$150,000	1 year	Completed	
38-4	Purchase Joanna Ct. Property for Detention Pond	Acquire Repetitive Loss Property, demolish the property, and create detention pond to alleviate flooding along Poplar Brook.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Township	FEMA HMA	\$700,000	2 years	Withdrawn	Deemed no longer necessary.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
38-5	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Acquire 28 Repetitive Loss Properties to purchase, demolition, and maintain as open space or elevate the structure.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Township Manager, Police, DPW, Green Acres, County Open Space office and Engineer	FEMA HMA	\$12,600,000.00	1 year	Ongoing	Some were bought for Blue Acres. 8 properties purchased from 1/2017 – 11/2020 – Total purchase Price, \$2.645 M Keeping this action as ongoing in case new RL SRL properties get added to the list in the future.
38-6	Clean and Desnag Poplar Brook and Whalepond Brook	Dredge the length of both Poplar Brook and Whalepond Brook to remove all obstructions. Remove snagging and debris from floodway and dredging up to two feet of silt.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Township Manager, DPW, County Mosquito Commission and Engineer	Municipal budget	\$1M	5 years	Ongoing	A machine was purchased (\$100,866), but the Township needs easements. This is ongoing because of funding. This has been resolved and project now in progress.
38-7	Remove Sediment and Tree Debris Along the Arm of Deal Lake	Remove sediment and tree debris to create a clear channel for stormwater entering Deal Lake.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Low	Township Manager, DPW, NJDEP, Deal Lake Commission and Engineer	Municipal budget	\$5M	3 year	Ongoing	Working to identify funding.
38-8	Reconstruct Wetlands and Flood Attenuation Basins around Harvey Brook; Stabilize Stream Banks	Multi-phase project involving the construction of a regional wetland, flood attenuation basins, stabilization of stream bank, and coordinate with private property owner replacement of dam (new to this action).	Dam Failure, Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Medium	Township Manager, DPW, NJDEP, Deal Lake Commission and Engineer, Monmouth County	NJDEP Bureau of Dam Safety and Flood Control, EPA, NFWF, NOAA, NJCWRP, FWS	\$2.2M	3 year	Ongoing	Deal Lake Commission (DLC) has received funding from the State. Project is now progressing.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
38-9	Redesign the Existing Weir to Increase Storm Attenuation Capacity at Fireman Pond	Retrofit of existing weir so pond can function as a regional flood attenuation basin. Install MTD in road to control pollutant loading to lake.	Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Township Manager, DPW, NJDEP, Deal Lake Commission and Engineer	NFWF, FEMA HMA	\$400,000	1 year	Ongoing	Township has received necessary permits from the DEP. Project is now in progress.
38-10	Replace Existing Weir and Dredge and Reconfigure Existing Impoundment at Lollipop Pond	Replace existing weir, dredge, and reconfigure existing impoundment west of Chestnut Ave construct regional created wetland flood attenuation basin.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Township Manager, DPW, NJDEP, Deal Lake Commission and Engineer	NFWF grant application for planning/design submitted by DLC, may be possible to secure 319 grant	\$1M	1 year	Ongoing	Township has received necessary permits from the DEP. Project is now in progress.
38-11	Enlarge Culverts under Roadway and Railroad (Intersection of New Jersey Transit and Poplar Brook)	An area needs to be created large enough to hold stormwater runoff during and after a severe storm and then the stormwater be released at a slower pace not to cause any flooding.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Low	Township Manager, DPW, County Roads/Bridge Depts. and Engineer	Municipal budget, FEMA HMA	\$4M	3 years	Ongoing	May get the DOT involved.
38-12	Construct a Flood Wall along Poplar Brook	Build a flood wall along the rear properties of the houses on Brookside Ave. along the banks of the Poplar Brook.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Medium	Township Manager, Police, DPW, Green Acres, County Open Space office and Engineer	FEMA HMA	\$1.8M	2 years	Ongoing	Proposed by Twp Engineer. Funding not identified, and priority has been lowered.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
38-13	Enlarge Culverts under Roadway at Whalepond Road	An area needs to be created large enough to hold stormwater runoff during and after a severe storm and then the stormwater be released at a slower pace not to cause any flooding.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Low	Township Manager, DPW, County Roads/Bridge Depts. and Engineer	Municipal budget	\$1M	3 years	Ongoing	Primarily for Property Protection. Have to work with at least West Long Branch to accomplish this.
38-14	Target Harden Municipal Complex and Schools by Installing Surveillance Cameras, Panic Buttons, Metal Detectors, and/or Bulletproof Glass	The Municipal Complex and Township schools should be more secure from the public. The Municipal Complex could use panic buttons, bulletproof glass for staff that interact with the public daily, a new secure office layout, and metal detectors. The school c	Terrorism	Low	Township Council	Homeland Security grants	TBD	2 years	Ongoing	The Township will wait to see if the town hall gets replaced.
38-15	Enlarge culvert under railroad at Washington Avenue	An area needs to be created large enough to hold stormwater runoff during and after a severe storm and then the stormwater be released at a slower pace not to cause any flooding.	Flood, Nor'easter, Hurricane, and Tropical Storm, Storm Surge, Winter Storm	High	Township Council	FEMA	\$300,000	4 years	New	
38-16	Construction of additional drain pipe on Runyan Ave to increase drainage capability	The current drainage capability has been found to be insufficient. This will increase the capability in the neighborhood.	Flood, Nor'easter, Hurricane, and Tropical Storm, Storm Surge, Winter Storm	High	Township Council	FEMA	\$225,000	4 years	New	This project is necessary to address flooding issues in the Deal Park area of the Township. Increase severity of storms due to climate change and over-development makes this necessary.
38-17	Reconstruction of culvert on Logan Road in the area of the English Manor.	An area needs to be created large enough to hold stormwater runoff during and after a severe storm and then the stormwater be released at	Flood, Nor'easter, Hurricane, and Tropical Storm, Storm Surge, Winter Storm	Medium	Township Council	FEMA	\$300,000	4 years	New	This project is necessary to address flooding issues in the Wanamassa area of the Township. Increase severity of storms due to climate change make this necessary.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		a slower pace not to cause any flooding.								
38-18	Bank stabilization on Harvey Brook on Roseld Ave near Wickapecko Drive	An area along Roseld Ave needs to be addressed due to bank erosion that will soon cause issues with road stabilization.	Flood, Nor'easter, Hurricane, and Tropical Storm, Storm Surge,	High	Township Council	FEMA	\$500,000	4 years	New	

DRAFT

39 – OCEANPORT BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Buzz Baldanza	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
Donna Phelps	Business Administrator	Reviewed appendix
William White	Borough Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

Sited on and bound on three sides by tributaries of the Shrewsbury River, the Borough of Oceanport encompass approximately 3.10 square miles. Oceanport is a primarily single-family bayside community with special attractions like Fort Monmouth Residential and Commercial development and Monmouth Park Racetrack.

In 2012, Oceanport was awarded a Smart Growth Planning Grant from the Association of New Jersey Environmental Commissions to develop its first Environmental Resource Inventory, which was completed in 2014. A new Environmental Study being completed by Monmouth County will be done in 2025.

Land Use, Development, & Growth

Oceanport is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; during this period, urban or developed land accounted for nearly 67 percent of its total area, while water and wetlands together constituted nearly 30 percent of the Borough .

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	9.5	9.5	>0%
Barren Land	0.0	13.6	>0%
Forest	47.4	47.4	>0%
Urban	1775.8	1759.8	-1%
Water	608.1	611.6	1%
Wetlands	180.9	179.8	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Around the same time, it was announced that the Borough was awarded \$8.1 million in federal grants to reimburse 90 percent of the cost to replace its public works building and Borough Hall, which contained the Police Department. In December 2017 the Borough demolished the storm damaged municipal building and completed construction of new buildings at the former fort in 2020. Borough Hall falls within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

Fort Monmouth

In 2016, the Fort Monmouth Economic Revitalization Authority (FMERA) purchased 560 acres from the U.S. Army to accelerate a proactive approach in attracting developers and creating job growth in the County. In January 2017, Monmouth County opened the County Route 537 Extension through the Fort, connecting Highway 35 in Eatontown to Oceanport Avenue in Oceanport in a concerted effort to support further redevelopment of the former military base. Fort Monmouth, which is made up of over 1,000 acres, partially falls under the FEMA 1% and 0.2% annual chance floodplain, NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet, and the 5 feet SLR (Sea Level Rise) Low-Lying area zone (NJFloodmapper). Some of it also falls within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

In 2018, Oceanport saw the first redeveloped residential development at the fort to be offered to the public for purchase. Called East Gate, the 32 original buildings are part of the Fort Monmouth Historic District and are comprised of single-family homes, duplexes and townhomes constructed between 1929 and 1936. East Gate falls within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

In 2022, FMERA accepted the bid submitted by Netflix to redevelop the 144-acre (292) Mega Parcel, on which Netflix proposes to construct a state-of-the-art production facility consisting of 12 sound stages, ancillary production spaces and back lot operations its TV and movie projects. In 2024, Netflix gained zoning approval from FMERA allowing Netflix to now seek local approval from Oceanport and Eatontown. The Phase 1 has recently been given approval by the Oceanport Planning Board.

In January 2023, New Jersey City University confirmed its commitment to develop its Oceanport campus in the wake of discussions of a possible closing due to financial shortfalls. Approximately 200 students are currently enrolled at the campus, and the University is working with State and Federal officials to identify potential sources of funding to allow it to continue operations in Oceanport. This campus falls within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

Pulte Homes has 144, 2–4-bedroom units along Parkers Creek available. These fall within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper). The Borough has installed backflow preventers on outfall pipes (10 are done; another 20 to 30 to complete); dry flood proofing in Maple Place School, the Port-au-Peck firehouse, and the Oceanport First Aid Squad; and elevation of all but 29 RL/SL properties.

Maple Place School and Oceanport First Aid Squad fall under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Recently, Oceanport unveiled a sports complex with three astro turf fields at Gatta Park capable of fielding soccer, field hockey and lacrosse games on each field.

Additionally, Fort Monmouth redevelopment to include the 34 units at The Nurse Quarters area, Barkers Circle will have 75 residential units and a restaurant., and at Monmouth Park the construction of close to 300 one- to two-bedroom units, hotel and recreational areas.

Oceanport is working with Monmouth County to obtain federal funding for the replacement of the Oceanport Ave Bridge (E-13) which floods during high water situations.

As stated previously, portions of Fort Monmouth fall under the FEMA 1% and 0.2% annual chance floodplain, NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet, and the 5 feet SLR (Sea Level Rise) Low-Lying area zone, as well as FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent

the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Oceanport has a total estimated population of 6,119. Of this population, an estimated 5.4% are residents under age 5, and 24.4% are residents over age 65. Oceanport experienced growth of an estimated 6.2% of their population over the periods between 2013-2017 and 2018-2022. With an aging population making up nearly one quarter of their total community, Oceanport may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. A growth of over six percent during the previous two five-year survey periods indicates a rate of growth which may highlight potential local vulnerabilities related to shifts in the borough's built environment and a risk of additional hazard impacts.

There are no areas of Oceanport which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	6,119
Population Change since 2017	6.2%
Percent of Population Age < 5	5.4%
Percent of Population > 65	24.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
Storm Surge	Tornado	Earthquake
Hurricane/ Tropical Storm	Winter Storm	Wildfire
Wave Action	Coastal Erosion	Landslide
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Coastal erosion remains a medium level of concern. Branchport Creek is being dredged near Long Branch towards Pleasure Bay Bridge. Wave action has increased from a medium to a high level of concern due to the disturbance after Sandy. Economic disruption remains a medium level of concern, with intense rainfall causing the most disruption. The post office was disrupted during Hurricane Sandy. Terrorism is at a medium level of concern; the Monmouth Racetrack in Oceanport is a significant regional draw.

Significant Hazard Events Since Last Plan Update

Areas in the Borough that frequently experience roadway flooding include Monmouth Boulevard, Bridgewaters Drive, Oceanport Avenue Bridge, Pocono Avenue, Comanche Drive, Seneca Avenue near Branchport Creek, Port-au-Peck Avenue intersections with Wyandotte Avenue, Cayuga Avenue, Genessee Avenue, and the commercial area on Oceanport Avenue. Flooding events fill storm drains with dirt, which need to be cleaned out.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change poses significant risks to Oceanport. Rising temperatures will likely increase extreme weather events like hurricanes, nor'easters, and heavy rainfall, leading to more flooding, especially in areas like the Shrewsbury River. Oceanport's development in high-risk flood zones heightens its vulnerability. Projected sea level rise of up to 5 feet will likely inundate some of the communities developed areas entirely.

Additionally, climate change may cause longer, more intense heatwaves, straining infrastructure and endangering vulnerable populations such as the elderly. Extreme weather events could also disrupt economic activities and critical services, as evidenced by Hurricane Sandy's damage to municipal buildings and infrastructure.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Oceanport Borough	
Initial FIRM Date	2/16/77
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	554
Total Losses:	960
Total Payments:	\$61,181,449.59
Number of RL Properties:	28
Number of Mitigated RL Properties:	0
RL – Total Losses:	82
RL – Total Paid:	\$4,988,796.47
Number of SRL Properties:	5
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	23
SRL – Total Paid:	\$987,250.42

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

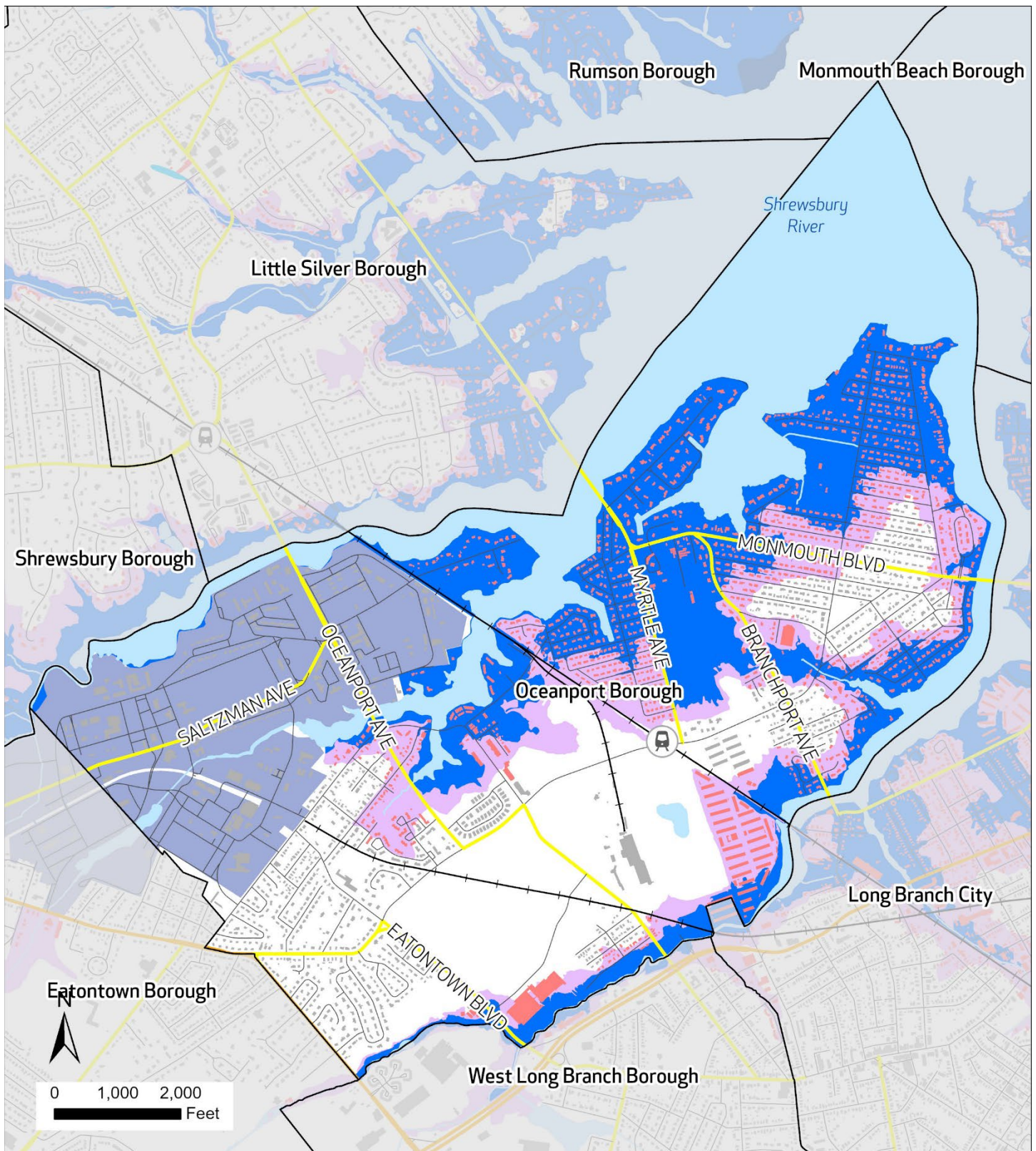
The Special Flood Hazard Area (SFHA) in the Borough of Oceanport is primarily located adjacent to the main waterbodies of the borough including the Shrewsbury River and its tributaries which pass through town. Approximately 44.1 percent of the total area of Oceanport lies within the 1% annual chance flood zone as defined by FEMA. An additional 11.9 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 81.4 percent of Oceanport is considered developed. Of the developed parcels of the town, 40.2 percent fall within the 1% annual chance flood zone and 16 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	40.2%	16.0%	37.7%
Exposed Land Area	44.1%	11.9%	35.6%

During the planning process, Oceanport identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 5 total facilities. Of these facilities, three are located within the floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Health and Medical	-	1	-
Safety and Security	1	1	-



Flood Risk Oceanport Borough

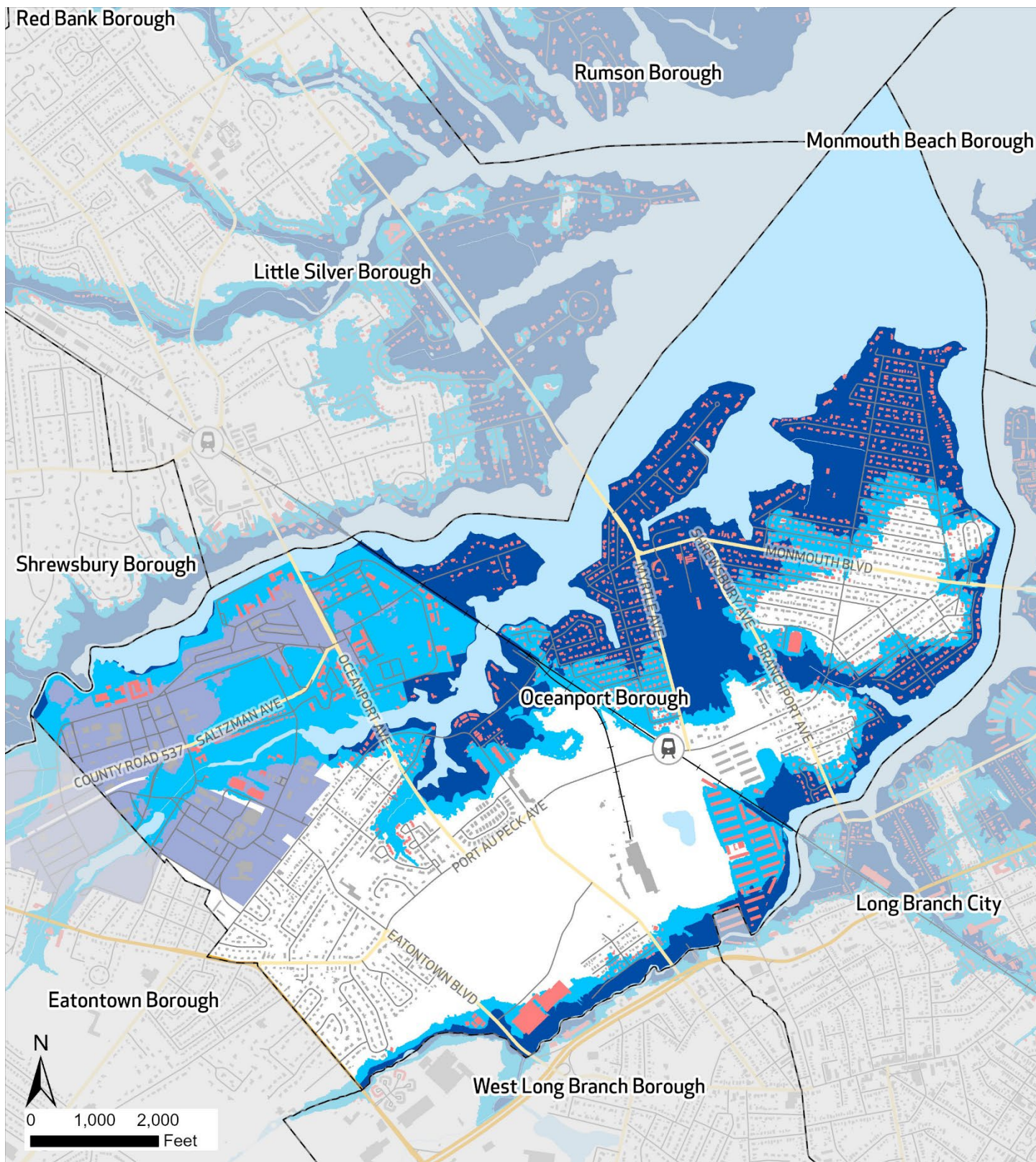
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Oceanport Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

🚆 NJ Transit Rail Station

▬ Municipal Boundaries

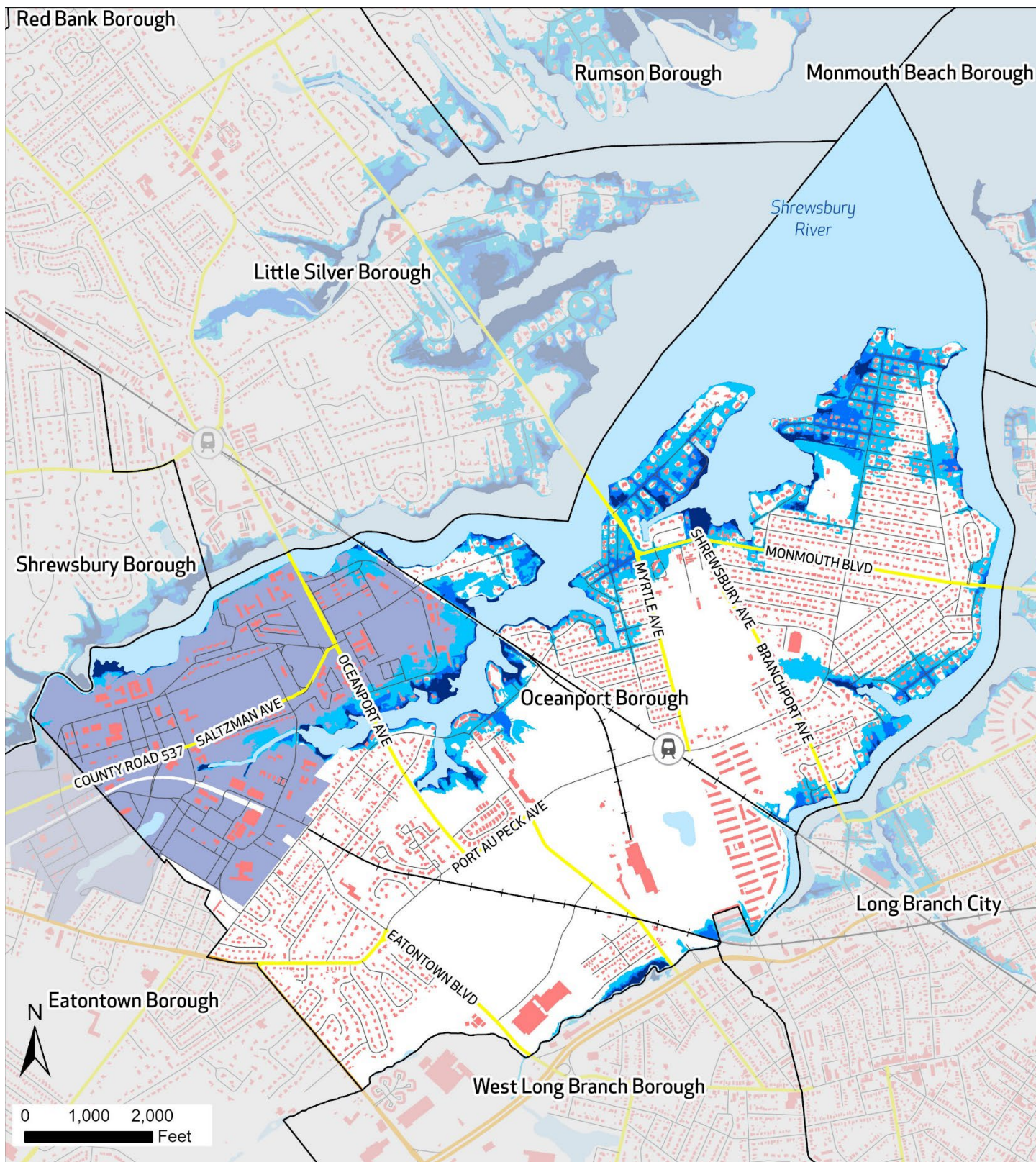
■ Water

■ Department of Defense
Land

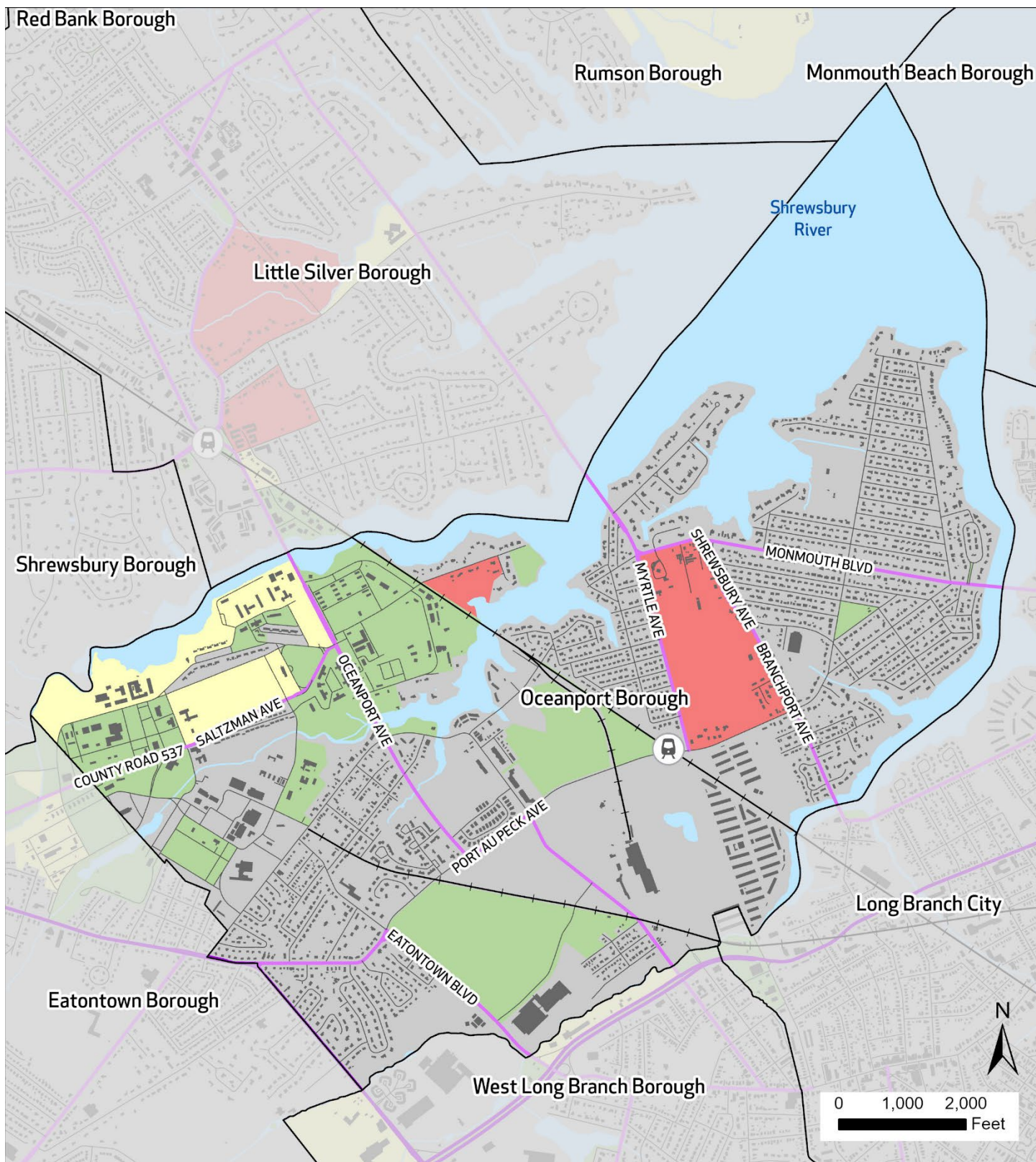
■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Oceanport Borough

- | | | |
|--|--|---|
| Intermix | State Routes | Municipal Boundaries |
| High or Medium Density Housing | County Routes | Building Footprint |
| Low or Very Low Density Housing | Local Roads | Water |
| No Housing | Rail Lines | |
| | NJ NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Oceanport Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		1974 with a 2012 Open Space and Recreation Plan and a 2020 Housing Element and Fair Share Plan	
Capital Improvement Plan	X		2023	Identifies Road and Drain Improvements
Local Emergency Operations Plan/Continuity of Operations Plan	X		5/2/23	
Floodplain Development Ordinance	X		2022	Flood Damage Prevention Chapter 229, 6-2-2022; Freeboard Plus 2 ft. See 229-12 for more info
Floodplain Management Plan	X			
Stormwater Management Ordinance	X		2024	Chapter 328 Stormwater Control, 6-20-2024 by Ord. 1034
Stormwater Management Plan	X		2009	
Watershed Management Plan		X		
Sheltering Plan	X			
Evacuation Plan	X			
Substantial Damage/Improved Structures Response	X			Permitting and Inspection. Recorded in Forerunner Program
Repetitive Loss Plan		X	2024	Data has been obtained and review in progress
Disaster Debris Management Plan	X		2023	New Location for vegetative Debris
Tracking elevation certificates and/or Letter of Map Change	X			Recorded in Forerunner Program
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			Fort Monmouth Development, Housing & Commercial – Exposed to Flooding Monmouth Park Racetrack, Housing & Commercial
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X	X		Leaf Compost Area
Other ordinance and regulation that mitigate the impacts of natural hazards	X			StormReady and SnowReady

Administrative and Technical Capabilities

Oceanport Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Consultant, William White, Colliers Engineering & Design, also serves as Borough Engineer; Carolyn Eckart, Technical Assistant, also has a CFM
Grant Writer	X		Donna Phelps, Borough Administrator
Staff trained to support mitigation	X		The hazard mitigation action implementation is presented by Department Head and approved by Council. Staff have been trained to support mitigation only to their present level of work.
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Presently using a FEMA BRIC grant; Intracounty mutual aid agreement
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		Monmouth University, Urban Coastal Institute

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations	X		Affordable Housing Alliance in Eatontown has a 12 Unit home in Oceanport. Lunch Break and Family Promise offers 11 programs to help guests achieve their goals and bring the community together.

Education and Outreach Capabilities

Oceanport Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		On Website, Facebook, Code Red, Outreach program in fall. Local website has information on reducing vulnerability to natural hazards, particularly flooding, cold weather guide, links to Ready.Gov and other programs.
StormReady	X		
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		Annual Outreach and posting on monthly bulletin

Financial Capabilities

Within the last five years, Oceanport Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC	X		
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		NJDEP Stormwater grant. Purchased Tablet with GPS unit for mapping of stormwater elements.
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Present to Council who makes final determination.
Other ongoing efforts to build additional financial capabilities	X		This would be mostly likely be done during Capital Funding period.

Additional Capability Assessment Information:

- Oceanport is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System (CRS) Classification: 8**
- **Sustainable Jersey Participation Status: Bronze**

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Oceanport actively works to include best practices with proactive policies and careful planning to improve Oceanport resilience to damage from natural disasters and adapt to future climate concerns. Since our last plan submission, the Borough has completed the relocation of Borough Hall, Police Department and Public Works on to Fort Monmouth, addressed generators in critical facilities, continued improvements to our stormwater system and street curbing, all which further support the municipality's resiliency goals. Moving forward, Oceanport will remain forward thinking and prioritize home, roadway elevation and continued upgrades to stormwater conveyance systems while coordinating with state, local agencies and non-governmental organizations/other partners on the best ways to achieve resiliency within our vulnerable community.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
39-01	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	Low	Borough	Municipal funding		3 years	Withdrawn	This action is being withdrawn, as the Borough has not been experiencing landslides.

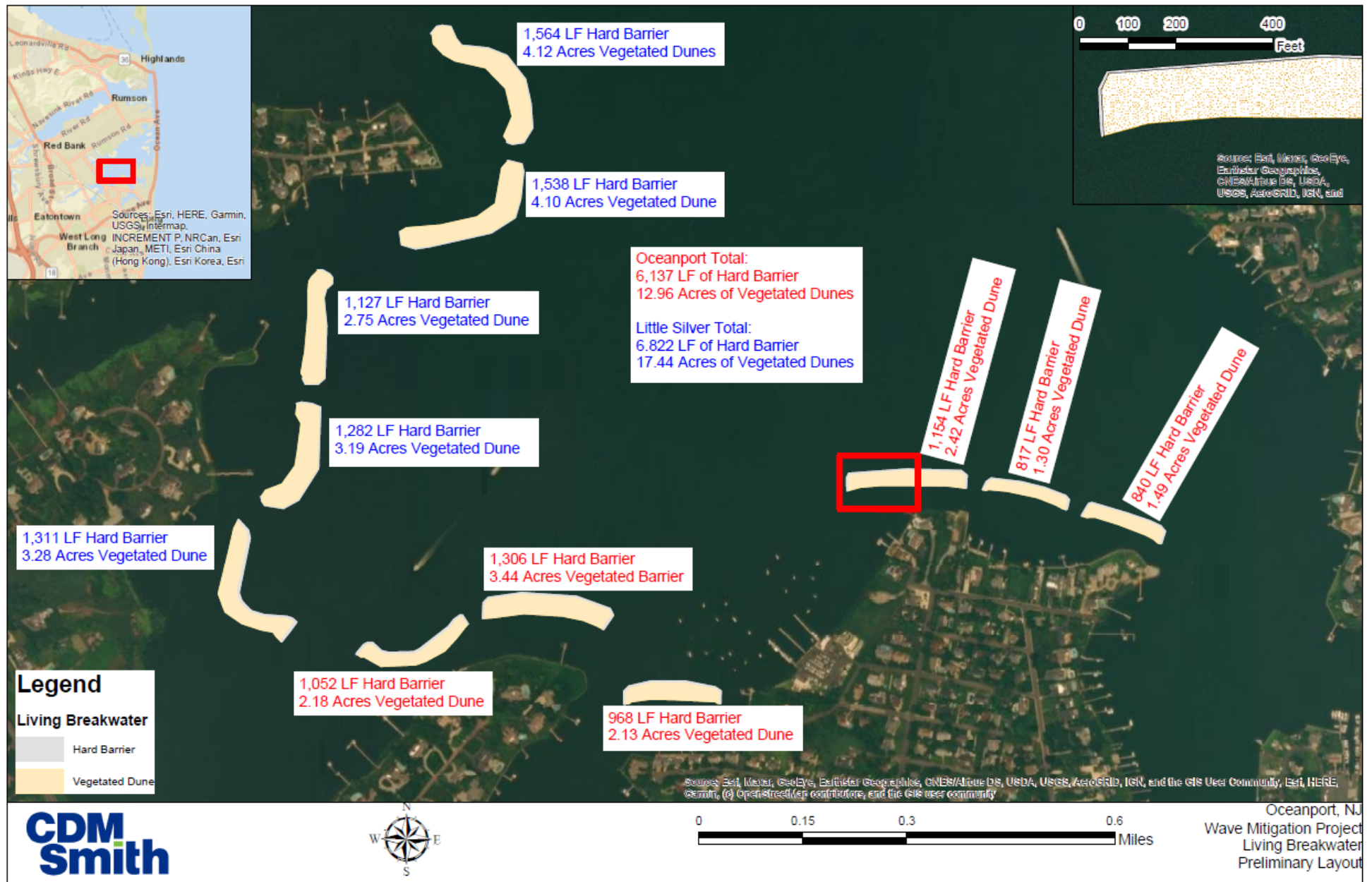
New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
39-02	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate 29 structures that had been flooded or are in danger of being flooded, specifically RL/SRL properties.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Council	FEMA HMA funding	\$49M	1 year	Ongoing	100+ structures were elevated within the last five years; there are 29 to go.
39-03	Purchase and Install Emergency Generators for Critical Facilities	Two emergency generators at both schools in Borough used to supported emergency operations during severe weather events.	All Hazards	Low	Council, BOE, and Engineering	FEMA funding	\$450,000	1 year	Ongoing	Old Warf House (community/senior center) needs an emergency generator. It also seeks to build a utility room and move the utilities upstairs. The schools installed a hookup for generators, which they lease. Hook & Ladder Company received a donated generator. DPW

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
										has a generator, as does Boro hall and the PD
39-04	Examine Existing Stormwater Drainage System (Phase 1 of 2)	Examination of present system to determine improvements needed. Video and actual physical examination of system to seek out problems and needed improvements.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Engineering	FEMA HMA, municipal budget, NJDEP	\$150,000	1 year	Ongoing	Using a \$25,000 NJDEP grant, an iPad and GPS unit were purchased. Recently completed are Esri mapping, a new system between the state and Borough, and examination of the flow of storm drains to outfalls. The estimated cost was \$4,000. Also needed is video of the lines, including 650 drains and 70 outfalls.. This will cost about \$3,500 per day and come from the municipal budget or grant funding. A consultant was hired for Fort Monmouth.
39-05	Implement Improvements to Stormwater Drainage System (Phase 2 of 2)	Repairs and improvements to storm drain system to include backflow preventers on 40 outfalls.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Engineering	FEMA HMA, municipal budget, State transportation fund	\$9M (in total)	1 year	Ongoing	10 backflows were installed, and about 30 more are needed. These primarily help with nor'easter flooding. The system will be able to handle a 10 to 25-year rain event.
39-06	Protect and Restore Turtle Mill Brook	Remove Snagging and Debris from the floodway of Turtle Mill Brook.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Engineering	Municipal budget	\$1M	1 year	Ongoing	Parts of the brook are the Corp boundary lines for West Long Branch and Oceanport
39-07	Elevate and Improve Flood-prone Roadways	Elevation of roadways, and grading and curbing of flood-prone streets.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Engineering	FEMA HMA, State transportation fund, county budget, municipal budget	\$3M	5 + years	Ongoing	Certain areas have been repaved, and new drains have been installed using NJDOT Municipal Aid Funding

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
39-08	Coordinate with Army Corp on Installing a Moveable Flood Gate	The mouth of the Shrewsbury River needs a physical barrier with a movable flood gate to prevent water from coming into the Bay.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Army Corp of Engineers	Army Corp of Engineers	\$500M	5 + years	Ongoing	
39-09	Construct Gates on Bridges to Prevent Residents from Re-Entering Borough Post Storm	The Borough needs gates on four bridges (Branchport Ave. Bridge, Gooseneck Bridge, Pleasure Bay Bridge and Oceanport Ave. Bridge by Parkers Creek (Border with Little Silver) to restrict people from re-entering the Borough when it's unsafe after a major flood event.	All Hazards	Low	Monmouth County and Borough	Municipal budget	\$400,000	2 year	Ongoing	
39-10	Dry Floodproof Certain Critical Facilities	Dry floodproof Maple Place School, Port-Au-Peck Firehouse, and Oceanport First Aid. Maple Place School can flood from Branchport Creek, especially in the event of a Category 1 storm. The firehouse and first aid flood from Oceanport Creek.	Flood, Nor'easter, Hurricane and Tropical Storm,	Medium	Oceanport Borough		\$100,000	5 + years	New	
39-11	Install Living Breakwaters	Install a series of Living Breakwaters that would be positioned in the Shrewsbury River, east of the Gooseneck Bridge on both the Oceanport and Little Silver side. This would include 6,137 LF of hard barrier and 12.96 acres of vegetated dunes in Oceanport.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Oceanport, Rumson, Monmouth Beach, Little Silver Long Branch	FEMA HMA	See Notes	2 years	New	Rip-Rap and Armor Stone: \$35.9M Oyster Rings: \$5.4M ExoForms: \$3M Oyster Castles: \$1.5M
39-12	Replace and Elevate Oceanport Ave. Bridge	Elevate the road to avoid flooding during the 25-year storm event. Will require detour during construction.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Monmouth County	FEMA HMA	\$8M	3 years	New	This would be a joint project with Monmouth County since they own the bridge

Action 39-11 Preliminary Layout



40 – RED BANK BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Thomas J. Welsh	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
D. Haviland	Deputy OEM Coordinator	Point of Contact, Municipal Workshop #1
Shawna Ebanks	Planning Officer	Reviewed appendix
Mike Rieser	Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

The Borough of Red Bank is a popular year-round destination with a thriving fine and performing arts district, a vibrant downtown, and an eclectic dining culture. Located along the southern bank of the Navesink River, Red Bank has an area of 1.75 square miles. Several Areas of Red Bank are vulnerable to flooding with 13% of the whole municipality having greater than a 26% chance of being severely affected by flooding over the next 30 years.

Red Bank established its Red Bank Environmental Commission in 1990 to advise the mayor on environmental topics including but, not limited to, open space, parks, energy conservation, storm water management, etc. In 2017 expanded the commission to include a Green Team to help continue collaboration with Borough government.

In 2023 the Red Bank Planning Board applied to the New Jersey Department of Environmental Protection Green Acres Program for over \$1.1 million dollars in improvements to Count Basie Park including bleacher upgrades. NJDEP will announce the list of funded projects in July of 2024.

Land Use, Development, & Growth

In Red Bank, residential, publicly owned and commercial land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 76 percent of the town's total area, while forested land accounted for 2 percent each. From 2015 to 2020, the Borough experienced minimal changes in its land use.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	5.6	6.0	7%
Forest	24.8	23.4	-6%
Urban	1051.7	1052.9	>0%
Water	272.7	272.6	>0%
Wetlands	28.0	28.0	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Several mixed-use and multifamily development projects have been constructed in Red Bank over the past couple of decades. These projects include the Rail at Red Bank which opened in 2023 and the 10-unit multifamily structure called Shrewsbury Manor at Riverside Avenue and Allen Place. Red Bank is home to an established and vibrant performing and visual arts community. In 2021 the Count Basie Center for the Arts completed an expansion to create an arts,

entertainment, and education campus spanning a full block along Monmouth Street. Red Bank remains one of the largest cultural hubs in the County. Other arts organizations located here include the recently expanded Two River Theatre, the Art Alliance of Monmouth County, and the county's official arts agency, Monmouth Arts.

A 212-unit mixed-use facility at 176 Riverside Avenue developed by Saxum Real Estate is under construction, as is a 20-unit mixed-used facility at 170 Monmouth Street called the Standard, a 10-unit multifamily structure at 16-22 West Front Street called Southbank at Navesink, a 10-unit mixed-use building at 96-98 West Front Street called Rivermark, a 40-unit multifamily structure at 19-29 Mechanic Street called One Globe Court, a 14-unit multifamily structure called Azalea Gardens at 36 Harding Road and a 32-unit mixed-use development called Park Valley Monmouth.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In January of 2023, the Borough Planning Board adopted a new Master Plan, which states that Red Bank's vision is to "continue to evolve as a diverse, inclusive, and vibrant place for people of all ages and walks of life to call home as well as visit, embracing creativity and innovation while treasuring the elements that make it such a special and attractive community." Red Bank plans to achieve this vision by ensuring the Borough is "Connected," "Balanced," "Equitable" and "Prepared." Recommendations in the Master Plan include preserving residential buffers, improving existing pedestrian infrastructure, providing a diverse range of housing options, and promoting historical tourism.

Recent developments that have been approved by the Borough include a 45-unit mixed-used facility at 121 Monmouth Street, a 33-unit multifamily building called Thrive RB at 273 Shrewsbury Avenue, and a 20-unit mixed-used facility at 72 Bridge Avenue.

In December 2024, developer Denholtz Properties released its plan for the redevelopment of a number of blocks surrounding the Red Bank New Jersey Transit rail station. The plans include two six-story apartment buildings between Monmouth and Chestnut Streets. Each building would have ground-floor retail space and a parking garage for resident and public use. The plans also include a five-story apartment building between Chestnut and Leonard Streets on an area that now includes parking lots, a rail yard and a retention basin. This ground floor would also be retail space with a parking garage at its center. Altogether, there will be no more than 400 apartments with 20% of them being affordable housing. Denholtz Properties is planning for a "station square". Lastly, there are plans for two new public streets, one running from Chestnut Street to Leonard Street and another wending roughly parallel to the train tracks from Monmouth Street to Chestnut Street.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Red Bank Borough has a total estimated population of 12,868. Of Red Bank's residents, nearly 6.0% are estimated to be under age 5, and nearly 21% are over age 65. The Borough saw an estimated 5.3% increase in their population over the periods between 2013-2017 and 2018-2022. With an aging population making up over twenty percent of their total community, Red Bank may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility.

post-disaster. A population growth of over five percent between two recent survey periods may highlight potential local vulnerabilities related to shifts in the local built environment (see ongoing mixed-use and residential development plans, above) and a risk of densification with further hazard impacts.

Within the Borough, five block groups are identified as potentially vulnerable due to overburden (OBC); one due to *Low Income* community vulnerabilities, two due to *Low Income and Minority* overburden, two due to *Minority* overburden, and one due to *Low Income, Minority, and Limited English* OBC criteria. There is one census tract identified as potentially vulnerable according to CEJST definitions involving *Housing, Water and Wastewater, and Workforce Development* criteria. There are no areas of the Borough which have been identified under CDRZ definitions.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	12,868
Population Change since 2017	5.3%
Percent of Population Age < 5	6.0%
Percent of Population > 65	20.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
	Hurricane/ Tropical Storm	Coastal Erosion
	Tornado	Earthquake
	Winter Storm	Wildfire
	Landslide	Wave Action
	Storm Surge	Lightning
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Power Failure	

Hazard Ranking Explanation

Extreme winds remain a medium level of concern; there is one area where high-wind destruction tends to occur. Nor'easters are a high level of concern; a rain burst came through in January 2022. Straight-line winds affected Red Bank in Spring 2021. Coastal erosion remains a concern in a couple of areas. Landslides have risen from not applicable to a medium level of concern, with two incidents occurring in recent years – one at Tower Hill and one at Williams Street. Power failures have also increased from a low to a medium level of concern due to wind, rain, snow, downed trees, and outdated equipment.

Significant Hazard Events Since Last Plan Update

The primary hazard events since the last plan update have been related to flooding. In June 2024, the Borough experienced flash flooding. In December 2023, a storm caused significant flooding. Water Street, part of Route 35, has flooded multiple times since 2021. Locations that frequently flood with high tides include the parking lot of 100 Chapin Avenue, a nursing home; the primary school at 222 River Street; the marinas on Locust Avenue and by Riverview Medical Center; and Madison Avenue and South Street.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is anticipated to significantly affect the risks and hazards faced by the Borough of Red Bank. As global temperatures continue to rise, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and heavy rainfall are expected to increase. This will exacerbate flooding, particularly in areas already susceptible to such events, such as the Navesink River and its tributaries, which encompass a significant portion of Red Bank. The borough's extensive development within the 1% and 0.2% annual chance flood zones indicates that a considerable portion of its built environment is at heightened risk. Additionally, sea level rise, projected to reach up to 5 feet, will further increase the vulnerability of coastal and low-lying areas, leading to more frequent and severe flooding events.

Furthermore, climate change is expected to result in more intense and prolonged heatwaves, which can strain local infrastructure and pose health risks, especially to vulnerable populations such as the elderly. The increased occurrence of extreme weather events will likely disrupt economic activities and critical services, as exemplified by Hurricane Sandy, which caused significant damage to municipal buildings and infrastructure.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Red Bank Borough	
Initial FIRM Date	5/19/81
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	41
Total Losses:	35
Total Payments:	\$4,861,798.32
Number of RL Properties:	3
Number of Mitigated RL Properties:	0
RL – Total Losses:	8
RL – Total Paid:	\$1,487,368.59
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

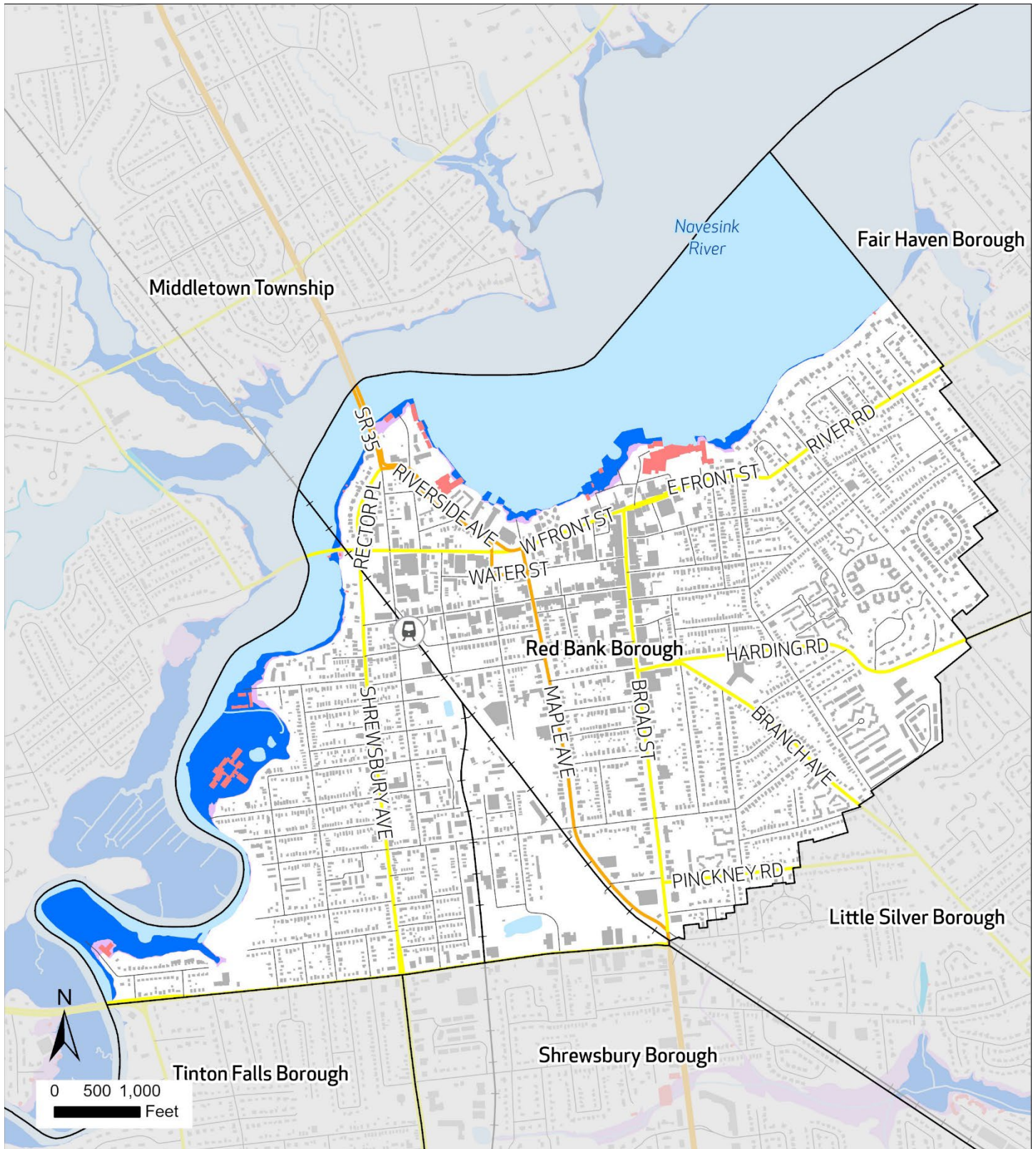
The Special Flood Hazard Area (SFHA) in the Borough of Red Bank is primarily located adjacent to the main waterbody of the borough, the Navesink River. Approximately 5.1 percent of the total land area of Red Bank lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.6 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 93.8 percent of Red Bank is considered developed. Of the developed parcels of the town, 3.3 percent fall within the 1% annual chance flood zone and 0.6 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	Five Feet Sea Level Rise
Developed Parcels	3.3%	0.6%	4.7%
Exposed Land Area	5.1%	0.6%	4.0%

During the planning process, Red Bank identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 24 total facilities. Of these facilities, two are within the floodplain. The facilities are categorized under the Safety and Security community lifeline type. Examples of Safety and Security lifelines include police stations and other government services.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	2	-	-




Flood Risk

Red Bank Borough

FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines
- 
 NJ Transit Rail Station

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Red Bank Borough

FEMA Flood Zone

 Current Base Flood Elevation (1%)

NJ Inland Design Flood Elevation

 FEMA BFE (1%) plus 3 Feet

 State Routes

 County Routes

 Local Roads

 Railroad

 NJ Transit Rail Station

 Municipal Boundaries

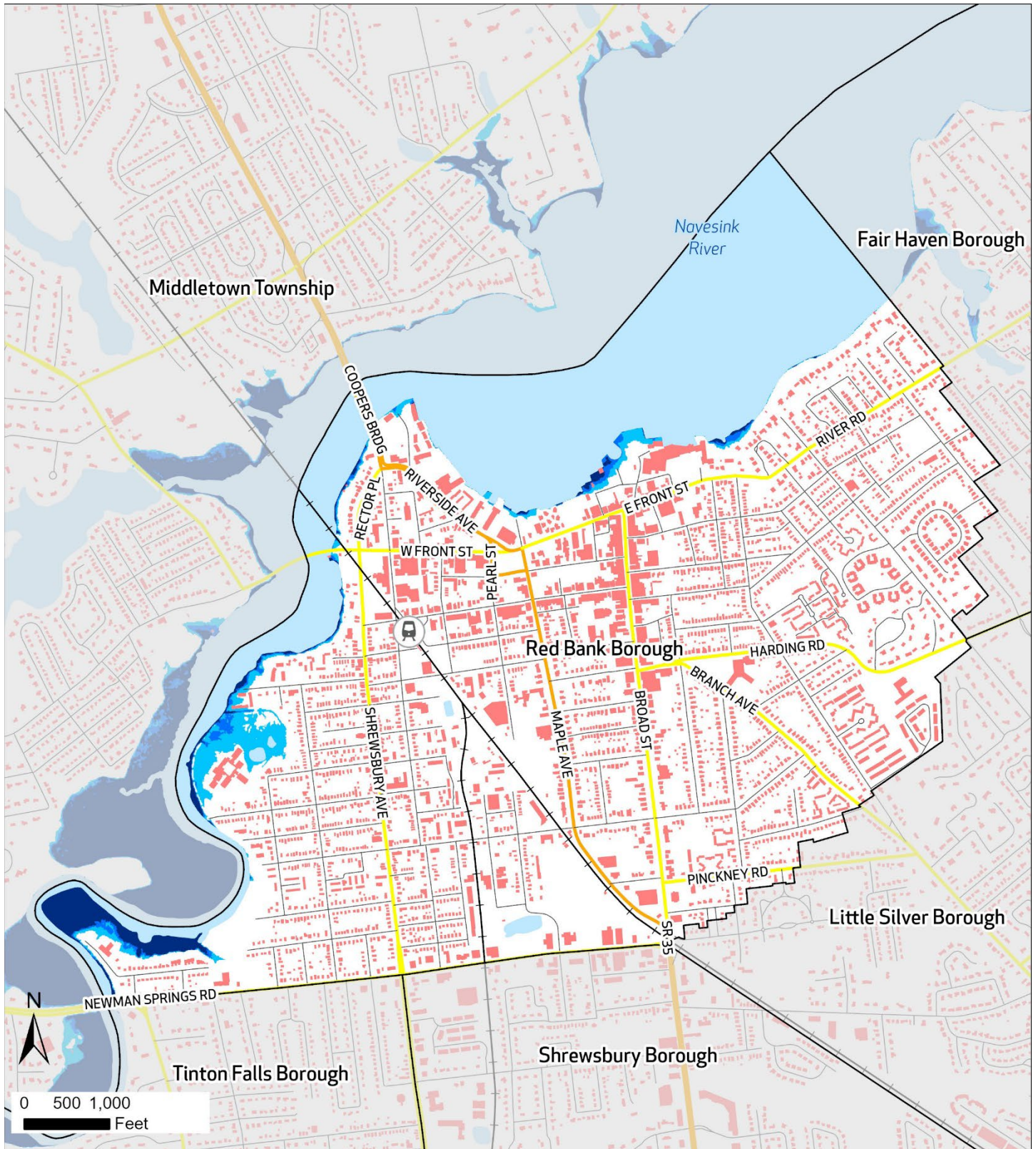
 Water

 Department of Defense Land

 Building Footprints

 Building Footprints within IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



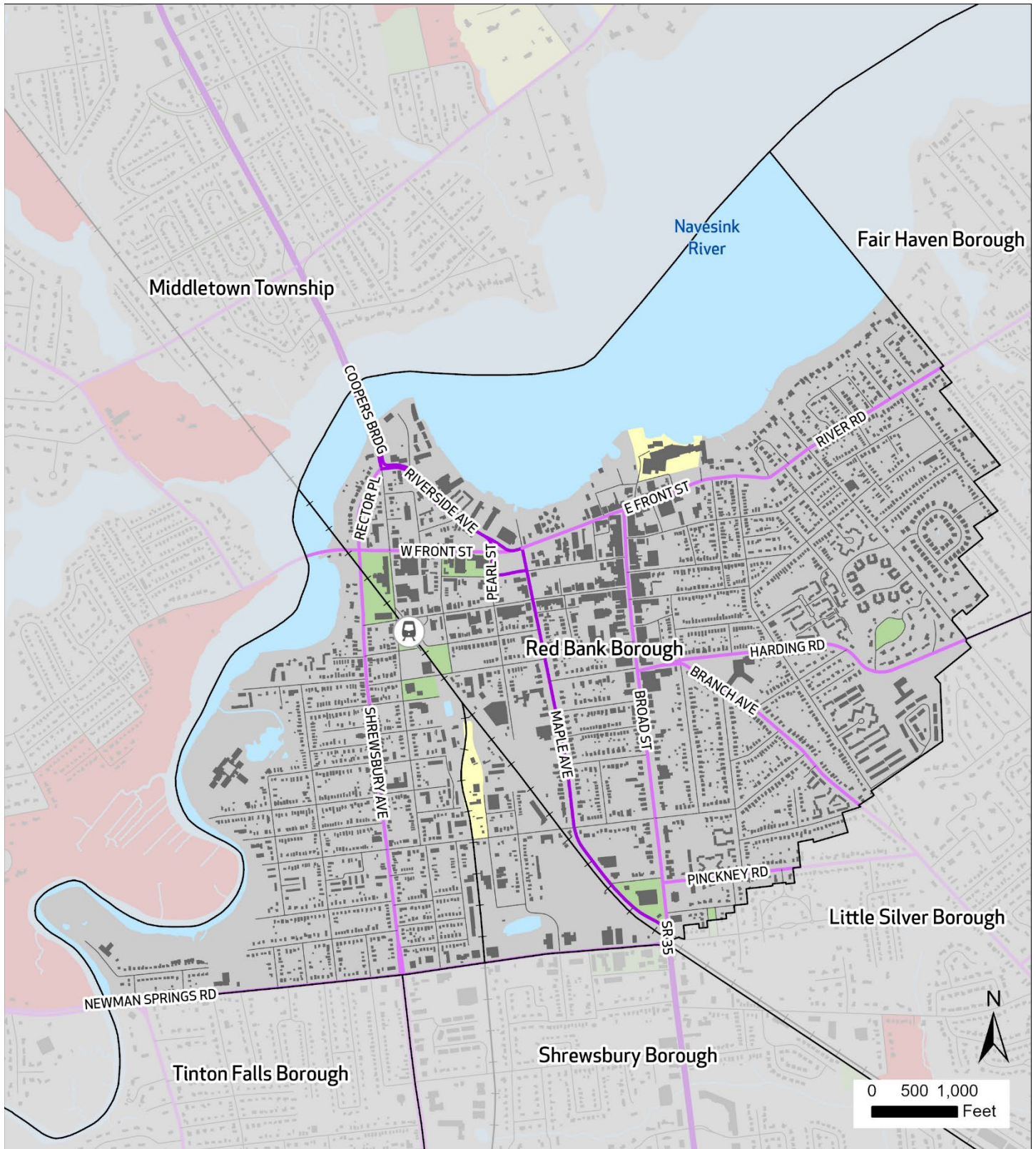
**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Red Bank Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification
Red Bank Borough

- | | | |
|--|--|---|
| Intermix | State Routes | Municipal Boundaries |
| High or Medium Density Housing | County Routes | Building Footprint |
| Low or Very Low Density Housing | Local Roads | Water |
| No Housing | Rail Lines | |
| | NJ NJ Transit Rail Station | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Red Bank Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2023	
Capital Improvement Plan	X		1/11/2024	Budgets funding for capital improvements that
Local Emergency Operations Plan/Continuity of Operations Plan	X			
Floodplain Development Ordinance	X		6/8/2022	Promotes 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
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		7/11/2024	
Stormwater Management Plan			6/4/2007	Outlines the Borough's approach to address the impacts from stormwater issues associated with future development, redevelopment and land use changes.
Watershed Management Plan		X		Watershed Improvement Plan – Phase I to be adopted by 1/1/26
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Red Bank Marine Park Plan (2019) Areas in Need of Rehabilitation Map Impervious Cover Reduction Action Plan for Red Bank (2017) Tree Management Plan (2016-2020) NJ FRAMES
Other ordinance and regulation that mitigate the impacts of natural hazards	X			Tree Removal Ordinance (2024)

Administrative and Technical Capabilities

Red Bank Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		
Grant Writer	X		Millennium Strategies
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners		X	

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Red Bank Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Borough website has a Hazard Mitigation Planning and Emergency Management webpage with Register Ready information and several forms for residents.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Red Bank Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Silver

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Red Bank is going through multiple development projects regarding residential and commercial construction. Critical infrastructure including Borough facilities are being addressed by the Engineer as these projects are proposed and approved. Over the next 5 years Red Bank anticipates the area at marine park will be transformed into a space on the river that is pedestrian and more family useable once the parking is removed from that area. Grading and hardscape will further address any flood prone areas. The Borough of Red Bank is looking forward to completing a plan for the use of the Senior Center at 90 Shrewsbury Ave. as a temporary shelter if needed.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
No actions were completed or withdrawn since the last plan update.										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
40-1	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	At the discretion of facility owners, encourage mitigation activities for at-risk properties, specifically Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties, including: (a) removal of existing structures from flood hazard areas; (b) elevate	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	The borough needs to identify the position title of a party responsible for moving forward with this activity.	FEMA HMA	TBD	5 + years	Ongoing	
40-2	Implement Stormwater Management Maintenance Plan	Perform regular sediment and debris clearance to help ensure that the system is kept unimpaired and therefore functioning properly.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	DPW	Municipal budget	\$150,000	1 year	Ongoing	
40-3	Evaluate Water and Sewer Infrastructure and Make Improvements as Needed	Maintain inadequate and decomposing materials and increase capacity where applicable.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	DPW	Municipal budget	\$10M	1 year	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
40-4	Coordinate with Red Bank Primary School on Flood Mitigation Strategies	Work with the Board of Education on coming up with a plan to addressing the flooding issues. Examples of mitigation can include flood proofing or elevations.	All Hazards	Medium	Board of Education, Borough	Municipal budget	Staff time	2 years	Ongoing	There is ongoing coordination but not regarding flood mitigation.
40-5	Coordinate with Chapin Hill Nursing Home on Mitigation Strategies to Address Flooding, including partnering with the Salvation Army	Coordinate with the Chapin Hill Nursing Home (100 Chapin Ave.) to mitigate the facility's flooding issue. During Hurricane Irene, the Borough coordinated with the Nursing Home and the Salvation Army to partner together for evacuations and shelters.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Hackensack Meridian Health, Borough	Municipal budget	Staff time	5 + years	Ongoing	There is a formal agreement between Chapin Hill and the Salvation Army on recovery.
40-6	Implement Impervious Cover Reduction Action Plan	Implement green infrastructure practices listed in Rutgers' Impervious Cover Reduction Action Plan for Red Bank (2017).	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	Medium	Borough of Red Bank	Municipal budget	TBD	5 + years	Ongoing	Recently, a development with green infrastructures was approved.
40-7	Establish a Tree Trimming Program and Create a Wind Shield Survey	Through the Borough's existing Shade Tree Committee, establish a tree trimming program and create a Wind Shield Survey for public inventory.	Extreme Wind, Lightning, Nor'easter, Hurricane and Tropical Storm, Wildfire, Tornado	Medium	Shade Tree Committee, Borough Administrator, DPW	Municipal budget	Staff time	5 + years	Ongoing	A tree trimming program was established, and a new tree trimming truck was acquired. On an ongoing basis, a survey of the borough is done to see what might need trimmed soon.
40-8	Construct Flood Measure (e.g. floodwalls or bulkhead) along the Navesink River	Construct Flood Measure (e.g., floodwalls or bulkhead) along the Navesink River, which causes repetitive flooding to critical facilities.	Flood, Lightning, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough	FEMA HMA	TBD	3 years	Ongoing	Marino Park

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
40-9	Move mechanics from water treatment plant.	DPW Garage is at the treatment plant currently							New	<i>Need more information here Tommy</i>

DRAFT

41 – ROOSEVELT BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Claire Burkhart	OEM Coordinator	Municipal meeting 11/07/2024, Point of Contact
Kathleen Hart	Borough Clerk	Email
Ana Debevec	Borough Treasurer	Email

COMMUNITY PROFILE

Overview

Located in the county's Panhandle region and nestled between Upper Freehold and Millstone, the Borough of Roosevelt has a land area of 1.93 square miles. Created as a new town from vacant farmland, the origins of Roosevelt's physical design can be traced to concepts of Ebenezer Howard's early 20th century Garden City Movement.

The borough's residential neighborhoods are characterized by integrated community parks surrounded by a green belt of farmland and conservation areas. As the borough approaches full build-out, current land use issues focus on conservation and redevelopment. Much of the borough's greenbelt has been preserved through state or municipal ownership, or through conservation easements.

Land Use, Development, & Growth

Roosevelt is home to substantial publicly owned and residential land, as well as several parcels of wetlands, forested land and farmland. As a result, there is no predominant land use in the Borough; wetlands constitute 33 percent of its area, while forested land, urban land and agricultural land account for 28 percent, 20 percent, and 19 percent respectively of its total area. From 2015 to 2020, the Roosevelt did not experience any significant change in its land use.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	240.0	238.4	-1%
Barren Land	4.2	4.1	-2%
Forest	346.5	349.7	1%
Urban	245.3	243.7	-1%
Water	5.4	5.4	>0%
Wetlands	405.4	405.4	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None identified.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

According to the county's 2011 Panhandle Region Plan, Roosevelt's municipal vision includes continued preservation of its open space and the green belt surrounding the Borough, protection of the borough's historic character, and encouraging community retail uses in the borough's core. The goals of its master plan were designed to support the historic community planning principles upon which Roosevelt was designed and established. Rather than serving as a separate element, historic preservation is integrated into the planning elements of the borough's master plan. Planning issues are inextricably linked to the borough's historic character. A key recent concern is the cost of maintaining Roosevelt's water and sewer infrastructure. While the Borough does not plan to expand its existing public water and sewer network, the original water system, which is still in place, is due for significant maintenance and/or replacement. The Borough is seeking funding sources for much needed roadways and other municipal infrastructure improvements.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

There are an estimated 1,037 residents of the Borough of Roosevelt, of which an estimated 10% are under age 5 and 17.5% are over age 65. The Borough experienced a large population growth (up from an estimated 808 residents) over the periods between 2013-2017 and 2018-2022 ACS estimates. A nearly thirty percent population growth over two five-year survey periods, even for a small population, indicates a rate of growth which may present impacts for hazard vulnerability due to shifts in the local built environment.

There are no areas of the Borough which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,037
Population Change since 2017	28.3%
Percent of Population Age < 5	10.0%
Percent of Population > 65	17.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Wildfire	Extreme Wind	Drought
	Hurricane / Tropical Storm	Flood
	Tornado	Earthquake
	Winter Storm	
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	Terrorism
	Power Failure	

Hazard Ranking Explanation

Power failures have increased from a low to a medium level of concern. In the summer of 2024, there was one power outage that lasted a few hours overnight. No one required alternative shelter, such as at Borough Hall.

On April 5, 2024, Roosevelt Borough experienced an earthquake, but it was minimal and caused no damage. Earthquakes remain at a low level of concern. Cyber-attacks continue to be a medium level of concern. The Borough has experienced phishing attempts, and one successful attempt resulted in stolen information.

Wildfires remain a high level of concern, given that the Assunpink Wildlife Management Area surrounds the Borough.

Significant Hazard Events Since Last Plan Update

None identified.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is anticipated to significantly affect the risks and hazards faced by the Borough of Roosevelt. As global temperatures rise, the frequency and intensity of extreme weather events, such as hurricanes, nor'easters, and heavy rainfall, are expected to increase. This will exacerbate flooding, particularly in areas adjacent to Assunpink Creek and Rocky Brook, which encompass a substantial portion of Roosevelt. Although only 3.9% of the borough lies within the 1% annual chance flood zone, the increased prevalence of extreme weather events will heighten the risk of flooding in these areas. Furthermore, the borough's extensive forested and wetland areas are at heightened risk of wildfires, which are projected to become more frequent and severe due to prolonged periods of drought and elevated temperatures.

Additionally, climate change is likely to result in more intense and prolonged heatwaves, which can strain local infrastructure and pose health risks, especially to vulnerable populations such as the elderly.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Roosevelt Borough	
Initial FIRM Date	9/25/2009
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	1
Total Losses:	4
Total Payments:	\$94,419.75
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$94,419.75
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

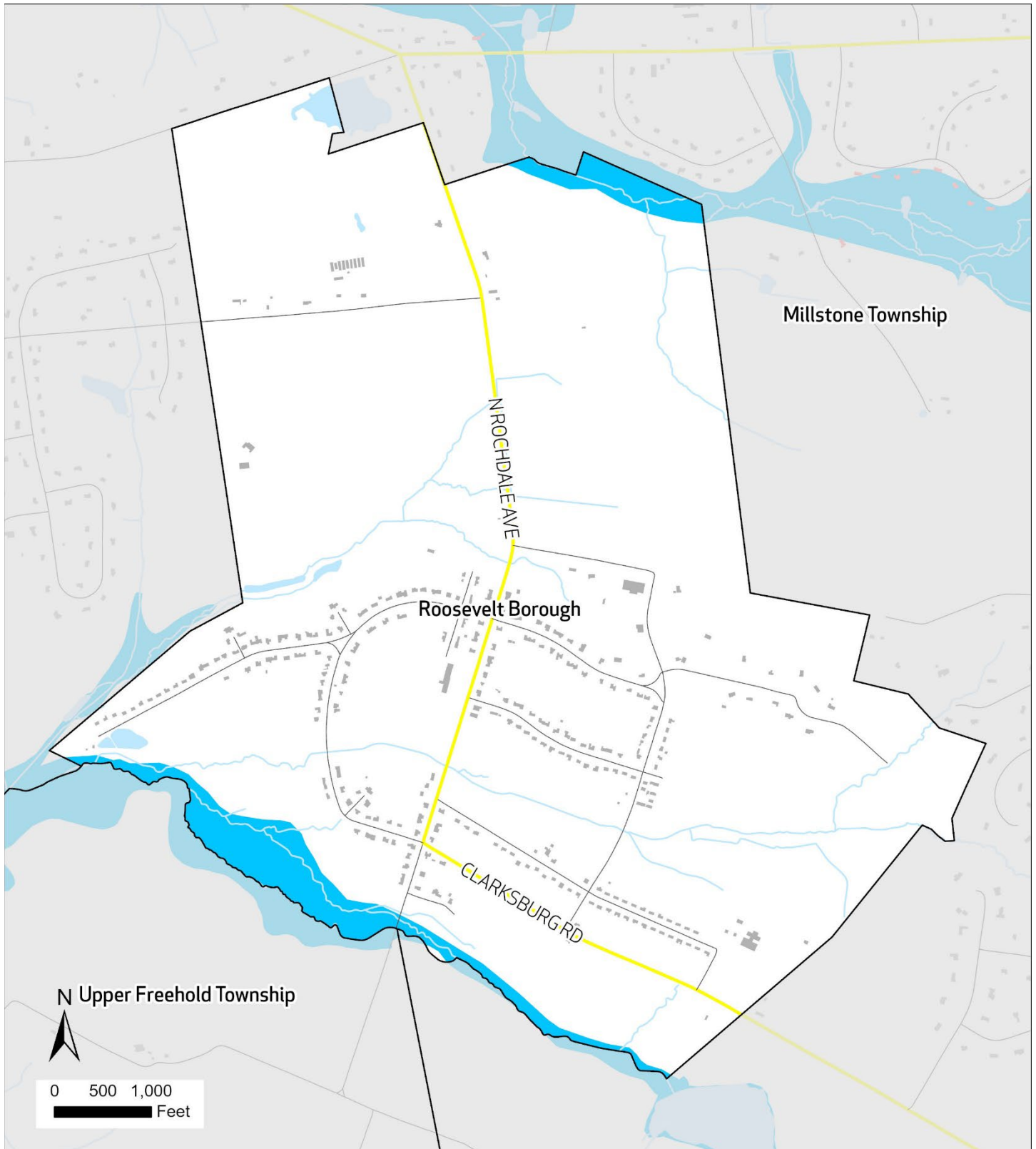
The Special Flood Hazard Area (SFHA) in the Borough of Red Bank is primarily located adjacent to Assunpink Creek and Rocky Brook. Approximately 3.9 percent of the total area of Roosevelt lies within the 1% annual chance flood zone as defined by FEMA. An additional 0 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 49.1 percent of Roosevelt is considered developed. Of the developed parcels of the town, 0.6 percent fall within the 1% annual chance flood zone and none are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet of Sea Level Rise
Developed Parcels	0.6%	NA	NA
Exposed Land Area	3.9%	NA	AN

During the planning process, Roosevelt identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 4 total facilities. Of these facilities, none are within the floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	NA	NA



N Upper Freehold Township



0 500 1,000
Feet

Flood Risk

Roosevelt Borough

FEMA Flood Zone

A (1%)

County Routes

Local Roads

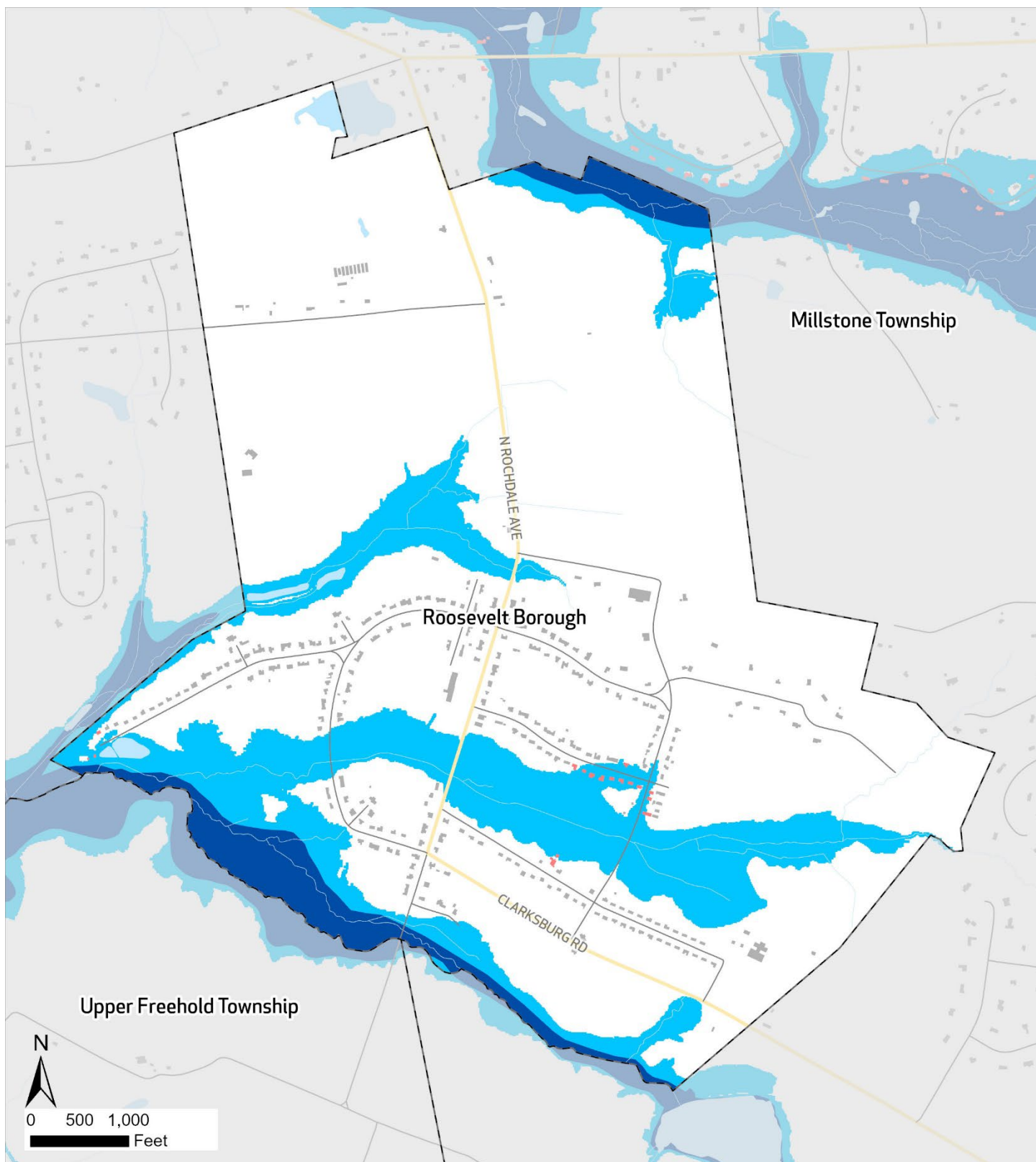
Municipal Boundaries

Building Footprints

Building Footprints within Floodplain

Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Roosevelt Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

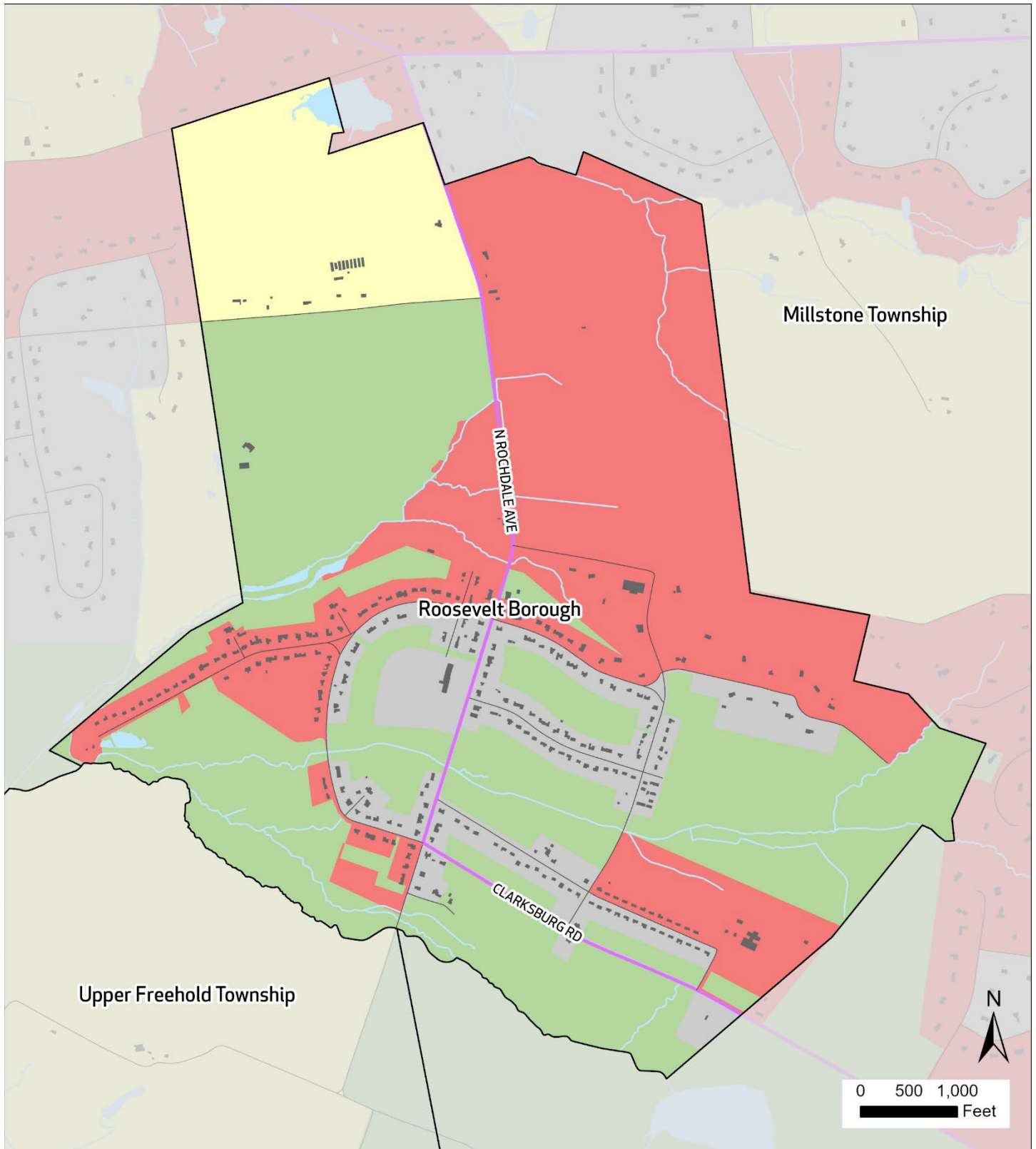
— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Roosevelt Borough

- | | | |
|--|--|---|
| Intermix | County Routes | Municipal Boundaries |
| High or Medium Density Housing | Local Roads | Building Footprint |
| Low or Very Low Density Housing | | Water |
| No Housing | | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Roosevelt Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017	2022 Housing Plan Element and Fair Share Plan
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan	X		2022	2024 plan update is completed and awaiting approval. The plan contains action plans as well as information on reciprocal agreements to mitigate emergency hazards.
Floodplain Development Ordinance		X		
Floodplain Management Plan	X		2022	
Stormwater Management Ordinance		X		
Stormwater Management Plan	X		2024	The Stormwater Management Plan supports hazard mitigation by limiting the effect of Stormwater on local infrastructure and waterways.
Watershed Management Plan		X		
Sheltering Plan	X		2022	The sheltering plan is part of the local Emergency Operations Plan. It is meant to mitigate hazards to resident welfare during an emergency.
Evacuation Plan	X		2022	The evacuation plan is part of the local Emergency Operations Plan. It is meant to mitigate hazards to resident welfare during an emergency.
Substantial Damage/Improved Structures Response	X		2022	The response plan is part of the local Emergency Operations Plan. It is meant to mitigate hazards that may occur post-emergency/disaster due to damaged structures and/or infrastructure.
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X		2022	A limited post-disaster recovery plan is contained in the Borough's Emergency Operations Plan. No specific pieces of this plan specifically target socially vulnerable populations, though the needs of this community will be assessed in the event of an emergency. Climate change is expected to have no effect.
Current/recent redevelopment plans or studies	X			2003 Redevelopment Plan, 2011 Panhandle Region Plan
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Roosevelt Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Part-time municipal employee
Grant Writer		X	
Staff trained to support mitigation	X		OEM coordinator has some basic training in hazard mitigation.
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Mutual aid agreement with Millstone Township fire and emergency medical services and the American Red Cross for help with shelter management.
Non-governmental organizations/other partners	X		The American Red Cross offers workshops on local hazard mitigation activities.

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Roosevelt Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		CodeRED alert system as well as an outdoor warning device at the Roosevelt public school.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Roosevelt Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Roosevelt Borough is a residential community with significant swathes of protected forest and wetlands. Therefore, increasing the Borough's capacity to deal with hazards caused by extreme weather events, especially those involving forest fire or flooding, will remain a priority. Those actions that will be prioritized are: (1) Expanding the brush removal program to mitigate hazards caused by wildfires, including the speed at which they could spread and thus imperil both our residential and municipal properties; (2) Continue and Enhance the Stream Maintenance Program to decrease the hazards of flooding due to extreme weather events; and (3) Retrofit structures with Ignition-resistant materials when repairs are required in order to decrease the impact of wildfires on critical municipal infrastructure.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
41-1	John Deere "Gator" off Road vehicle	This would allow the town to not only navigate downed trees in the road but also get to emergencies that could happen in the 1,000+ acres of woods that surrounds Roosevelt.	Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Tornado	N/A	Borough Administrator	Municipal budget	\$8,000.00	N/A	Withdrawn	All major DPW work is done by an SSA with the County or Hightstown DPW or outside contractors.
41-2	Purchase and Install a Generator Synagogue and Roosevelt Elementary	Generator for shelter at Synagogue and school so they can be shelters.	All Hazards	N/A	Borough Administration	FEMA HMA		N/A	Withdrawn	The Borough does not have any authority on whether either of these buildings has a generator.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
41-3	Expand the Brush Removal Program	Systematic removal of brush and dead trees. Collect brush more frequently and better enlist property owner cooperation. Improve collection services and public participation in action description disposal of brush.	Wildfire	Medium	DPW	Municipal budget	Staff time	1 year	Ongoing	The Borough of Roosevelt has enlisted a volunteer citizen group to catalog dead trees on properties within the Borough and a plan to require the removal of said dead trees is being discussed. The brush removal program would benefit all Borough citizens, including socially vulnerable individuals. Climate change increases the urgency of removing brush where appropriate to mitigate fire hazards.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
41-4	Join a New Jersey Forest Fire Service for Systematic Removal of Accumulated Brush	Participation in an anticipated program of the New Jersey Forest Fire Service for systematic action description removal of accumulated brush and dead trees from woodlands owned by the borough, the County Park Service, and NJDEP. Incorporate inspection and	Wildfire	Medium	Environmental Committee	Municipal budget	Staff time	1 year	Ongoing	No updates and not specifically targeted to socially vulnerable populations. This action plan is expected to become more important as climate change increases the likelihood of forest fires.
41-5	Purchase Tree Trimming Equipment for Downed Trees	The Borough needs the following tree trimming equipment: chainsaws, chipper, pull saw for high trees, and vehicle for equipment.	Flood, Extreme Wind, Lightening, Nor'easter, Hurricane and Tropical Storm, Wildfire, Winter Storm	Medium	Borough Administration, DPW	Municipal budget	Staff time	1 year	Ongoing	The Borough currently owns chain saws for downed trees, allowing us to clear some hazards that might impede traffic or cause other issues. This action does not specifically target socially vulnerable populations but affects all residents. With climate change causing additional extreme weather events, being able to clear hazards from downed trees will become increasingly important.
41-6	Update Security System for Critical Facilities	Update security system for municipal properties, borough hall, and the water and sewer plants.	All Hazards	Medium	Borough Administration; DPW	Homeland Security grants	TBD	1 year	Ongoing	Currently only Borough Hall has a burglar alarm system. This is intended to safeguard Borough property as well as to protect the private information of citizens. Climate change is expected to have no effect.
41-7	Install a Borough-wide Alert System	Alert system for fire, intruders (terrorism), or power loss.	All Hazards	Medium	Borough Administration	Homeland Security grants	Staff time	1 year	Ongoing	Roosevelt Borough employs Code Red, a system that notifies residents by phone, email, and text message of emergencies. Access to this system is open to all residents, including socially vulnerable populations. Climate change is not expected to affect this system.
41-8	Continue and Enhance the Stream Maintenance Program	Routinely remove debris from the Assumpink Creek and its Tributaries.	Flood, Extreme Wind, Lightening, Nor'easter, Hurricane	Medium	Borough Administration, DPW, Environmental Committee	Municipal budget	Staff time	5 + years	Ongoing	The Borough of Roosevelt has a team of volunteers who do routine stream monitoring. This activity is ongoing and reduces the likelihood of flooding for all citizens in the surrounding areas and who use the surrounding roads.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
			and Tropical Storm, Winter Storm							Climate change will make it even more important that this activity continues as severe weather events become more commonplace.
41-9	Install Traffic Calming Measures on Highly Traveled Roads	Install traffic calming measures such as traffic cones, signs with flashing lights, and/or speed bumps and speed tables, and during peak times, increased police presence to enforce speeding regulations.	All Hazards	High	Borough Administration	DOT, NJTPA, municipal budget	TBD	2 years	Ongoing	Speed bumps have been installed on several roads within the Borough. Discussion of other methods to calm traffic is ongoing between residents and Borough Council. This action impacts the safety of all citizens. Climate change is not expected to affect the action outcome.
41-10	Provide Outreach on Tick Control	Coordinate with Monmouth County Health Department on tick control and provide outreach to residents.	All Hazards	Low	Borough Administration, Environmental Committee	Municipal budget	Staff time	1 year	Ongoing	No updates. Given the danger of tick-borne diseases for all residents, this action will remain an important action item.
41-11	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Although there are currently no RL or SRL properties in the Borough; however if in the next five years properties become RL/SRL, coordinate with residents to mitigate properties through structure elevation, demolition to open space, or other type of mitigation. .	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA	TBD on property	5 + years	Ongoing	There are still no RL or SRL properties in the Borough. If, in the next five years, properties become RL/SRL, the Borough will coordinate with residents to mitigate the attendant hazards. This potentially affects all Borough residents and will become more important as climate change causes increasing likelihood of severe weather events.
41-12	Retrofit Critical Structures with Ignition-Resistant Materials	Install roof coverings, sheathing, flashing, skylights, roof and attic vents, eaves, and gutters that conform to ignition-resistant construction standards.	Wildfire	High	Borough	FEMA HMA	TBD	2 years	Ongoing	No update. With climate change, it becomes even more important to safeguard critical infrastructure against extreme weather events such as fire. This is even more true for socially vulnerable populations who have less means to escape and/or mitigate the harmful effects of damage to our water treatment facilities, etc.

42 – RUMSON BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Brett Hunger	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
Thomas S. Rogers, R.M.C.	Borough Administrator & Municipal Clerk	Reviewed appendix
David Marks, P.E., C.M.E., C.F.M.	Borough Engineer	Reviewed appendix
Robert A. Boyer	Chief of Police	Reviewed appendix
Daryl (Butch) Kochel	Superintendent of the Department of Public Works	Reviewed appendix

COMMUNITY PROFILE

Overview

The Borough of Rumson is a compact, residential community with a population of approximately 7,065. It is bordered to the north by the Navesink River and to the south and east by the Shrewsbury River, both of which are tidal extensions of the Atlantic Ocean. The Borough of Rumson shares its western boundary with Fair Haven and has a small connection to Little Silver. The total area of Rumson is approximately 5.2 square miles and is known for its estates and shady, tree-lined streets. It is situated about 40 miles south of New York City and 8 miles from the military installation of Earle Naval Ammunition Depot.

Monmouth County commenced construction on the replacement of the Rumson-Sea Bright Bridge (Bridge S-32) over the Shrewsbury River in 2022, with anticipated completion date in May 2025. Additionally, Monmouth County is in the preliminary design phase for the replacement of the Oceanic Bridge (Bridge S-31), which connects Rumson and Middletown. Originally constructed in 1939, the Oceanic Bridge is in critical need of repair and requires continuous maintenance. The replacement project is progressing following stakeholder meetings to gather community input on potential bridge designs.

Since adopting its Master Plan Reexamination Report in 2015 in response to the damage caused by Superstorm Sandy, the Borough of Rumson has undertaken significant infrastructure upgrades, developed plans for future growth, and integrated sustainable practices through its Environmental Commission initiatives and collaboration on the Borough's Stormwater Management Plan. The borough is currently in the process of adopting a new Reexamination Report, to be completed late 2025.

As part of its commitment to flood resilience, Rumson has incorporated its Floodplain Management Plan into the borough's master plan. This plan identifies and assesses local flood hazards, establishes strategic floodplain management goals, and outlines actions to mitigate future flooding risks and impacts.

The borough actively supports transparency and public awareness by providing access to more than 10 flood-related resources on its official website www.rumsonnj.gov. This effort reinforces Rumson's commitment to meeting the requirements set by FEMA. Additionally, all flood zone maps have been updated to comply with FEMA standards.

The Borough manages 70 miles of sanitary sewer pipes. In 2018, borough officials developed a comprehensive sanitary sewer rehabilitation plan. This resulted in a multi-phased/multi-year project involving televised inspections and the cleaning and rehabilitation of all of the borough owned sanitary sewer infrastructure. Furthering its environmental initiative, Rumson finalized and published a Stormwater Pollution Prevention Plan in 2021.

Land Use, Development, & Growth

Rumson is a predominantly residential community, with commercial and public land accounting for a small portion of its total developed area. As a result, urban or developed land makes up nearly 61 percent of the Borough. Other significant

land uses in Rumson include wetlands and water which account for 29 percent and 7 percent of its total area. From 2015 to 2020, Rumson’s barren land, forested land and wetlands diminished by 6 acres, 5 acres, and 4 acres respectively, while its urban or developed land grew by nearly 16 acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	29.9	29.9	>0%
Barren Land	12.3	6.0	-51%
Forest	89.5	84.3	-6%
Urban	2752.3	2768.1	1%
Water	1330.0	1330.0	>0%
Wetlands	324.5	320.1	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Rumson is working on multiple projects to achieve their affordable housing obligations including a four-bedroom housing unit for individuals with special needs, partially funded by the Housing and Mortgage Finance Agency and a small age-restricted rental development on land donated by a developer along Carton Street, and a twelve family rental unit on West River Road. Both projects are expected to begin construction in 2025. Almost all RL/SRL properties are elevated. One housing unit for individuals with special needs, located at 61 South Ward Avenue, falls under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In 2021, following court approval of Rumson’s Affordable Housing Plan and amendments to the borough’s ordinance and master plan element to include affordable housing residential zones, the borough’s zoning and planning boards began hearing applications for the proposed construction of affordable housing units in the Borough. These are planned for Carton Street, the prior Bank of America, and Westpark at Washington and Grant. The latter falls under the FEMA 1% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA’s 1% annual chance floodplain + 3 feet (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Rumson has a total estimated population of 7,285, of which 3.4% are estimated to be under age 5 and 12.9% are over age 65. The Borough has seen an estimated 6.0% population growth over the ACS survey periods between 2013-2017 and 2018-2022. A six percent population growth over two five-year survey periods indicates a moderate to high rate of current growth which may highlight additional hazard vulnerabilities related to shifts in the built environment and densification.

There are no areas of Rumson which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	7,285
Population Change since 2017	6.0%
Percent of Population Age < 5	3.4%
Percent of Population > 65	12.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
Hurricane/ Tropical Storm	Coastal Erosion	Landslide
Storm Surge	Tornado	Earthquake
	Winter Storm	Lightning
	Wave Action	
	Wildfire	
Human-made Hazards		
Pandemic		Civil Unrest
Cyber Attack	Economic Disruption	Power Failure
	Terrorism	

Hazard Ranking Explanation

The risk of landslides has been downgraded to a low level of concern, as the previous medium rating may have been influenced by conditions in bulkhead areas. Economic disruption remains a medium concern due to the proximity of Borough offices to a flood zone. The threat of cyber attacks has been elevated to a high level of concern, given the potential risks to internet-based infrastructure.

Significant Hazard Events Since Last Plan Update

In January 2024, a coastal storm event caused significant flooding. The Westpark area frequently experiences flooding during high tides or full moons.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is projected to affect the risks and hazards faced by the Borough of Rumson. As global temperatures increase, the frequency and intensity of extreme weather events such as hurricanes, nor'easters, and coastal storms are expected to rise. This will heighten flooding risks, particularly in low-lying areas and those near the Shrewsbury and Navesink Rivers, which already experience frequent flooding during high tides or full moons.

Additionally, climate change may intensify other natural hazards, such as extreme temperatures, droughts, and coastal erosion. These changes will not only impact the physical environment but also have socio-economic effects, including increased costs for disaster recovery and mitigation efforts.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Rumson Borough	
Initial FIRM Date	12/28/73
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	435
Total Losses:	946
Total Payments:	\$62,197,840.30
Number of RL Properties:	65
Number of Mitigated RL Properties:	0
RL – Total Losses:	174
RL – Total Paid:	\$10,122,429.57
Number of SRL Properties:	12
Number of Mitigated SRL Properties:	1
SRL – Total Losses:	51
SRL – Total Paid:	\$4,428,793.72

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

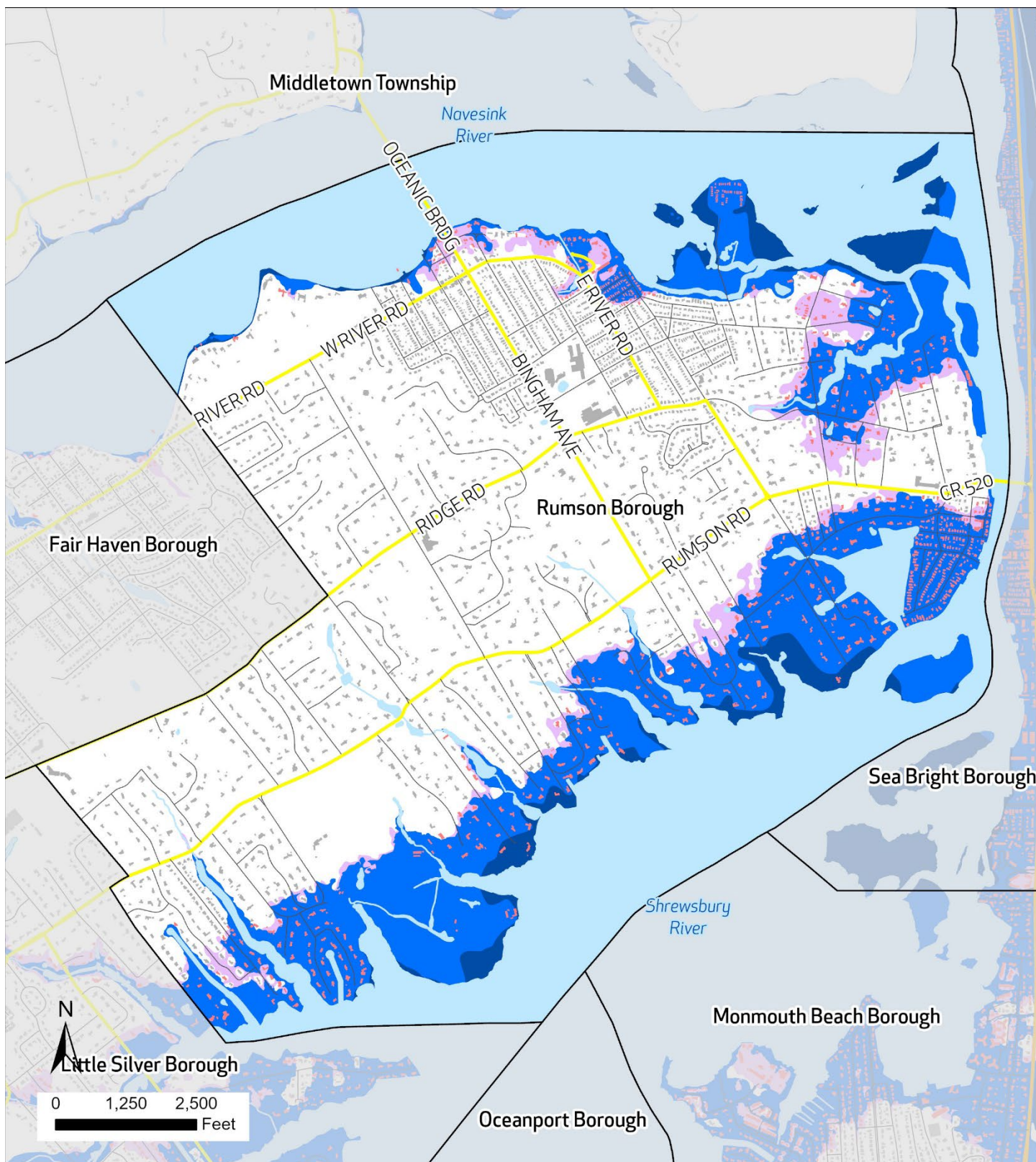
The Special Flood Hazard Area (SFHA) in the Borough of Rumson is primarily located adjacent to the main waterbodies of the borough including the Shrewsbury River and the Navesink River. Approximately 34.5% of the total area of Rumson lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.0% of the area of the municipality is in the 0.2% annual chance flood zone.

About 90.7% of Rumson is considered developed. Of the developed parcels of the town, 26.5% fall within the 1% annual chance flood zone and 3.9 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	26.5%	3.9%	27.8%
Exposed Land Area	34.5%	4.0%	42.6%

During the planning process, Rumson identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 12 total facilities. Of these facilities, two are within the 1% floodplain. The facilities are categorized under the Safety and Security community lifeline type. Examples of Safety and Security lifelines include police stations or other government services.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	2	-	-



Flood Risk

Rumson Borough

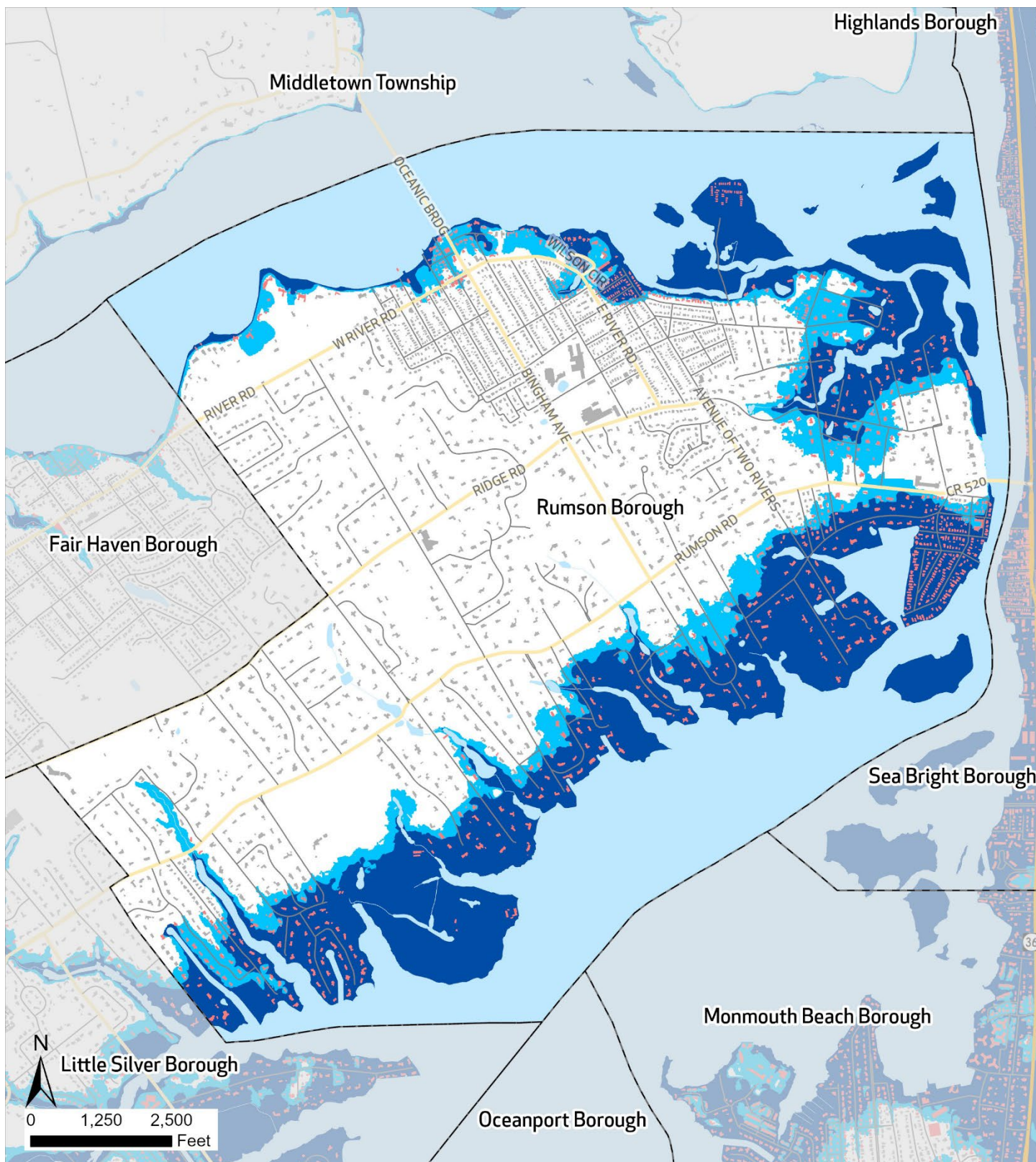
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Rumson Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

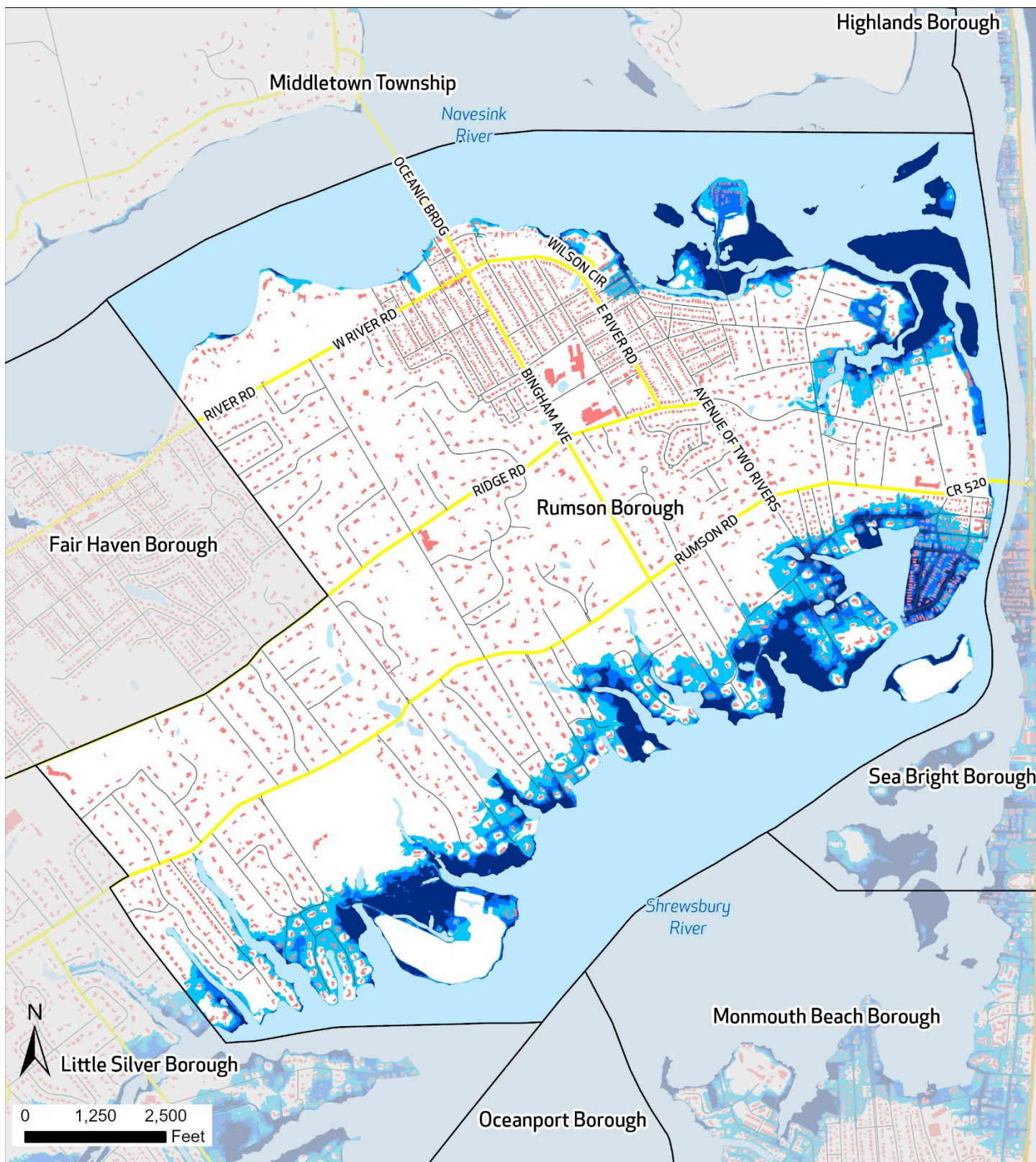
— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**

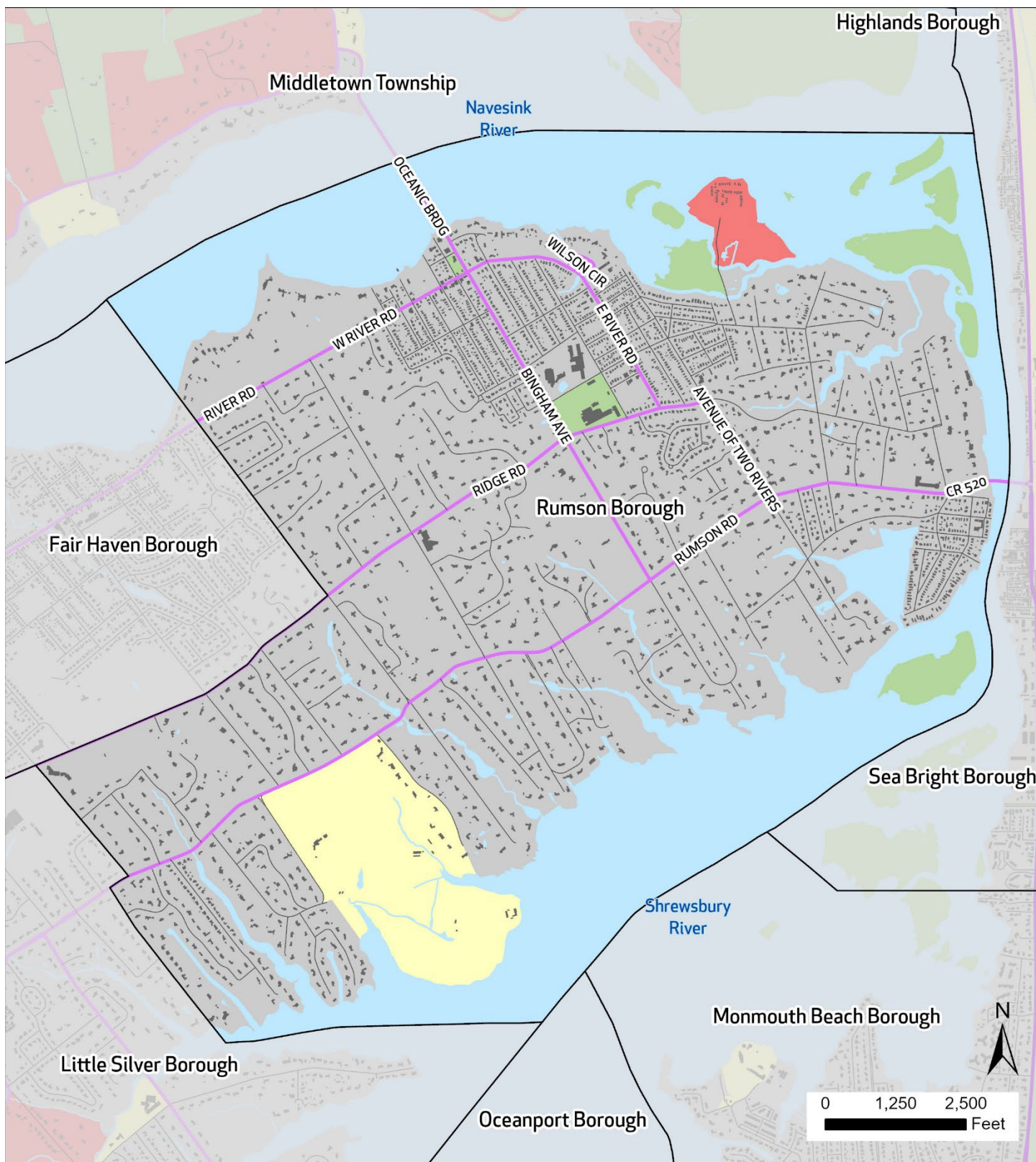
Rumson Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Rumson Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Rumson Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		1988 with a 2002 Master Plan Re-Examination Report, 2003 Housing Element and Fair Share Plan, and 2015 Comprehensive Collection of Rumson Plans	Adopting a Reexamination Report in February 2025
Capital Improvement Plan	X		2024	Identifies projects that, if implemented, could prevent or reduce the impacts of natural hazards
Local Emergency Operations Plan/Continuity of Operations Plan	X		2024	
Floodplain Development Ordinance	X		2024	
Floodplain Management Plan	X		2015	
Stormwater Management Ordinance	X		2024	
Stormwater Management Plan	X		2024	
Watershed Management Plan		X		
Sheltering Plan	X		2024	Included in the EOP
Evacuation Plan	X			Monmouth County Evacuation Plan
Substantial Damage/Improved Structures Response	X			<p>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:</p> <ol style="list-style-type: none"> 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. Determine and include the costs of all ordinary maintenance and minor work, as discussed in § 17-2.2, 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. 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. 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

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
				<p>improvements and repairs over a period of five years prior to the permit application or substantial damage determination as specified in the definition of substantial improvement.</p> <p>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.</p>
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		2021	Facility ID 592634
Tracking elevation certificates and/or Letter of Map Change	X		2025	Supplied to the building department and tracked/cataloged through Forerunner
Post-Disaster Recovery Plan	X		2023	EOP, updating December 2025
Current/recent redevelopment plans or studies	X		2025	2021 Affordable Housing Plan; flood risk reduction study 2025 Re-Examination Report 2025 Housing Element & Fair Share – June 2025
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			Continued comprehensive sewer rehabilitation 2024-2025
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Rumson Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		David Marks, full-time, Engineer and CFM
Grant Writer		X	
Staff trained to support mitigation	X		Tom Rogers, David Marks, Daryl “Butch” Kochel, Brett Hunger, Robert Boyer, Nick Fabiano
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Rumson Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Constant Contact emails, website, social media

Education & Outreach Capability	Yes	No	Explanation
StormReady	X		Via Monmouth County OEM
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Rumson Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	X		American Rescue Plan Act of 2021 (ARPA) – Sewer Rehab
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		NJDOT for Shrewsbury Drive Flood & Drainage Improvements
Evaluation process on the prioritization of risk reduction projects against other local activities	X		-Evaluates the availability of funds -Informal benefit vs cost analysis -Scheduling
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Rumson Borough is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System (CRS) Classification:** None
- **Sustainable Jersey Participation Status:** Silver

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since the 2021 plan update, the Borough of Rumson has focused on enhancing flood resilience, improving emergency response capabilities, and upgrading critical infrastructure to mitigate natural hazard risks. Key completed actions include elevating homes to meet updated FEMA standards, improving drainage systems, and enhancing backup power at essential facilities. Over the next five years, Rumson aims to prioritize projects that address emerging climate challenges, such as sea-level rise, by expanding mitigation strategies like updated flood mapping, adopting advanced emergency alert systems, and upgrading community shelters. These efforts underscore the Borough of Rumson's commitment to safeguarding residents and promoting sustainable growth in the face of evolving hazards.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-1	Upgrade SCADA System to Control and Monitor Critical	Upgrade SCADA system to more efficiently and effectively control and monitor critical facilities.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Tornado	N/A	Borough Administrator	Borough funding	\$150,000	N/A	Completed	
42-2	Enter NFIP's CRS Program	Provide planning services to enter the Borough of Rumson into the NFIP Community Rating System for reduced flood insurance rates.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Administrator	Borough budget for staffing/c consultants	\$50,000	N/A	Withdrawn	Withdrawn due to cost
42-3	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	N/A	Borough	Municipal budget		N/A	Withdrawn	Remove from list due to there are no high-risk areas in Rumson for landslides.
42-4	Create flood mapping for West Park	Obtain high-resolution elevation data such as LIDAR or DEM (Digital Elevation Model). Collect data on water bodies, rainfall patterns, and watershed information for the area. Include information on vegetation, development, and soil types to assess	Flood	N/A	Borough Administrator	Borough funding	\$100,000	N/A	Withdrawn	Remove from list due to the GIS data Action 42-16

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		runoff potential. Gather historical flood records for the area to validate models.								

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-5	Construct Earthen Berm and Associated Grading above the Existing Bulkhead at Grant Ave. and Waterman Ave.	Construct an earthen berm and associated grading above the existing bulkhead at the western and eastern terminus of Grant Ave. and Waterman Ave.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA HMA	\$135,000 .00	1 year	Ongoing	1. Project is currently under way 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-6	Install Reinforced Steel, Rubber Gasket-lined Storm Doors at DPW	The storm doors will be installed to the DPW's service bays to provide greater protection from wave action and flooding to the building's structure and contents.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge		Borough Administrator		\$75,000		Ongoing	1.This action was previously marked as completed; however, recently the Borough determined it needs to look at the gaskets. 2. Damage to infrastructure will be reduced. 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-7	Install New Elevated Bulkhead, Rehabilitate Existing Drainage Pipes, and Install a New Tide Valve at Shrewsbury Dr. & Ave of Two Rivers	Install 150 linear feet of a new elevated bulkhead, rehabilitate and replace existing drainage pipes, and install a new tide valve at the intersection of Shrewsbury Dr. & Ave of Two Rivers.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	FEMA HMA, Borough funding, NJDOT	\$450,000	1 year	Ongoing	1.In process; to be completed 2024-25. 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-8	Purchase and Install Generator for Rumson Fair Haven Regional High School	New generator for Rumson Fair Haven Regional High School, which serves as a transfer facility during a storm event.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	FEMA HMA, Borough funding	\$500,000	1 year	Ongoing	1. Looking at different vendors 2. Provide services when during power failure. 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-9	Clean and Maintain the Borough's Streams and Ponds	Removal of debris and sediment accumulation in receiving waterways and creeks which impedes flood flows.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Public Works, County Mosquito Commission	NRCS, Borough funding	\$50,000	1 year	Ongoing	1. Project is currently under way 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-10	Establish a Tree Trimming Program	Additional tree trimming and pruning to prevent downed power lines.	Flood, Lightening, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Medium	Borough Administrator	Borough funding	\$75,000	1 year	Ongoing	1. Project is currently under way 2. Potential power outages will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-11	Improve the Borough's Warning System	Improve community education and awareness to emergency or urgent health and safety situations via improved internet presence, social media, Reverse911, and emergency siren system. The addition of electronic LED message centers (signs) at critical locations, specifically in West Park, will aid in distributing information to the public. Perform an audit of the existing emergency siren coverage to confirm adequate community alerting. Upgrade outdated siren warning system with newer technology. Develop	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Tornado	High	Borough Administrator	Borough funding	\$100,000	1 year	Ongoing	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		a comprehensive program for public information that can systematically distribute hazard awareness information. Develop tailored messages for hazards like floods, fires, severe storms, or earthquakes. Use accessible language and culturally relevant content. Provide training sessions on first aid and emergency preparedness. The program will also promote private hazard mitigation efforts and household readiness. Offer guidelines for reinforcing homes against specific hazards (e.g., floodproofing, fire-resistant landscaping). Provide checklists for creating emergency kits and plans. Include resources for individuals with disabilities (e.g., audio alerts, Braille materials).								
42-12	Continue Adopting Floodplain Development Protection Ordinances	<p>Rumson would like to continue to adopt Floodplain Development Protection Ordinances as the FIRMs and Sea Level Rise maps continue to be modified.</p> <p>Evaluate existing ordinances to identify gaps. Host workshops and public hearings to gather input. Provide training for local officials and developers on compliance requirements. Establish a periodic review</p>	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Mayor and Council, Planning Board, Zoning Board	Borough funding	\$10,000	1 year	Ongoing	<p>1. Project is currently under way</p> <p>2. Flooding will be reduced</p> <p>3. Does not address socially vulnerable populations</p> <p>4. Impacts of climate change may possibly affect the action outcome</p>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		process for ordinances as new FIRMs and SLR data are released.								
42-13	Install Quick Connection for Portable Generator	Build quick connection system and control panel for 300KW portable generator with manual transfer	Extreme Temperatures, Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding	\$75,000	1 year	Ongoing	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-14	Upgrade Community Shelter to Provide Temporary Refuge	Upgrade Bingham Hall to enhance comfort and provide an area of temporary refuge. Install permanent generator, obtain comcast or Verizon FIOS Internet/TV service, build wi-fi network within building, equipment for portable device charging stations, purchase flat panel TV on mobile cart for news broadcasts. Upgrade existing HVAC system to include air condition.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	Borough funding	\$135,000	1 year	Ongoing	1. Project is currently under way. The Borough is aiming to complete this action in 2027 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-15	Purchase and Install New Generator for the Oceanic Hook Ladder Fire House	Install an emergency generator at Oceanic Hook Ladder Fire House.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding	\$65,000	1 year	Ongoing	1. Project is currently under way. The Borough is aiming to complete this action in 2030. 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-16	Rehabilitate and Upgrade the Existing Drainage System at Holly Tree Lane & Evergreen Drive	Rehabilitate and upgrade the existing drainage system to increase capacity and decrease flooding on Navesink Avenue between Holly Tree Lane and Black Point Road.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding	\$500,000	1 year	Ongoing	1. Project is currently under way. The Borough is aiming to complete this action in 2027. 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-17	Elevate and Reconstruct Rumson Boat Launch and Install New Bulkhead	Installation of 385 linear feet of new bulkhead, reconstruction of the Rumson Boat Launch, elevating the property, and improvements to the drainage system will aid in stabilizing the eroding shoreline, reduce coastal flooding impacts, and improve public access to the Navesink River.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding	\$750,000	1 year	Ongoing	1. Project is currently under way. The Borough is aiming to complete this action in 2029. 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-18	Expand the GIS Database to Digitize Records	Digitize building records, capital improvement projects and plans, roadway plans, tax records, improvement plans, zoning approvals and certificates.	All Hazards	High	Borough of Rumson	Borough funding	\$100,000	1 year	Ongoing	1. Project is currently under way with GIS; To be completed in early 2025 2. Improve Borough processes and reduces risks and costs 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-19	Obtain High Resolution Aerials of SFHAs	Obtain high resolution aerials of Special Flood Hazard Area. Utilize NearMap's 12" Digital Terrain Model.	Flood	Low	Borough Administrator	Borough funding	\$10,000	1 year	Ongoing	1. Project is currently under way 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-20	Initiate Regional Community Resiliency Discussions with Neighboring Communities	Regional resiliency discussion on sea level rise with neighboring at risk communities.	Extreme Temperatures, Flood, Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	Borough and County budget		3 years	Ongoing	1. Project is currently under way 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-21	Elevate or Floodproof Oyster Bay Drive	Elevating Oyster Bay Drive above the base flood elevation to maintain dry access.	Flood, Wave Action, Coastal Erosion, Nor'easter, Hurricane and	Medium	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding		3 years	Ongoing	1. Project is currently under way; ties into Shrewsbury project. To be completed 2030. 2. Flooding will be reduced 3. Does not address socially vulnerable populations

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
			Tropical Storm, Storm Surge							4. Impacts of climate change may possibly affect the action outcome
42-22	Install Lightning Protection for Critical Borough Facilities	Install lightning protection to Borough structures based upon most vulnerable and critical facilities This action typically includes the installation of lightning rods and grounding components to buildings and installation of surge protection devices to critical electronic equipment.	Lightening, Hurricane and Tropical Storm	Medium	Borough Administrator	Borough funding	\$100,000	1 year	Ongoing	1. Project is currently under way 2. Potential power outages will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-23	Install Surveillance Cameras at Critical Facilities	Install surveillance cameras to monitor critical facilities for natural and human based hazards. During natural hazards, flood proofed structures (Sanitary Sewer Pump Stations) can be safely monitored from remote locations. Human-based hazards can be monitored by Rumson Police Department.	All Hazards	Medium	Borough Administrator	Homeland Security grants, Borough funding	\$100,000	1 year	Ongoing	1. Project is currently under way with installing cameras at pump stations 2. Potential human-made hazards will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-24	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Coordinate with residents to mitigate RL/SRL properties through structure elevation, demolition to open space, or other type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA		5 + years	Ongoing	1. Project is currently under way 2. Flooding will be reduced 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-25	Assign physical addresses to each critical facility	List the critical facilities such as: pump stations, buildings. Compile a baseline dataset. Use geocoding tools to convert names or general locations into accurate coordinates and physical addresses. Map the facilities and integrate with flood mapping. Prepare a table listing facility names, types, addresses, and flood risk levels. Generate maps showing facility locations and their risk exposure.	Flood	Low	Borough Administrator	Borough funding	\$2,000	1 year	New	<ul style="list-style-type: none"> 1. Project is currently under way 2. Risk exposure 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-26	Purchase Barricades	<p>Calculate the number of barricades needed based on area dimensions and coverage requirements.</p> <p>Research Products that are: Durable: Made from high-quality, weather-resistant materials. Easy to Deploy: Lightweight, quick to install, and remove. Effective: Tested and certified for flood mitigation. Reusable: Cost-efficient over time.</p> <p>Compare Products: Review technical specifications, warranties, and certifications.</p> <p>Request Quotes: Contact multiple suppliers for pricing and bulk purchase discounts.</p> <p>Verify Specifications: Ensure the product dimensions,</p>	Flood, Nor'easter, Hurricane, Tropical Storm and Storm Surge	Low	Borough Administrator	FEMA, Borough funding	\$100,000	2 years	New	<ul style="list-style-type: none"> 1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		coverage area, and storage requirements meet your needs. Purchase Product. Test and Store. Conduct a Drill: Practice deployment to ensure staff are familiar with the setup. Storage: Store barricades in a dry, accessible location for quick deployment.								
42-27	Purchase and equip an OEM Trailer	<p>Purchase a specialty trailer that is pre-configured for emergency use with built-in communication and power systems.</p> <p>Equip the trailer with:</p> <ul style="list-style-type: none"> • Portable generator (e.g., 5,000–7,500W) or solar panels with batteries. • Power strips and extension cords. • Two-way radios, satellite phones, and portable Wi-Fi hotspots. • Weather radios for alerts. • Whiteboards and mapping tools. • First aid kits and trauma supplies. • Flashlights, headlamps, and batteries. • Emergency food and water (72-hour supply). • Hard hats, safety vests, gloves, goggles. • Traffic cones, barricades, and reflective tape. • Shovels, axes, and crowbars. • Wrenches, hammers, and screwdrivers. • Shelving units, lockable cabinets, and bins for organization. 	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	Borough funding	\$300,000	3 years	New	<p>1. Project is currently under way</p> <p>2. Emergency preparedness will be upgraded</p> <p>3. Does not address socially vulnerable populations</p> <p>4. Impacts of climate change may possibly affect the action outcome</p>

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-28	Improvements to Army Vehicles	Purchase and install storage boxes, life-vests, throw-ropes, throw-rings, and a ladder for the Army vehicles.	Flood, Nor'easter, Hurricane, Tropical Storm and Storm Surge	Low	Borough Administrator	FEMA, Borough funding	\$5,000	1 year	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-29	Purchase Variable Message Sign (VMS)	<p>Purchase a portable trailer-mounted VMS that is solar-powered with a battery backup. The display type would be full matrix that displays text, graphics and animations. The communication to the VMS would be wireless for remote updates.</p> <p>Compare Products: Review technical specifications, warranties, and certifications.</p> <p>Request Quotes: Contact multiple suppliers for pricing and bulk purchase discounts.</p> <p>Verify Specifications: Ensure the product dimensions, coverage area, and storage requirements meet your needs.</p> <p>Purchase Product. Test and Store. Conduct a Drill: Practice deployment to ensure staff are familiar with the setup.</p>	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	Borough funding	\$30,000	2 years	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-30	Create OEM storage at Piping Rock Park	<p>The Borough seeks to provide a centralized building for critical OEM equipment. The Borough would build a new storage garage that can store OEM equipment and DPW equipment. Store emergency trailer and equipment securely.</p> <p>Protect assets from weather</p>	Flood, Nor'easter, Hurricane, Tropical Storm and Storm Surge	Low	Borough Administrator	FEMA, Borough funding	\$400,000	3 years	New	1. Project is currently under way. To be completed 2028. 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		and vandalism. Allow easy access during emergencies. Future Expansion: Plan for future needs, such as additional trailers or equipment. The storage garage will be located at Piping Rock Park. The garage will be designed to meet the Boroughs specific needs.								
42-31	Emergency Portable Generator	Purchase and install connections for emergency portable generator that will connect to Borough Hall, Main Station and Marina Station.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	Borough funding	\$100,000	2 years	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-32	Upgrade Borough Hall Generator	Purchase and install new generator. Compare Products: Review technical specifications, warranties, and certifications. Request Quotes: Contact multiple suppliers for pricing and bulk purchase discounts. Verify Specifications: Ensure the product dimensions, coverage area, and storage requirements meet your needs. Purchase Product. Test and Store. Conduct a Drill: Practice deployment to ensure staff are familiar with the setup.	Flood, Nor'easter, Hurricane, Tropical Storm and Storm Surge	Low	Borough Administrator	FEMA, Borough funding	\$600,000	2 years	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
42-33	Implement Improvements to Designated Shelters	Purchase and provide kits to emergency personnel during an event. The kits will aid in managing evacuated residents during an event.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	Borough funding	\$1000	1 years	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-34	Strengthen Training of Emergency Response for Police, Fire, and First Aid	Ongoing training of team members to assist in emergencies in areas such as traffic control, medical assistance and/or weather-related matters. The Borough would also assess training needs, identify roles and develop a training schedule.	Extreme Temperatures, Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Low	Borough Administrator	FEMA, Borough funding	\$1,000	1 year	New	1. Project is currently under way 2. Emergency preparedness will be upgraded 3. Does not address socially vulnerable populations 4. Impacts of climate change may possibly affect the action outcome
42-35	Install Living Breakwaters	Install a series of Living Breakwaters that would be positioned in the Shrewsbury River.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Wave Action	High	Oceanport, Rumson, Monmouth Beach, Long Branch	FEMA HMA	See Notes	2 years	New	Rip-Rap and Armor Stone: \$35.9M Oyster Rings: \$5.4M ExoForms: \$3M Oyster Castles: \$1.5M

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PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Ryan Murphy	OEM Coordinator	11/08/2024 municipal meeting
Rachel Giolitto	Borough Administrator	Review and input into appendix
Brian Kelly	Mayor	Review and input into appendix

COMMUNITY PROFILE

Overview

Sea Bright is a coastal community in east Monmouth County. While much of the Borough is single family residential there are several beach attractions such as the Sea Bright beach pavilion and various beach and cabana clubs. Being a barrier island community, the north end of the Borough is so narrow that development is exclusively built on the bayside of New Jersey Route 36, the main road running north-south through the Borough.

The Borough's main focus has been rebuilding and resilience since Superstorm Sandy damaged parts of the community in 2012. Recovery efforts included a community driven process named Sea Bright 2020 resulting in a Community Recovery Plan that prioritized a list of recovery projects. Sea Bright also took advantage of the "Getting to Resilience" tool developed by NJDEP and Jacques Cousteau National Estuarine Research Reserve, which examined Sea Bright's master plan, ordinances, and data to determine the Borough's preparedness for future storms and generate a resiliency recommendations report.

In 2018 the Borough amended its Flood Damage Prevention ordinance to require higher building elevations beyond what is required by the National Flood Insurance Program for new development in flood hazard areas.

Land Use, Development, & Growth

In Sea Bright, water covers a significant portion of its area, while the remaining developed land is dominated by residential and commercial uses. As a result, in 2020, water accounted for nearly 44 percent of its total area, while urban or developed land made up 30 percent. In the same year, barren land and wetlands constituted 15 percent and 11 percent respectively of the Borough's total area.

Since 2015, Sea Bright's wetlands grew by nearly 13 acres, while its water decreased by 20 acres. During this period, the Borough's barren land and urban land experienced marginal growths of roughly 6 acres and 1 acre respectively.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	110.6	117.0	6%
Forest	-	-	-
Urban	234.9	236.0	0%
Water	362.8	342.8	-6%
Wetlands	73.4	86.0	17%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

The Haven at Sea Bright is a mixed-use development that received approval from Monmouth County in late 2023. The development will contain 44 apartment units and bottom floor retail along Front Street. The housing units will include four single-family homes, a 15-unit condo building, and 25 townhomes. A park will be included, and the development will also redo/elevate the bulkhead.

Additional development in the Borough includes condominiums in the center of town, North Pointe at Sea Bright, the building out of the front of the BeachWalk Hotel, and the firehouse.

The Haven at Sea Bright, North Pointe at Sea Bright, BeachWalk, and the firehouse all fall under the FEMA 1% and 0.2% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper). BeachWalk also falls under the 5 feet SLR (Sea Level Rise) Low-Lying area zone (NJFloodmapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

The Ocean Avenue Streetscape Improvements Project, completed in 2017, addressed numerous recovery and planning issues with the result being a safer, more accessible, and attractive downtown. The project included curb bump-outs at intersections, new sidewalks and crosswalks, stationary benches and trash receptacles, ADA-compliant ramps, decorative streetlights, landscaping and street trees, and way-finding signage.

A new beach pavilion/library, repaving of Ocean Avenue, sea wall repairs, and a new municipal complex were completed in 2018/2019.

Ocean Avenue largely falls under the FEMA 1% and 0.2% annual chance floodplain, NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet, and the 5 feet SLR (Sea Level Rise) Low-Lying area zone (NJFloodmapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Sea Bright's total estimated population is 1,629. These residents are estimated to be 2.0% under age 5 and 22.9% over age 65. The Borough saw a noted 24.9% population increase (growing an estimated 325 residents) over the ACS survey periods of 2013-2017 and 2018-2022. With an aging population making up nearly twenty-three percent of their total community, Sea Bright may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. A high rate of population growth (nearly one-quarter over two five-year survey periods) highlights potential local vulnerability related to shifts in the built environment and densification.

There are no areas of Sea Bright which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,629
Population Change since 2017	24.9%
Percent of Population Age < 5	2.0%
Percent of Population > 65	22.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane / Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Drought
Coastal Erosion	Tornado	Earthquake
Flood	Winter Storm	Wildfire
Storm Surge		
Wave Action		
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Extreme temperatures remain a medium level of concern for Sea Bright Borough. Although the Borough has not needed to establish a warming center recently, emergency services have used the beach pavilion as a temporary location to treat individuals whose cars got stuck on the road during winter. While it is not an official warming center, it has served this purpose on at least one occasion.

Extreme winds continue to be a medium level of concern, while hurricanes and tropical storms are ranked as a high concern. For instance, during Hurricane Isaias, winds swept away a tent from Tommy's Tavern & Tap, which got stuck in trees and had to be cut down by the fire department. Additionally, Donovan's Reef's message board was affected by the winds.

Coastal erosion and wave action have increased from a medium to a high level of concern, with storm surge remaining at a high level. Sea Bright has lost significant beach area due to wave activity. Although the United States Army Corps of Engineers is expected to conduct beach replenishment, no schedule has been set. The most affected areas include the jetties, Sea Bright Beach Club, and Anchorage Beach, where erosion is caused by both wave action and storm surge.

Power failure remains a low level of concern. In the event of a wind-related power outage, the Borough has a generator to ensure that government activities are not disrupted. JCP&L has been prompt in fixing any downed power lines, and such events are infrequent.

Significant Hazard Events Since Last Plan Update

Flooding has been the primary hazard event to occur since the last plan update. In February 2021, there was flooding caused by a nor'easter. In January 2024, a winter storm brought flooding. In Summer 2024, there was flooding during full moons and high tides. The 300 block of the North Beach area, to the south in Tradewinds area around 36, and from the beach club to the housing development on the beach side felt the worst effects. Flooding comes up underneath from the sewers and is usually from the back bay.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Sea Bright. As a coastal community, Sea Bright is particularly vulnerable to the effects of rising sea levels and increased storm intensity. The Borough has already experienced significant damage from past events such as superstorm sandy, and future climate change is likely to exacerbate these issues. Rising sea levels will increase the frequency and severity of coastal flooding, storm surges, and erosion, posing a greater threat to both residential and commercial properties.

One of the most pressing concerns for Sea Bright is the increased risk of coastal erosion and wave action. As sea levels rise, the natural buffer provided by beaches and dunes will be diminished, leading to more severe erosion and loss of land. This will not only impact the Borough's infrastructure but also its economy, which relies heavily on beach tourism. The United States Army Corps of Engineers has plans for beach replenishment, but the timing and extent of these efforts remain uncertain.

Additionally, the increased intensity and frequency of storms due to climate change will likely result in more frequent power outages and damage to critical infrastructure. While Sea Bright has taken steps to mitigate these risks, such as installing generators and elevating buildings, the Borough will need to continue to invest in resilient infrastructure and emergency preparedness measures. The community's efforts to update its flood damage prevention ordinance and participate in programs like the "Getting to Resilience" tool are crucial steps in adapting to these changing conditions.

By addressing the increased risks of flooding, erosion, and storm damage, the Borough can better protect its residents, infrastructure, and economy from the adverse effects of climate change.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Sea Bright Borough	
Initial FIRM Date	10/14/71
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	887
Total Losses:	1950
Total Payments:	\$86,623,739.84
Number of RL Properties:	79
Number of Mitigated RL Properties:	2
RL – Total Losses:	234
RL – Total Paid:	\$11,940,581.26
Number of SRL Properties:	18
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	99
SRL – Total Paid:	\$8,186,929.53

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

The Borough of Sea Bright is located on a narrow strip of land surrounded by water on both sides, the Shrewsbury to the east and the Atlantic Ocean to the West. The Special Flood Hazard Area (SFHA) consists of almost the entire Borough.

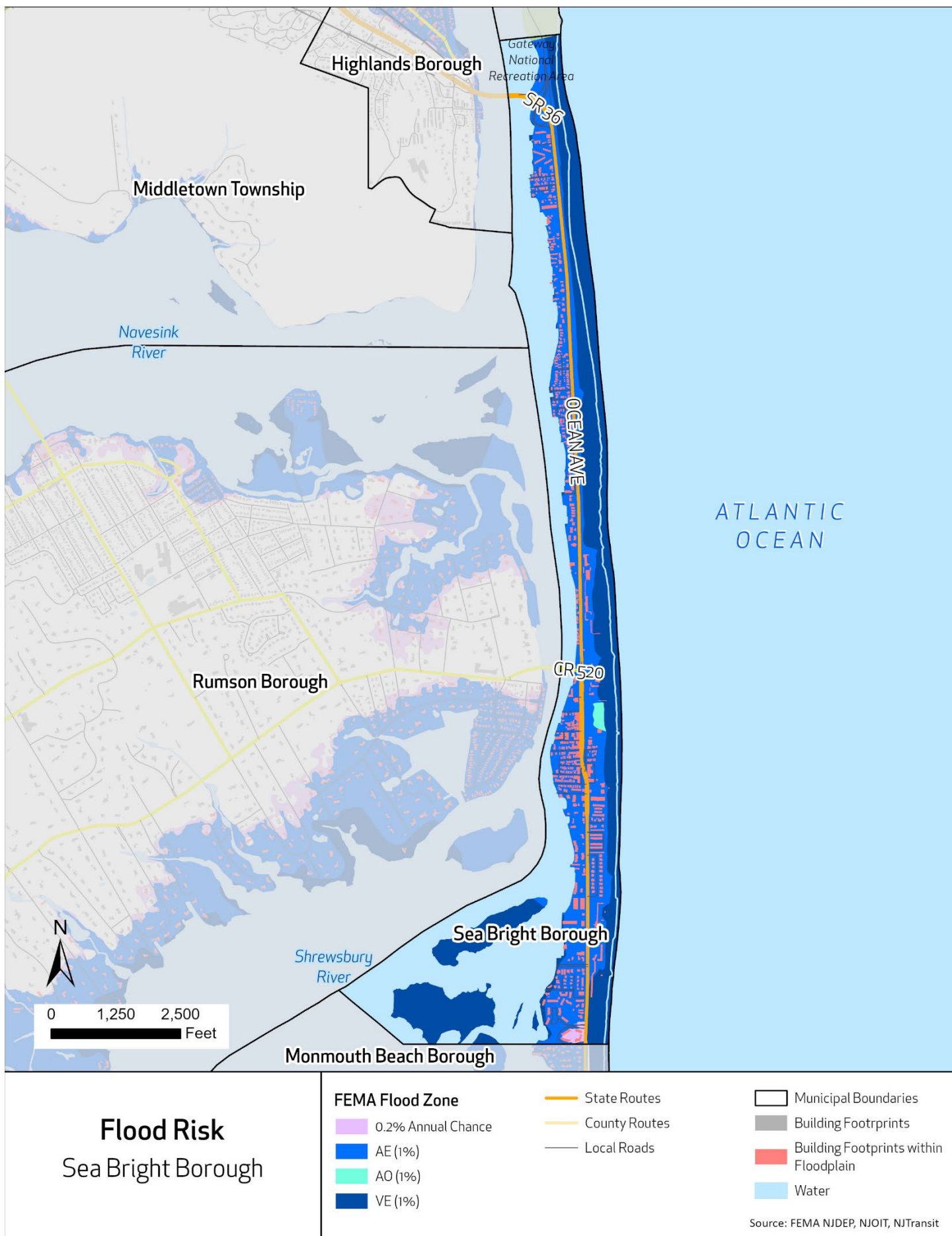
Approximately 99.5 percent of the total area of Sea Bright lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.4 percent of the area of the municipality is in the 0.2% annual chance flood zone.

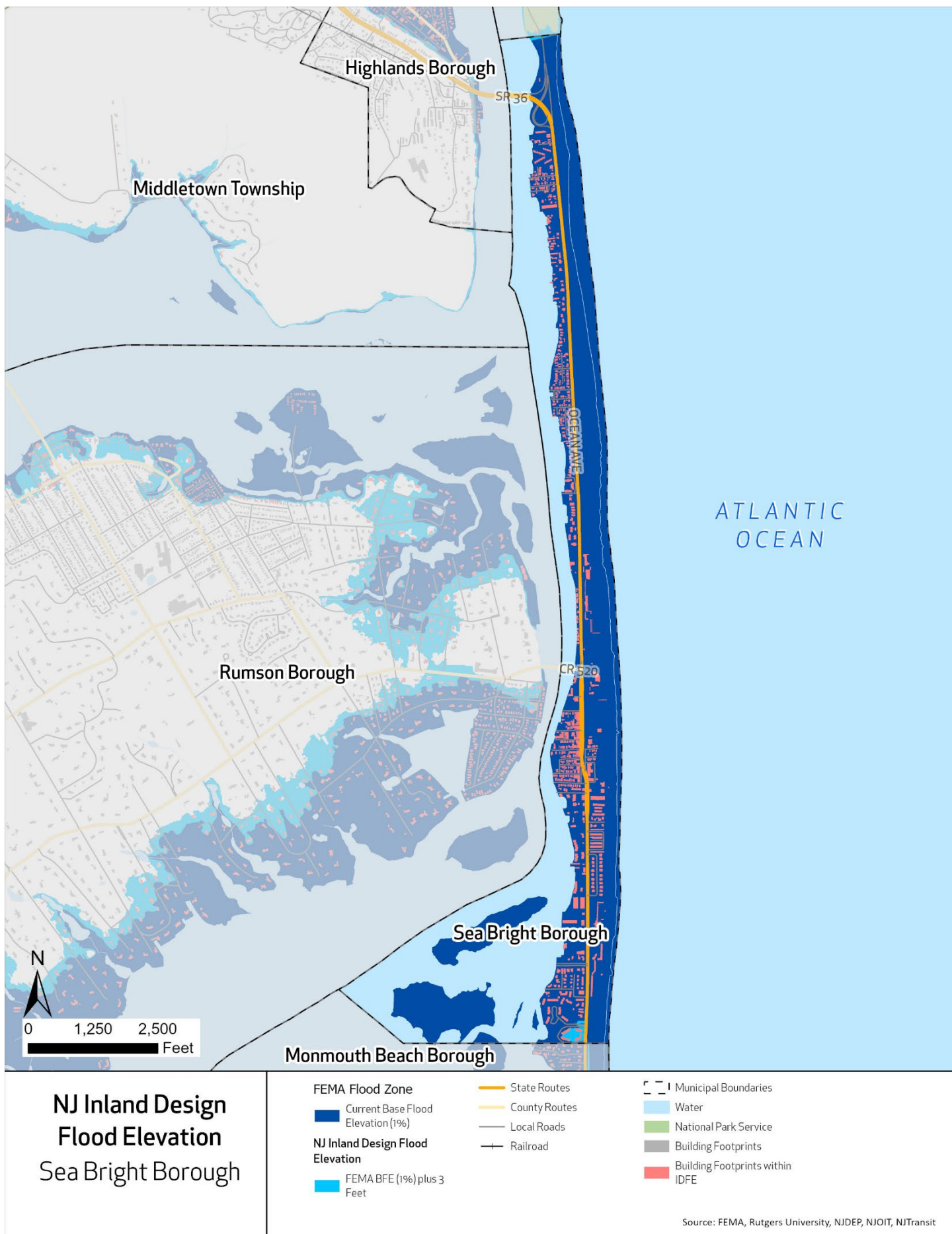
About 87.4 percent of Sea Bright is considered developed. Of the developed parcels of the town, 88.2 percent fall within the 1% annual chance flood zone and 0.9 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

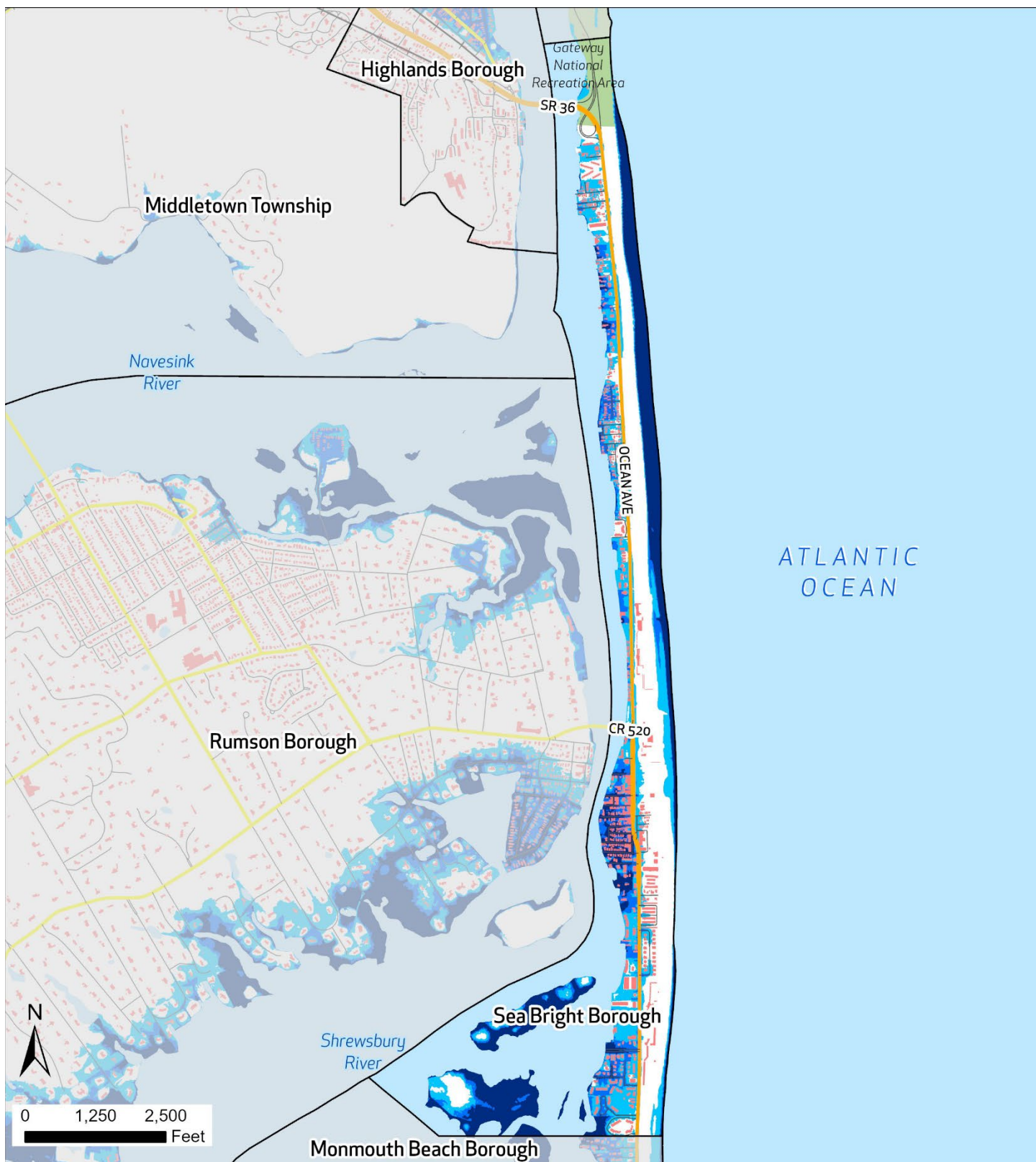
	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet of Sea Level Rise
Developed Parcels	99.0%	1.0%	79.6%
Exposed Land Area	99.5%	0.4%	75.7%

During the planning process, Neptune City identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified three total facilities. Of these facilities, all are within the floodplain and two of three are in an area which is projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 Feet of Sea Level Rise
Safety and Security	2	-	1
Health and Medical	1	-	1







**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**
Sea Bright Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprint
- Water
- National Park Service

Source: NOAA, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Sea Bright Borough

- | | |
|--|---|
| Intermix | State Routes |
| High or Medium Density Housing | County Routes |
| Low or Very Low Density Housing | Local Roads |
| No Housing | <div style="width: 5px; height: 5px; background-color: black; position: absolute; left: -5px; top: -5px;"></div> Rail Lines |

- | |
|---|
| Municipal Boundaries |
| Building Footprint |
| Water |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Sea Bright Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2017	
Capital Improvement Plan	x		2023	5-year capital improvement plan that is continuously updated
Local Emergency Operations Plan/Continuity of Operations Plan	x		2/25	List applicable hazards to borough and mitigation techniques in place in the even of said hazards
Floodplain Development Ordinance	x		5/24	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
Floodplain Management Plan	x		5/24	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
Stormwater Management Ordinance	x		7/24	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
Stormwater Management Plan	x		7/24	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
Watershed Management Plan		x		
Sheltering Plan	x		2/25	
Evacuation Plan	x		2/25	
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan	x		10/24	
Disaster Debris Management Plan		x		
Tracking elevation certificates and/or Letter of Map Change	x		Continuously Updated	
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies	x		4/23 and 5/24	
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation	X			2020 Community Recovery Plan
Other ordinance and regulation that mitigate the impacts of natural hazards	X			2018 Flood Damage Prevention Ordinance

Administrative and Technical Capabilities

Sea Bright Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		Mary Tangolics
Grant Writer	x		Rachel Giolitto
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		x	

Position	Yes	No	Explanation
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	
Organizations that work with socially vulnerable or underserved populations		x	

Education and Outreach Capabilities

Sea Bright Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Use of mailers & Nixel electronic communications
StormReady	x		StormReady certified through Monmouth County's certification
Firewise USA		x	
Severe Weather Awareness Week		x	
Community Rating System (CRS)	x		Use of mailers to raise awareness throughout boro; CRS certified, last updated 2022

Financial Capabilities

Within the last five years, Sea Bright Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance		x	
FEMA HMGP		x	
Non-FEMA Federal Funding Programs		x	
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs		x	
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

- Sea Bright is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.

Community Rating System (CRS) Classification: 6

Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

While improvements are ongoing, we have made completed updates to the seawall along the beachfront to mitigate ocean flooding. We continue to see improved bulkheads along the riverfront side with new projects and residences going up, but the effects have yet to bear fruit until the projects are completed.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
Action 35-1	Purchase and Install New Siren for Municipal Complex	Purchase and install a siren on the municipal complex.	All Hazards	N/A	N/A	N/A	N/A	N/A	Withdrawn	The Borough Hall and emergency services are in their new location. A new siren is no longer needed. Old Borough Hall is now a cultural center. Parks and rec runs it and has events like bridge and yoga. This location could also be used as shelter (100 military-issued cots).

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
Action 35-2	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevation of approximately 700 homes; 114 homes are on the Repetitive Loss List. The Borough has identified these homes as severely damaged after Superstorm Sandy. A majority of the homes on the repetitive loss list are located west of NJSH Route 36, on the river side, between Osborne Place and Peninsula Avenue. The Borough is seeking funding to provide financial assistance to Borough residents seeking to elevate their homes.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	OEM Coordinator	FEMA HMA; Municipal budget	\$105M	2 years	Ongoing	Some houses still need to be raised. The majority of raising projects occur when people buy houses, knock them down, and build new ones that are raised.
Action 35-3	Elevate Bulkhead with Pump Stations, Tide Valves to Outfalls, and	The scope of this project is completing the bulkhead by raising it 2,600 feet from the south side of the Rumson Rd. Bridge to Osborne P., along both private and public property, to create a continuous elevated	Flood, Wave Action, Extreme Wind, Nor'easter, Hurricane and Tropical	High	OEM Coordinator	FEMA HMA	\$10.2M	2 years	Ongoing	Bulkheading has gone up at the end of most streets. Rumson Bridge to Osborn Place (the downtown business district) has been the focus. Imbrie does not have a bulkhead, but most roads outside of that have elevated

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	Backflow Preventors	bulkhead equipped with four stormwater pump stations, tide flex valves at all outfalls within the project area, and backflow preventers. The Borough is seeking to raise the bulkhead elevation to 7.0ft NAVO 88, to protect these properties from the 25-year-storm event.	Storm, Storm Surge							bulkheads. R. Murphy believes they have tide valves.
Action 35-4	Floodproof the Downtown District	Floodproof a minimum of 35 buildings in the Downtown District. These businesses have been identified by the Borough as severely damaged after Superstorm Sandy. Many of the buildings (18) are also listed on the 2011 Repetitive Loss List. The Downtown District is located along Ocean Avenue/Route 36 between Peninsula Avenue and Osborne Place. The Borough is seeking funding to provide financial assistance to businesses in order to provide floodproofing to their buildings.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	OEM Coordinator	FEMA HMA	\$5.2M	1 year	Ongoing	New large project along the riverfront will require a new, higher bulkhead in the center of town
Action 35-5	Construct Berms Along Beachfront to Absorb Storm Surge	Constructing berms to protect vulnerable areas and absorb wave action storm surge, and to act as a natural barrier to the destructive forces of wind.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	OEM Coordinator	FEMA HMA	\$3M	1 year	Ongoing	Anchorage Beach needs it most. No berms have been constructed in the past couple years, but some are being done now. They are also dredging rivers and using Monmouth Beach as dump point (underground pipe by cultural center).
Action 35-6	Move the Electrical Infrastructure Underground	Move above-ground electric wires and infrastructure below-ground.	All Hazards	Medium	OEM Coordinator	CDBG, Federal and State grant	\$200,000 .00	1 year	Ongoing	

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 35-7	Target Harden Pump Stations with Camera System and Fencing	Upgrade security on all pump stations (3 sewer pumps + 2 stormwater pumps), including camera system and fencing.	Terrorism	High	Borough DPW, Police Department	Homeland Security grants	Unk	2 years	Ongoing	Discussion with Police Dept Homeland Security officer to elevate this priority to HIGH
Action 35-8	Develop a Hydrology Study to Improve Stormwater Management Borough-wide	Hydrology Study to improve stormwater management and flooding issues.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Engineering	Municipal funding	Unk	2 years	Ongoing	No progress.
Action 35-9	Maintain and Retrofit Existing Outfalls	Maintain and retrofit all existing 63 outfalls in the Borough.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough DPW, Engineering	FEMA HMA	Unk	1 year	Ongoing	continuously ongoing with new construction projects
Action 35-10	Improve Public Awareness of Severe Wind Through Outreach Activities	Improve public awareness of severe wind through outreach activities such as informing residents of shelter locations and evacuation routes; requiring or encouraging wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters; reviewing building codes and structural policies to ensure they are adequate to protect older structures from wind damage; encouraging wind-resistant roof shapes; educating design professionals to include	Extreme Wind, Nor'easter, Hurricane and Tropical Storm	Low	Planning Board, OEM	Municipal budget	Staff time	5 years	Ongoing	Outreach occurs via CRS certification.

Action	Name	Description	Hazards Addressed	Pri-ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		wind mitigation during building design.								
Action 35-11	Improve Public Awareness of Storm Preparedness at the Marina	Educate boat and marina owners on how to properly prepare for a storm in order to reduce losses. Marinas can develop a boat preparation pamphlet for boat owners. The purpose of the pamphlet would be to educate owners on how to secure boats in preparation for a hurricane, storage facility options, and actions to take after a storm.	Flood, Wave Action, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Low	Planning Board, OEM	Municipal budget	Staff time	5 years	Ongoing	Outreach occurs via CRS certification.

44 – SEA GIRT BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Timothy Harmon	OEM Coordinator	Attended Municipal Meetings, Attended Mitigation Workshop
Justin Macko	Police Chief	Assisted with appendix update
Mike McArthur	Superintendent, Department of Public Works	Assisted with appendix update
Trevor Palmer	Foreman, Department of Public Works	Assisted with appendix update
Dave Howarth	Engineer	Assisted with appendix update
Christine Bell	Floodplain Administrator, Engineer	Assisted with appendix update
Don Fetzer	Mayor	Assisted with appendix update

COMMUNITY PROFILE

Overview

Sea Girt is situated on the Jersey Shore in southern Monmouth County, New Jersey. The municipality was formed in 1917 from portions of neighboring Wall Borough and is roughly 1.05 square miles. Sea Girt – "Where the Cedars Meet the Sea" – is a quiet seaside community. The Borough offers historical bed and breakfasts, a quiet residential community, a large oceanfront park, and a quiet yet active boardwalk spanning just about a mile. Sea Girt borders Manasquan, Spring Lake, Spring Lake Heights, and Wall Boroughs.

Sea Girt borders the Atlantic coast to the east, and the primary landscape is that of coastal oceanfront. It also borders Wreck Pond to the north and Stockton Lake to the south. The coastline of Sea Girt includes dune landscapes along the Sea Girt Boardwalk. Sea Girt's commercial district is located along Washington Avenue (County Road 49).

The 2008 Reexamination Report recommended rezoning the 168-acre National Guard Training Center property from "Residential" to "Recreational Open Space," as the site is ideal for active and passive recreation should it no longer function as a training camp. The Borough followed up on this recommendation by adopting Ordinance 09-2008, which makes this zone change. The purpose of the zone change is "to preserve passive and active recreational uses, provide adequate light, air, and open space in order to promote appropriate population densities and preserve land and natural resources."

Starting in 2013, Sea Girt reconstructed its dune system, which was destroyed by Superstorm Sandy. The dunes were refurbished with sand and 4,000 plugs of dune grass from the Pinelands. Phase II of the borough's beach grass planting and dune restoration project began in October 2014, with assistance from the Jersey Shore Chapter of the Surfrider Foundation. Dune grass was planted on top of the newly constructed dunes along two blocks of the Borough's beachfront. The event was part of the Rethink the Jersey Shore campaign to promote community resiliency and sustainability. Sea Girt completed a beach replenishment project in February of 2024.

Land Use, Development, & Growth

In Sea Girt, residential and public land together constitute a large significant portion of its area. As a result, in 2020, urban or developed land made up nearly 81 percent of its total area.

Between 2015 and 2020, the Borough did not experience any significant changes in its land use; its developed land hovered at roughly 81 percent of its total area, while its wetlands, water, barren land and forests made up the remaining land base.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	51.0	33.2	-35%
Barren Land	30.2	30.2	>0%

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Forest	577.8	577.7	>0%
Urban	34.0	34.0	>0%
Water	22.0	39.8	81%
Wetlands	51.0	33.2	-35%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

There has been no major development in Sea Girt between 2020-2025. Though the Borough is largely built out, Sea Girt sees an estimated 40+ single family homes in a year be demolished or rebuilt on the same lot.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

A new development is planned at Fifth Avenue and Washington Boulevard, with a to-be-determined timeline. The plan for development includes 20-30 condominiums.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Sea Girt has a total estimated population of 2,031. Of these residents, an estimated 2.2% are under age 5, and 32.9% are over age 65. The Borough saw population growth of an estimated 18.5% over the ACS survey periods of 2013-2017 and 2018-2022. With an aging population making up nearly thirty-three percent of their total community, Sea Girt may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. Additionally, a population growth of close to twenty percent highlights potential hazard vulnerabilities related to shifts in the built environment.

There are no areas of Sea Girt which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	2,031
Population Change since 2017	18.5%
Percent of Population Age < 5	2.2%
Percent of Population > 65	32.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium,

low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Coastal Erosion	Extreme Wind	Drought
Flood	Hurricane/Tropical Storm	Earthquake
Storm Surge	Tornado	Wildfire
	Winter Storm	Dam Failure (N/A)
	Wave Action	Landslide (N/A)
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Power Failure	Economic Disruption
	Terrorism	
	Pandemic	

Hazard Ranking Explanation

Sea Girt Borough regularly experiences coastal flooding and flooding related to the high-water table in the area. Recent property damage from Nor'easters in 2021 and tornadoes in 2023 has heightened the community's desire to prepare for and mitigate these high wind hazard events.

Due to its location along the Atlantic coastline and being situated between Wreck Pond and Stockton Lake, Sea Girt faces ongoing impacts from coastal erosion. These impacts are currently mitigated through regular beach replenishment projects.

Sea Girt has identified low to no concern for hazards that have not been observed in the Borough in recent years, including Dam Failure, Landslide, and Wildfire.

Significant Hazard Events Since Last Plan Update

Beyond the reported Nor'easters in 2021, which have impacted the municipality, and ongoing coastal erosion concerns, Sea Girt experiences high water tables leading to flooding throughout the Borough.

A tornado (E2) in April 2023, with reported winds of over 120 mph, damaged buildings around the Army Camp and had a path (but no damage) over the property of Manasquan High School. Additional high winds hit Sea Girt in the spring of 2023, causing some damage to lifeguard towers on the beachfront. A Nor'easter storm in December 2021 damaged 2,500 feet of storm fencing maintained by the Borough.

Coastal erosion is an ongoing hazard of high concern for Sea Girt.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Sea Girt, NJ. As a coastal community, Sea Girt is particularly vulnerable to rising sea levels and increased storm intensity. This rise in sea level will exacerbate coastal erosion, increase the frequency and severity of coastal flooding, and lead to more sustained extreme storm surges. These changes will likely result in greater property damage, more frequent disruptions to community life, and increased costs for mitigation and recovery efforts.

Additionally, climate change is expected to bring more intense and frequent extreme weather events, such as Nor'easters and hurricanes. These high wind hazard events have already caused significant property damage in Sea Girt, and their

increased frequency and intensity will likely lead to even greater impacts in the future. The borough will need to invest in more resilient infrastructure and emergency preparedness measures to mitigate the effects of these storms.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Sea Girt Borough	
Initial FIRM Date	3/5/76
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	235
Total Losses:	110
Total Payments:	\$2,265,335.65
Number of RL Properties:	4
Number of Mitigated RL Properties:	0
RL – Total Losses:	13
RL – Total Paid:	\$215,574.98
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

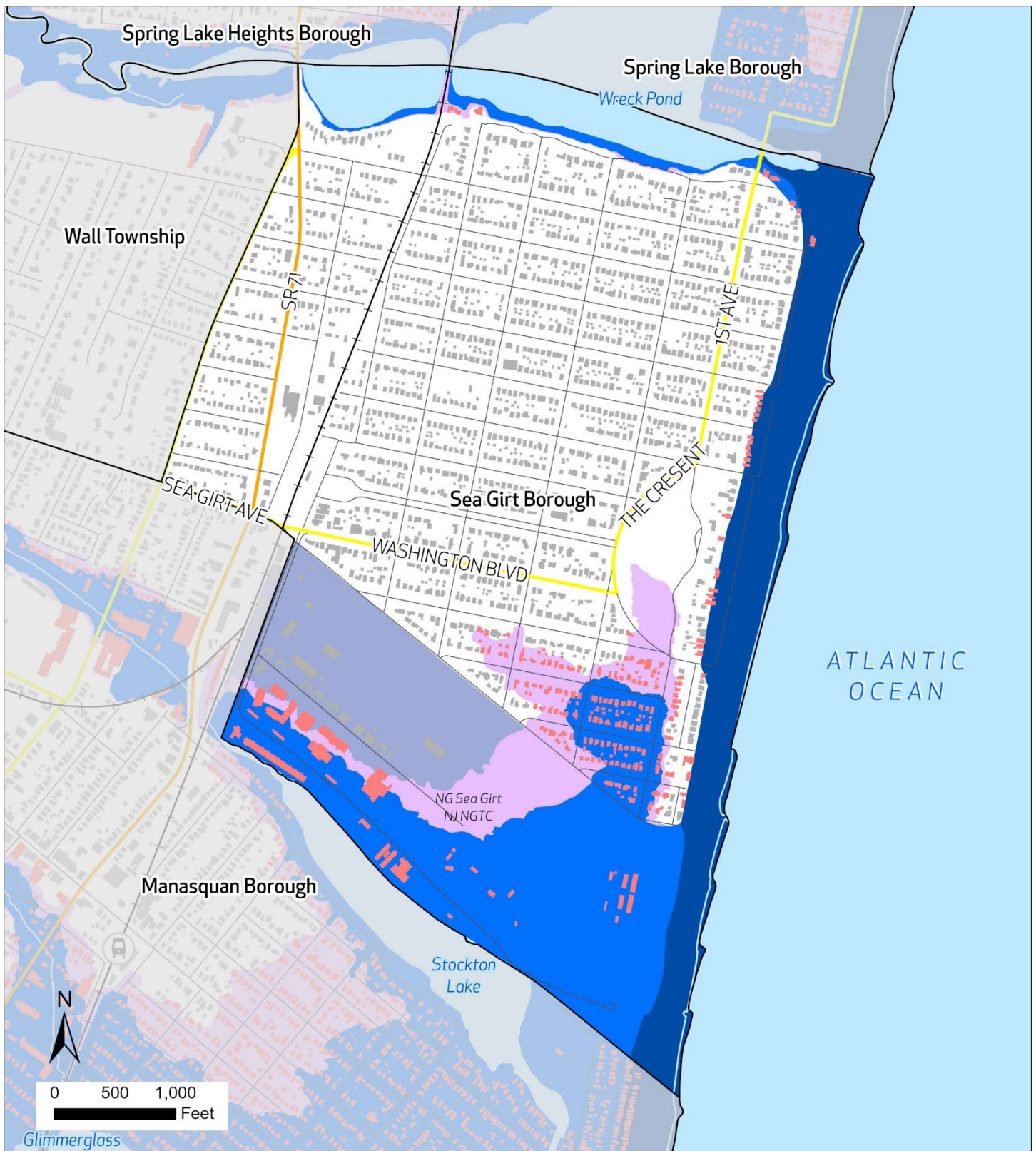
The Special Flood Hazard Area (SFHA) in the Borough of Sea Girt is primarily located adjacent to the main waterbodies of the borough including Wreck Pond, Stockton Lake, and the Atlantic Ocean, especially the NJ National Guard training center located in the south of town. Approximately 29.2 percent of the total area of Sea Girt lies within the 1% annual chance flood zone as defined by FEMA. An additional 6.0 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 85.3 percent of Sea Girt is considered developed. Of the developed parcels of the town, 10.3 percent fall within the 1% annual chance flood zone and 5.3 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	10.3%	5.3%	0.1%
Exposed Land Area	29.2%	6.0%	8.6%

During the planning process, Sea Girt identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 8 total facilities. Of these facilities, none are located within the floodplain or the area projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



Flood Risk Sea Girt Borough

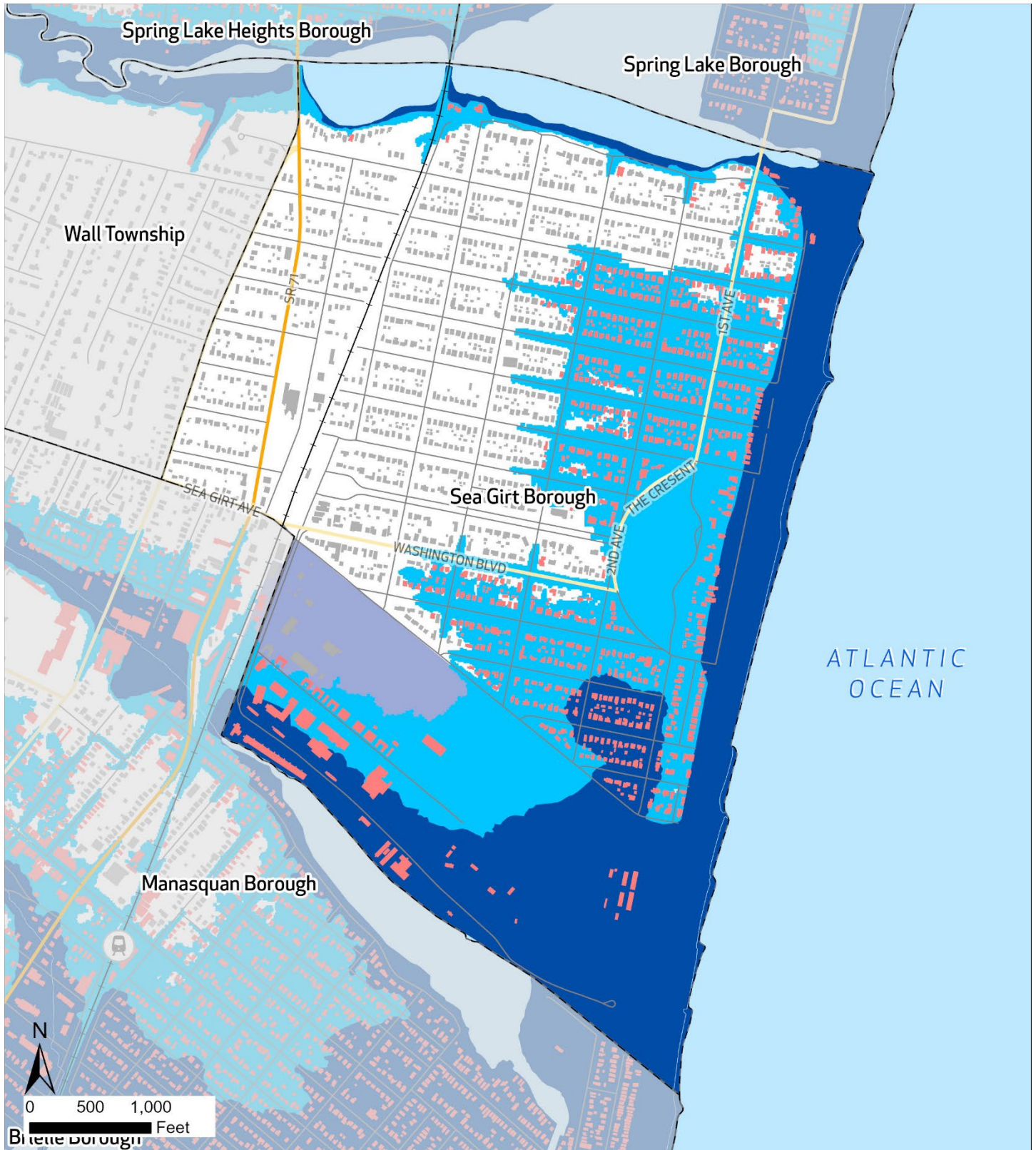
FEMA Flood Zone

- 0.2% Annual Chance
- AE (1%)
- VE (1%)

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Sea Girt Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

Railroad

NJ Transit Rail Station

Municipal Boundaries

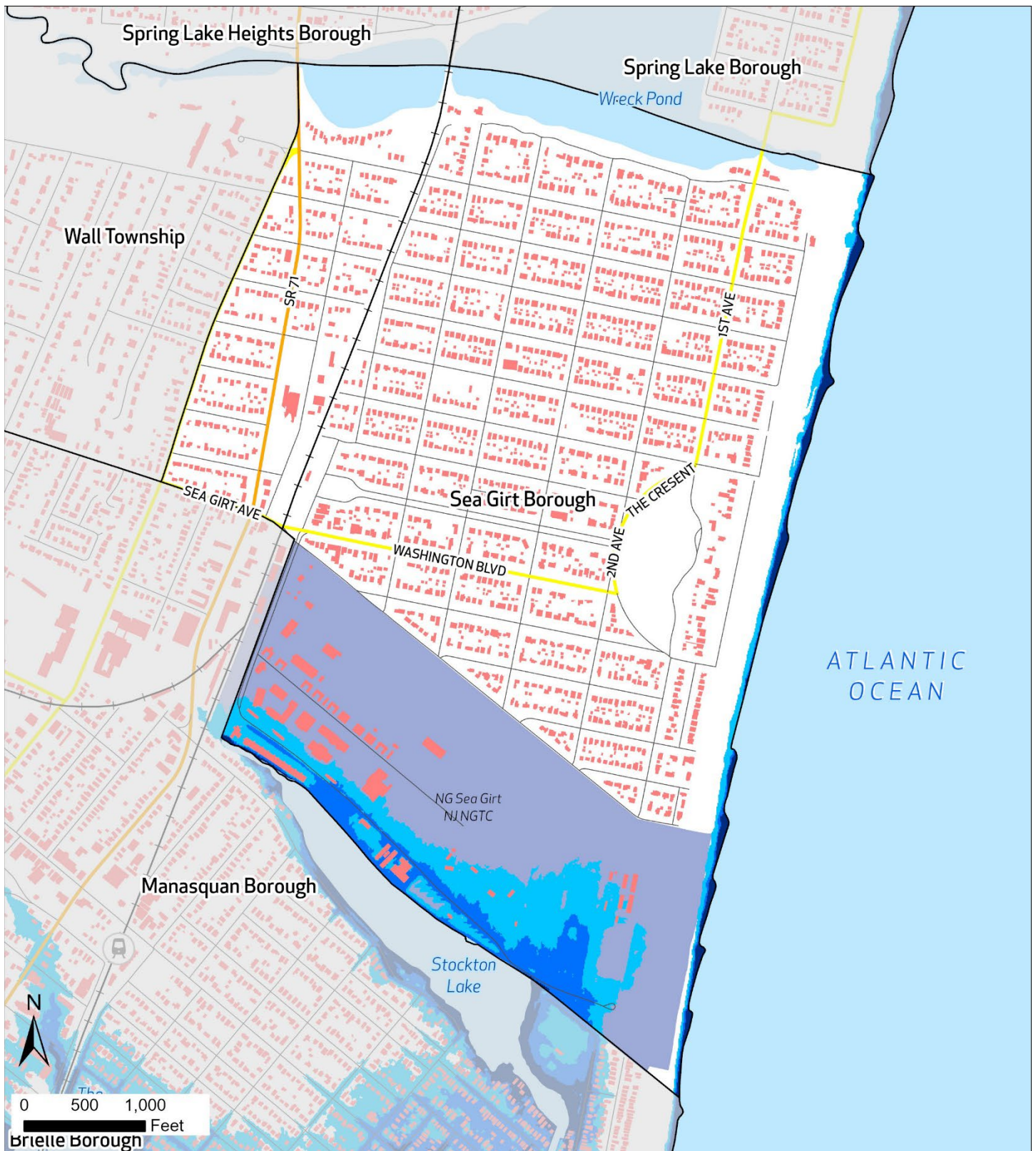
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Permanent Inundation
Under Sea Level Rise
(SLR) Scenarios**

Sea Girt Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water
- Department of Defense Land

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification Sea Girt Borough

- Intermix
- High or Medium Density Housing
- No Housing
- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Sea Girt Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		June 2018	Reexam identifies new planning recommendations related to sustainability, resiliency, and hazard mitigation. Plan discusses changes to sustainability and resiliency since last plan.
Capital Improvement Plan	X		Yearly	Annually with the CFO and Finance committee and department heads
Local Emergency Operations Plan/Continuity of Operations Plan	X		Dec 2024	New updated plan through county hired contractor
Floodplain Development Ordinance	X		June 2022	
Floodplain Management Plan				Think we utilize the county plan
Stormwater Management Ordinance	X			
Stormwater Management Plan	X			
Watershed Management Plan				
Sheltering Plan	X			Part of our EOP
Evacuation Plan	X			Part of our EOP
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			Temp Debris Removal Site
Tracking elevation certificates and/or Letter of Map Change	X			Elevation certificates for properties located within SFHA should be submitted to construction dept. and reviewed before CO is issued.
Post-Disaster Recovery Plan	X			Part of our EOP
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		N/A		
Climate Adaptation Plan		N/A		
Other Plans that discusses hazard mitigation		N/A		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Sea Girt Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Borough Engineer
Grant Writer		X	
Staff trained to support mitigation	X		Borough Engineer
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		County and surrounding municipalities
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Sea Girt Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Social Media – printed material – Borough Website
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Sea Girt Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	All HMGP funding more than five years ago
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Sea Girt has prioritized the mitigation of flooding and storm protection since our last update. Recent repairs and extensions to our outflow pipes, the work at Wreck Pond, dune maintenance/care and the 785,000 cu yds of sand recently replenished by the Army Corps of Engineers on our beaches contribute towards this goal. The Borough also has prioritized the notification to residents from all departments and emergency events that happen that require notification and attention.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 44-1	Extend Outflow Pipe	Extend the outflow pipe past the Mean High Tide Mark into the ocean and raise to an elevation as to not clog with sand.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge		Borough and Army Corps of Engineers	HMGP grant and 25% borough match			Completed	
Action 44-2	Install New Alert Horn and Siren System	Improve the notification to residents by the addition of and installation of a new generation electronic horn and public address system. Our neighboring town Manasquan Borough has this system stationed throughout its town and is able to not only alert the	All Hazards		Borough and contracted parties	HMGP grant and 25% borough match	\$200,000		Completed	
Action 44-3	Reopen Wreck Pond	Reopen the east end of the pond to allow for flow between Wreck Pond and the Atlantic Ocean.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge		Borough of Spring Lake, with cooperation and support from Sea Girt, Spring Lake Heights, and Wall Twp.	Sources of funding have already been identified and 75% of the funding is approved.	\$2,000,000		Completed	
Action 44-4	Dredge Wreck Pond	Continue to work with DEP, Spring Lake, Spring Lake Heights, Wall Borough, and Monmouth County to bring the project to completion.	Flood, Nor'easter, Hurricane and Tropical Storm		Shared responsibility with all stakeholders	Potential funding sources Army Corps of Engineers, DEP, Monmouth			Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
						County, HMGP and adjacent communities				
Action 44-5	Repair of Neptune Place pipe, addressing beach sinkholes.	Repair of outflow pipe at Neptune Place, in Spring 2024 causing beach sinkholes and subsidence. 780 cubic yards of beach were replenished.	Subsidence, Flooding	High		Municipal Budget	\$400,000	1 year	Completed	

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 44-6	Elevate Homes above the BFE	Elevate 189 homes above BFE to coincide with the FEMA Flood Mapping and directives. Variances will be allowed on height of homes in flood areas to place foundations above floodplain.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowners	FEMA HMA	\$207,900,000.00	1 year	Ongoing	No Progress
Action 44-7	Purchase and Install (or Upgrade) Generators at Critical Facilities	New generator at the Public Works building and upgrade generators at the Water Treatment Plant and Municipal Building.	All Hazards	Medium	Borough and contracted parties	FEMA HMA/ Sandy FEMA Grant	\$45,000.00	1 year	Ongoing	Complete at DPW, need others, including Mechanic Shop.
Action 44-8	Purchase Portable and Permanent Emergency Signage	The Borough wishes to improve the notification to residents and persons traveling through the Borough roadways by two different means of information: Portable: a portable sign trailer that has a message board and	All Hazards	Medium	Borough and contracted parties	Municipal budget, Homeland Security grants	\$70,000.00	1 year	Ongoing	Portable has been completed - use for events + flooded streets. Need permanent still.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		it notifies persons of hazardous condition								
Action 44-9	AM Radio Station for Communication	AM Radio Station for communication of vital information to residents. The Borough uses text alerts currently but this is needed for power outages.	All Hazards		Borough and contracted parties	HMGP grant and 25% borough match	\$50,000.00		Ongoing	No Progress
Action 44-10	Create an Emergency Recovery Plan for the National Guard Training Center	Coordinate with the NJ Department of Military and Veterans Affairs on an Emergency Recovery Plan for their National Guard Training Center. Adopt this plan as an element of the Borough's Emergency Operations Plan.	All Hazards	Medium	Borough Administration and OEM, State Youth Challenge Academy (National Guard)	Homeland Security grants, Municipal budget	Staff time	2 years	Ongoing	No Progress
Action 44-11	Increase Security at Water Tower with Surveillance Camera System and Secure Gates	Install a surveillance camera system and more secure gates at the water tower, DPW building, and the wells outside DPW. Include along boardwalk, south end pumping station, NJAW.	Terrorism	Medium	Borough OEM, Police, DPW	Homeland Security grants	\$10,000.00	1 year	Ongoing	No Progress
Action 44-12	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe	Coordinate with residents to mitigate RL/SRL properties through structure elevation, demolition to open space, or other type of mitigation.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough and Property Owners	FEMA HMA	TBD	5 + years	Ongoing	No Progress

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	Repetitive Loss (SRL) properties									
Action 44-13	Coordinate with the National Guard Training Center to Construct Flood Measure (e.g. floodwalls or berms) along Stockton Lake	Coordinate with the National Guard Training Center to construct floodwalls or berms on their property along Stockton Lake, which causes repetitive flooding in the Borough.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	National Guard and the Borough	FEMA HMA	TBD	4 years	Ongoing	<i>No Progress</i>
Action 44-14	Repair and replace the pipe sections for Baltimore Pipe Outflow and re-crib and secure the existing structure	The Borough removed the broken section from a storm last year, but the Borough would like to extend the pipe to its pre damaged length	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Coastal Erosion	Very High	Sea Girt Borough	Municipal Budget	\$350,000-\$400,000	2 years	New	

45 – SHREWSBURY BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Jerzy Chojnacki	OEM Coordinator	Point of Contact, Municipal Workshops #1 and #2
David Cranmer	Borough Engineer	Reviewed and consulted on final plan
Chris Cherbini	Borough Administrator	Provided capability assessment

COMMUNITY PROFILE

Overview

The Borough of Shrewsbury was formed in 1926 from portions of the Township of Shrewsbury and encompasses 2.3 square miles. Although predominantly a residential community, the Borough has many retail establishments along State Highway 35, most notable “The Grove at Shrewsbury,” a large upscale retail center that opened its doors to Monmouth County residents in 1988. It features open-air shopping and dining establishments set in a park-like atmosphere. It was the one of the first shopping centers of its kind in the country.

The Borough adopted a Municipal Stormwater Management Plan in 2018 that outlines its strategy to address stormwater-related impacts, such as groundwater recharge, and stormwater quality and quantity, by incorporating stormwater design and performance standards for new major development.

Land Use, Development, & Growth

In Shrewsbury, residential and public land together constitute a large significant portion of its area. As a result, in 2020, urban or developed land made up nearly 80 percent of the Borough’s total area.

Between 2015 and 2020, the community did not experience any significant changes in its land use; its developed land hovered at roughly 81 percent of its total area, while its wetlands made up 16 percent of the land base.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	4.5	4.5	>0%
Barren Land	0.0	0.0	>0%
Forest	29.2	24.0	-18%
Urban	1111.8	1119.1	1%
Water	17.3	17.5	1%
Wetlands	230.5	228.2	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

There was an addition to Shrewsbury Borough Primary School.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Affordable housing developments, including possible approval of transformation of existing office space into residential units.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through

development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Shrewsbury Borough has a total estimated population of 4,138, of which an estimated 10% are under age 5 and 21.4% are over age 65. The Borough saw moderate population growth of an estimated 2.1% over the recent ACS survey periods of 2013-2017 and 2018-2022. With an aging population making up over twenty percent of their total community, Shrewsbury may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of the Borough of Shrewsbury which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary		
Total Population (2018-2022 ACS 5-year Estimates)		4,138
Population Change since 2017		2.1%
Percent of Population Age < 5		10.0%
Percent of Population > 65		21.4%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
Hurricane/ Tropical Storm	Storm Surge	Landslide
	Tornado	Earthquake
	Winter Storm	Lightning
	Wildfire	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Terrorism	Power Failure
	Pandemic	Economic Disruption

Commented [CJ2R1]: Since Covid we can safely move it to medium

Hazard Ranking Explanation

The hazard rankings for Shrewsbury Borough have remained consistent since the previous plan update, indicating that the frequency, severity, and impact of hazards have not significantly changed. High-priority hazards include Nor'easters, floods, and hurricanes, while medium-priority hazards such as extreme temperatures and drought are monitored closely.

Significant Hazard Events Since Last Plan Update

Since the last plan update, Shrewsbury Borough has experienced localized flooding primarily affecting basements, although most of the Borough remains outside the designated flood zone. This highlights the importance of maintaining and improving drainage infrastructure to mitigate future risks.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Shrewsbury. Rising temperatures and shifting precipitation patterns will likely increase the frequency and intensity of extreme weather events such as Nor'easters, hurricanes, and heavy rainfall. This will exacerbate existing flooding issues, particularly in areas adjacent to the tributaries of the Shrewsbury River, which already lie within the 1% and 0.2% annual chance flood zones. The increased flooding risk will necessitate more robust flood management and mitigation strategies to protect residential properties, critical infrastructure, and community lifelines.

Additionally, rising sea levels will contribute to higher water tables and more frequent coastal flooding, even in areas currently outside designated flood zones. This will increase the vulnerability of the built environment and may lead to more frequent basement flooding and damage to properties previously considered safe. The Borough will need to invest in infrastructure upgrades, such as improved drainage systems and flood barriers, to mitigate these risks. By proactively addressing these challenges, Shrewsbury can better protect its residents and infrastructure from the adverse effects of climate change.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Shrewsbury Borough	
Initial FIRM Date	8/1/79
Effective FIRM Date	6/20/2018
Number of Policies In-Force:	31
Total Losses:	10
Total Payments:	\$116,816.15
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$5,627.78
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

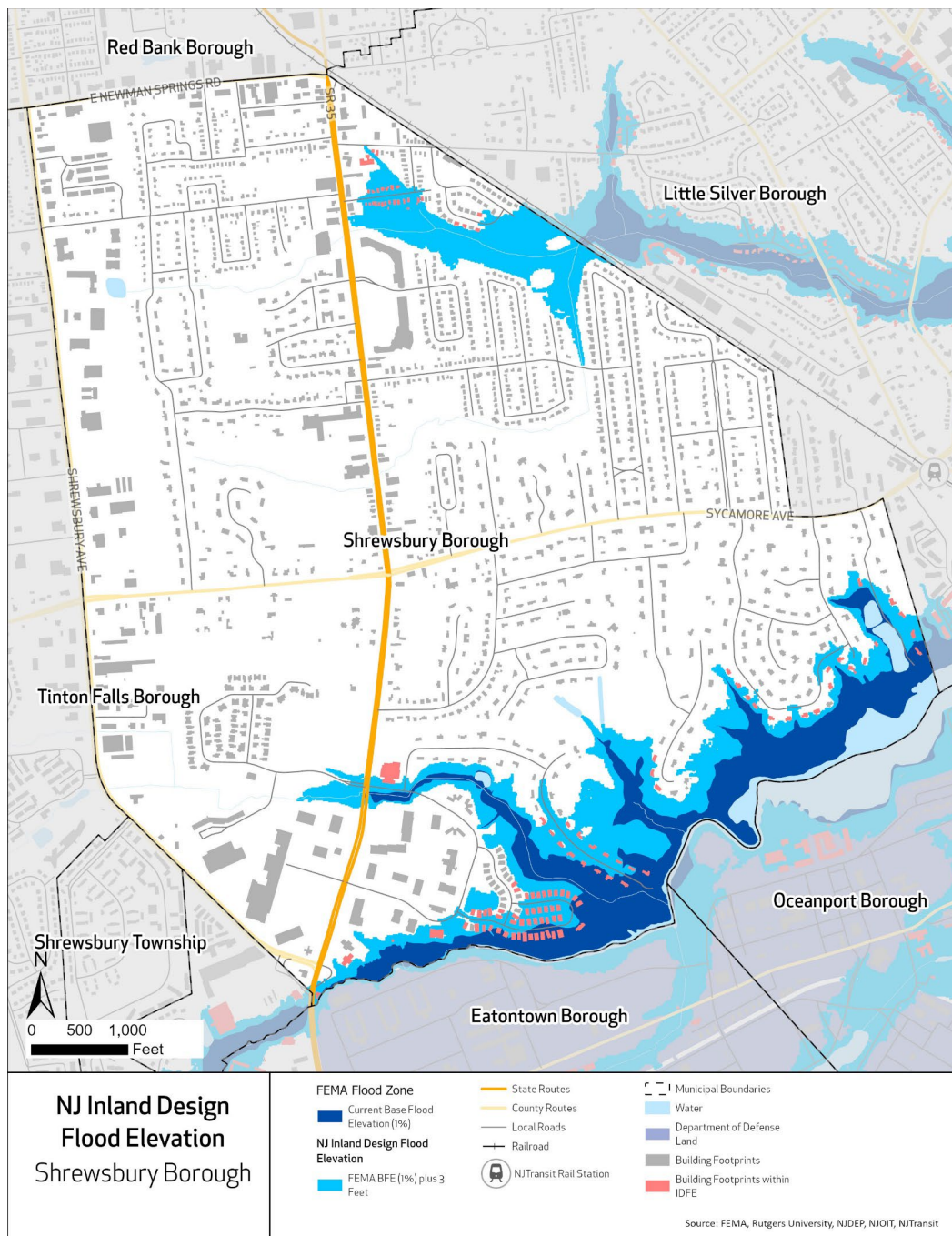
The Special Flood Hazard Area (SFHA) in the Shrewsbury Borough is primarily located adjacent to the tributaries of the Shrewsbury River which flow through the town. Approximately 6.6 percent of the total area of Shrewsbury Borough lies within the 1% annual chance flood zone as defined by FEMA. An additional 9.8 percent of the area of the municipality is in the 0.2% annual chance flood zone.

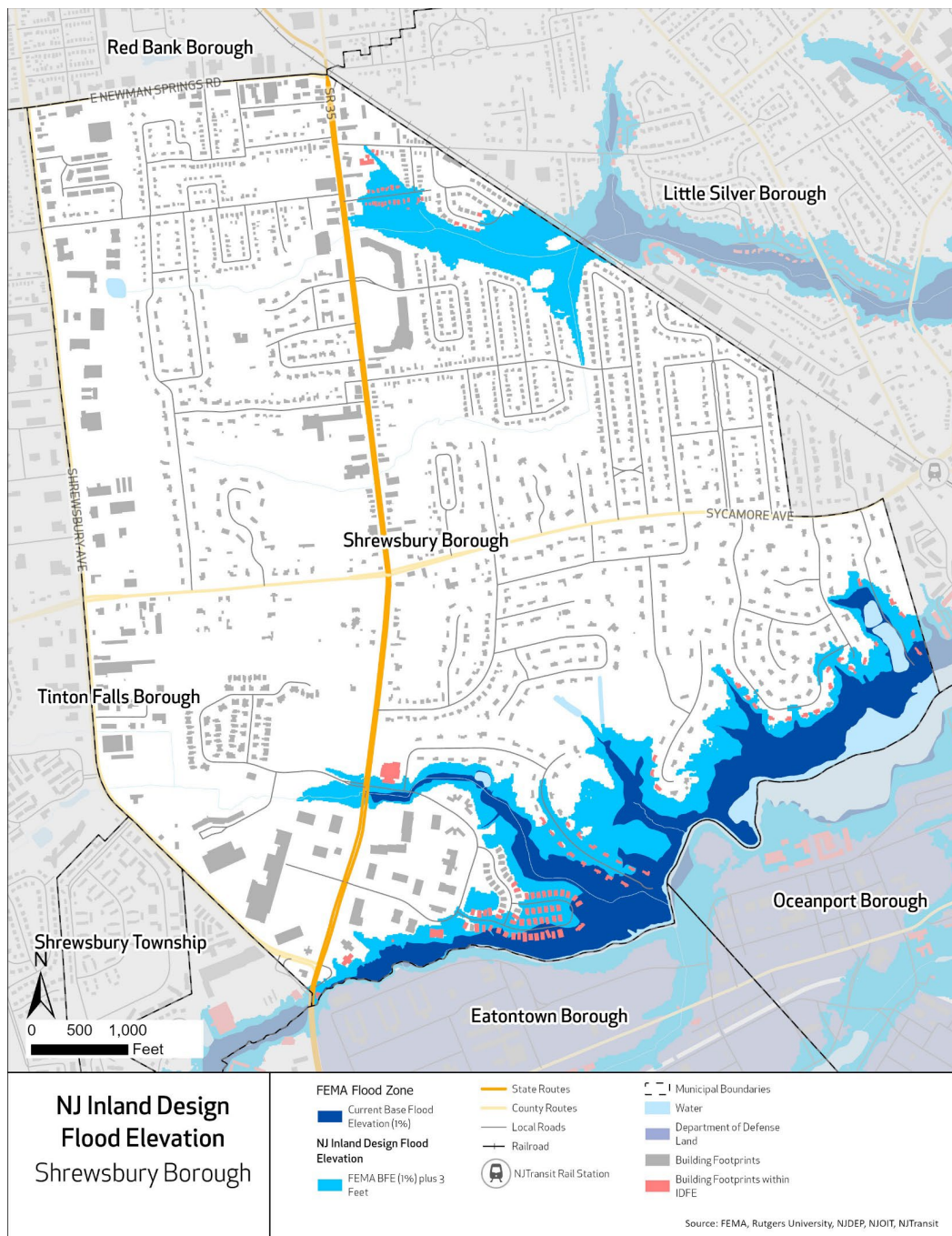
About 85.3 percent of Shrewsbury Borough is considered developed. Of the developed parcels of the town, 3.6 percent fall within the 1% annual chance flood zone and 6.6 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

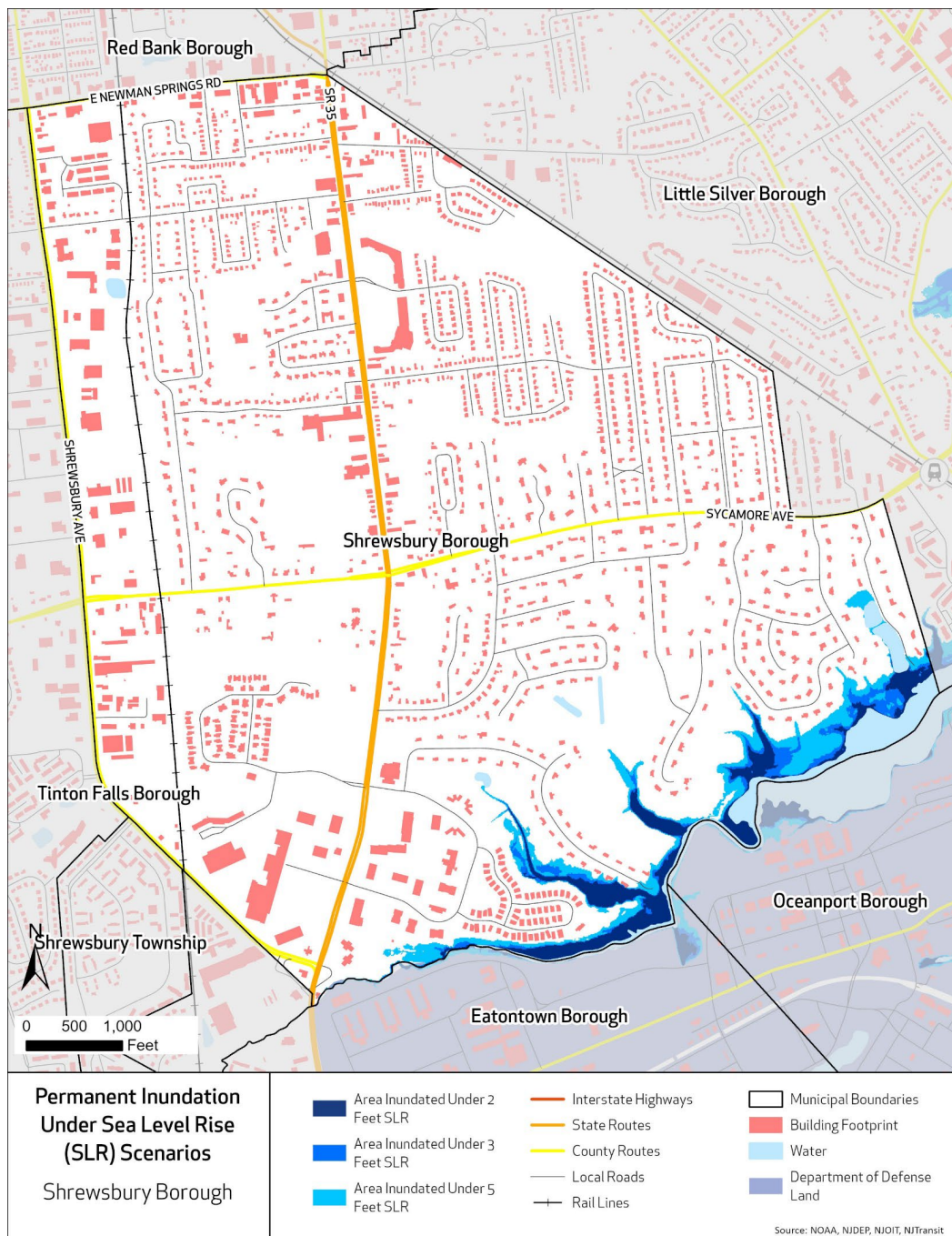
	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	3.7%	6.7%	NA
Exposed Land Area	6.6%	9.8%	NA

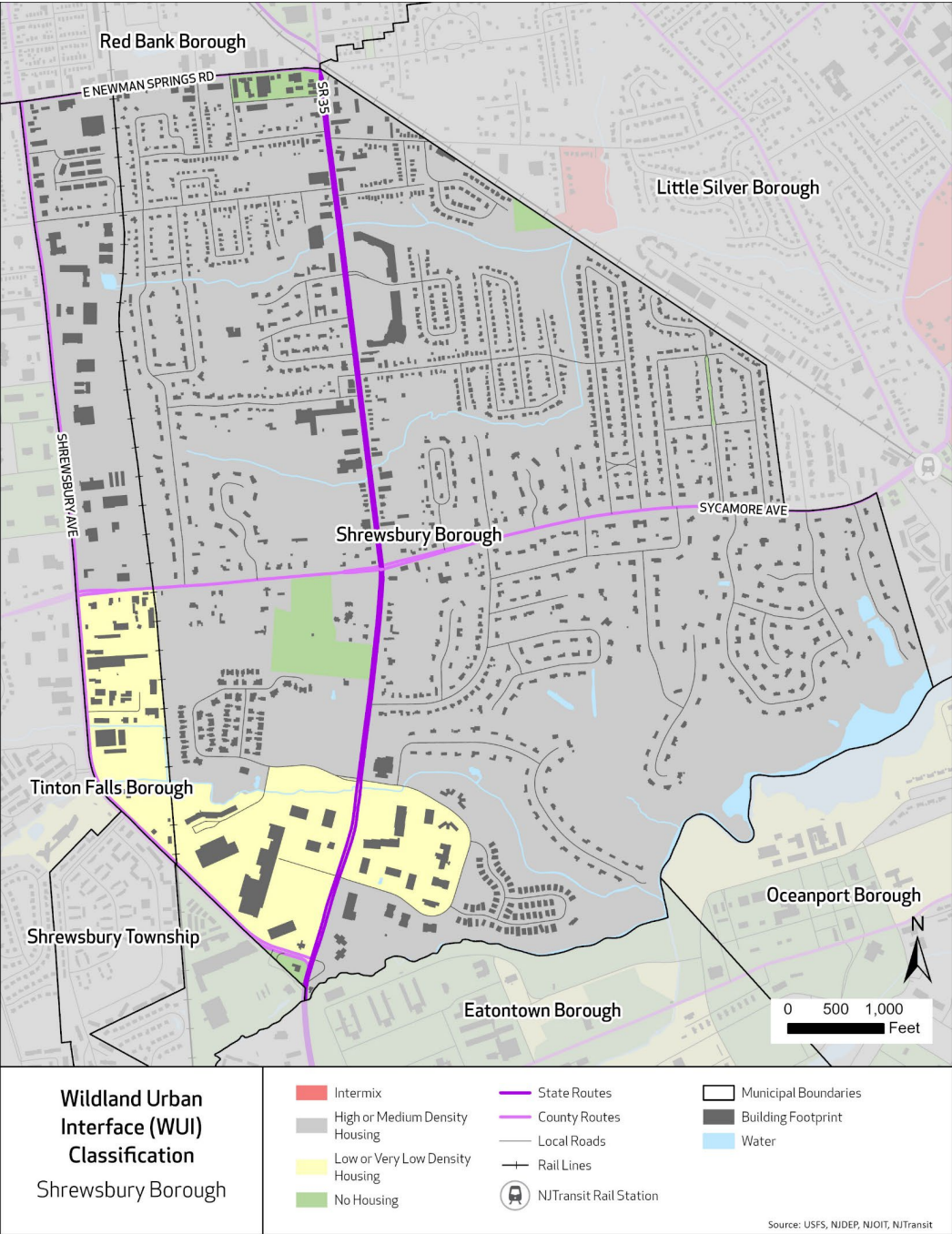
During the planning process, Shrewsbury Borough identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 10 total facilities. Of these facilities, none are within the floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	NA









CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Shrewsbury Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2016	Monitoring changes in the assumptions, policies and objectives forming the basis for the master plan or development regulations with particular regard to the density and distribution of population and land uses, housing conditions, circulation, conservation of natural resources, energy conservation, collection disposition and recycling of designated recyclable materials, and changes in State, county and municipal policies and objectives.
Capital Improvement Plan	x		2024	
Local Emergency Operations Plan/Continuity of Operations Plan		x		
Floodplain Development Ordinance	x		2021	Limiting and closely monitoring any development in the municipality with regard to floodplain and storm water management
Floodplain Management Plan	x		2024	
Stormwater Management Ordinance	x		2024	
Stormwater Management Plan	x		2006	
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		x		

Administrative and Technical Capabilities

Shrewsbury Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer	x		
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		x	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations	x		

Education and Outreach Capabilities

Shrewsbury Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		
StormReady	x		
Firewise USA		x	
Severe Weather Awareness Week	x		
Community Rating System (CRS)	x		

Financial Capabilities

Within the last five years, Shrewsbury Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		x	
FEMA FMA		x	
FEMA Public Assistance	x		
FEMA HMGP		x	
Non-FEMA Federal Funding Programs	x		
Other FEMA resources		x	
NJ Infrastructure Bank		x	
Other state municipal assistance or grant programs	x		
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		x	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Shrewsbury Borough continues to implement comprehensive strategies to proactively reduce the risk of damage and loss of life from natural hazards like floods, hurricanes, and winter storms by identifying high-risk areas, implementing preventative measures like land use planning and zoning, infrastructure upgrades, public awareness campaigns, and community preparedness initiatives, ultimately aiming to minimize the impact of future natural disasters and build resilience within the community. Past focus and priority have been to reduce repetitive flooding while improving and maintaining drainage infrastructure. Future projects will further focus on this area.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 45-1	Upgrade Drainage System and De-slag and Clean the Little Silver Creek	Replacement and upgrade of stormwater drainage infrastructure, stream clearing, and deslagging of Little Silver Creek.	Flood, Nor'easter, Hurricane and Tropical Storm	N/A	Borough Engineer	Monmouth County	\$150,000	N/A	Completed	\$40,000 per year funded by tax levy

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 45-2	Establish Public Awareness and Education Programs	Work with municipal and community stakeholders to setup a committee to develop all hazard education program including web resources and handouts. Specifically develop checklists and steps that individual residents can use to evaluate their own and immediately surrounding properties for potential impact and damage sources.	All Hazards	Medium	OEM and LEPC directives and plans.	OEM municipal budget	\$2,000	5 + years	Ongoing	Currently implementing mitigation initiatives and education as part of master plan update.
Action 45-3	Relocate the First Aid Squad Outside Flood-prone Area	The First Aid Squad is located in an area that is prone to flooding. Although the building itself does not flood, the access road floods frequently reducing accessibility to the building. The town is considering	Flood, Nor'easter, Hurricane and Tropical Storm	Low	First Aid Squad	Capital budget and First Aid Squad Budget; FEMA HMA	\$500,000	1 year	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		moving the squad to a more desirable location.								
Action 45-4	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate flood-prone residential structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List. There is one property that is on the Borough's RL list.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	High	Construction	FEMA HMA	TBD	1 year	Ongoing	
Action 45-5	Re-construction of Glorney Street to mitigate frequent flooding.	Vertical re-alignment of Glorney Street to raise street above flooding level.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	High	Construction	Capital budget	138,000	1 year	Ongoing	Project was started in 2024 and should be nearing completion in 2025. Project will eliminate repetitive flooding.

46 – SHREWSBURY TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Eric Jackson	OEM Coordinator	Primary point of contact, Attended Municipal Meeting
Lester J. Jennings	Mayor	Reviewed appendix

COMMUNITY PROFILE

Overview

As an original township within Monmouth County, Shrewsbury Township once covered nearly 1,000 square miles, and dates to an origin in 1693. Over 70 new municipalities were then created within Shrewsbury's boundaries, leaving the township, with 0.1 square mile, the smallest municipality in Monmouth County.

Shrewsbury Township is built out and is almost entirely comprised of residential land uses. It is bordered by Tinton Falls and Shrewsbury Borough municipalities. The township is landlocked and sits in central Monmouth County between small waterways, including Parkers Creek Branch, before its emptying in the Shrewsbury Bay. Commercial land uses are accessible near the eastern border of the borough with Tinton Falls. In central Shrewsbury, Shrewsbury Township Recreational Department is home to public recreation areas.

Land Use, Development, & Growth

Shrewsbury Township is a small community consisting primarily of residential land and apartments. It did not experience any significant land use changes between 2015 and 2020; the share of the Township's urban or developed land hovered at roughly 95 percent of the total Township, covering an area of nearly 60 acres, while forested land and

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	-	-	-
Forest	2.3	2.3	>0%
Urban	59.8	59.8	>0%
Water	0.0	0.0	-
Wetlands	0.6	0.6	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

None since 2020.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None since 2020.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over

65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Shrewsbury has a total population estimated at 1,269. Of Shrewsbury Township residents, an estimated 2.6% are under age 5 and nearly 11% (10.95%) are estimated to be over age 65. The Township saw population growth of 13.6% estimated between the ACS survey periods of 2013-2017 and 2018-2022. Though no recent or upcoming large-scale development is noted by the community, a population growth of over 13% between five-year survey periods also highlights potential local vulnerabilities related to shifts in the built environment and a risk of densification causing additional hazard impacts.

The entirety of this Township is a block group which has been identified as potentially vulnerable due to overburden, meeting criteria for Minority population vulnerabilities. There are no parts of the Township which have been identified under CDRZ or CEJST definitions.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	1,269
Population Change since 2017	13.6%
Percent of Population Age < 5	2.6%
Percent of Population > 65	11.0%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
	Extreme Temperatures	Lightning
	Extreme Wind	Drought
	Hurricane/Tropical Storm/Nor'easter	Flood
	Tornado	Earthquake
	Winter Storm	Wildfire
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	

Note: Coastal Erosion, Dam Failure, Landslide, Storm Surge and Wave Action are ranked as N/A.

Hazard Ranking Explanation

With Shrewsbury Township's location, size, and landscape, the Township identifies no hazards as hazards of 'high' concern. The absence of adjacent coasts or main waterways eliminates concerns related to coastal erosion, flooding, or sea level rise hazards. Additionally, the built-out nature of the Township minimizes the risk of wildfires. Hazards of 'medium' concern include widespread storm events such as Hurricane/Tropical Storm/Nor'easter, Tornado, Winter Storm, and

extreme temperatures. These medium-priority hazards are monitored closely to ensure the safety and resilience of the community.

Significant Hazard Events Since Last Plan Update

Since the last plan update, no significant hazard events have been noted in Shrewsbury Township. This stability in hazard events indicates that the existing mitigation strategies and infrastructure have been effective in managing risks. However, continuous monitoring and updating of hazard mitigation plans are essential to address any emerging threats and ensure the ongoing safety of the Township.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Shrewsbury Township, NJ. Rising temperatures and shifting precipitation patterns will likely increase the frequency and intensity of extreme weather events such as hurricanes, Nor'easters, and heavy rainfall. This will exacerbate existing flooding issues, particularly in areas adjacent to small waterways like Parkers Creek Branch. The increased flooding risk will necessitate more robust flood management and mitigation strategies to protect residential properties and critical infrastructure.

Additionally, rising temperatures and prolonged heatwaves will pose challenges to the community, especially for vulnerable populations such as the elderly and young children. The built-out nature of the Township minimizes wildfire risk, but extreme temperatures can still strain public health resources and infrastructure. Shrewsbury Township will need to invest in infrastructure upgrades, such as improved drainage systems and cooling centers, to mitigate these risks and enhance community resilience.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Shrewsbury Township	
Initial FIRM Date	9/25/2009
Effective FIRM Date	No SFHA
Number of Policies In-Force:	0
Total Losses:	0
Total Payments:	\$0
Number of RL Properties:	0
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

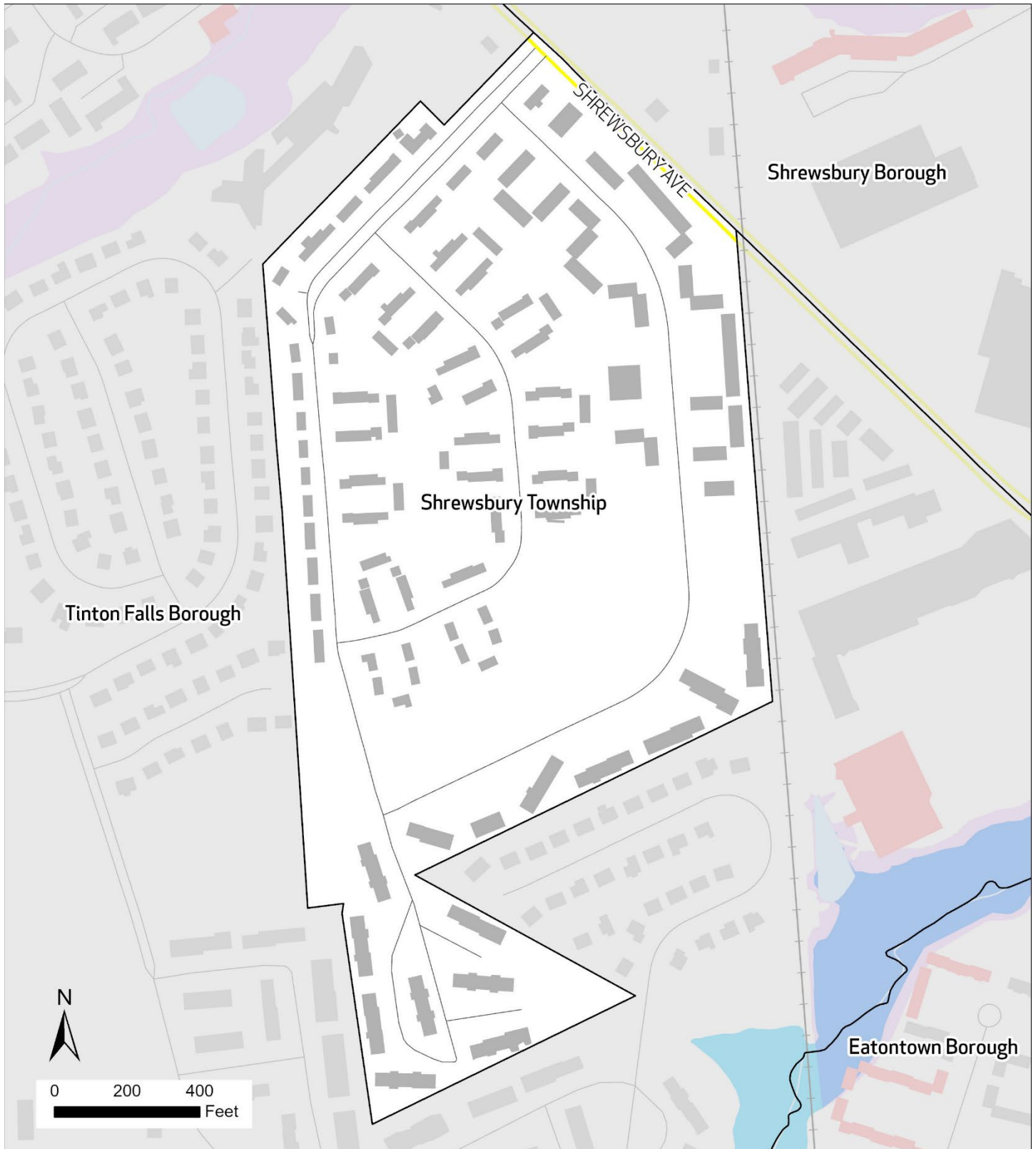
Shrewsbury Township contains no floodplain identified as part of the Special Flood Hazard Area (SFHA). Zero percent of the total area of Shrewsbury Township lies within the 1% or 0.2% annual chance flood zone as defined by FEMA.

About 77.7 percent of Shrewsbury Borough is considered developed. Of the developed parcels of the town, none fall within either the 1% or the 0.2% annual chance flood zone. This illustrates that the municipality faces minimal flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 Feet of Sea Level Rise
Developed Parcels	NA	NA	NA
Exposed Land Area	NA	NA	NA

The township did not identify any critical facilities during the planning process, however, none of the facilities in the town lie within the floodplain or the area projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	NA	NA	NA



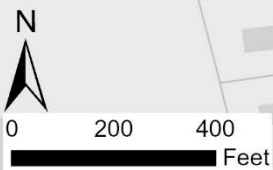
Flood Risk

Shrewsbury Township

County Routes
Local Roads

Municipal Boundaries
Building Footprints
Building Footprints within Floodplain
Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Shrewsbury Township

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— County Routes

— Local Roads

— Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



**Wildland Urban
Interface (WUI)
Classification**
Shrewsbury Township

- | | | |
|--|--|---|
| Intermix | County Routes | Municipal Boundaries |
| High or Medium Density Housing | Local Roads | Building Footprint |
| Low or Very Low Density Housing | + Rail Lines | Water |
| No Housing | | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Shrewsbury Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan		X		
Capital Improvement Plan		X		
Local Emergency Operations Plan/Continuity of Operations Plan		X		
Floodplain Development Ordinance		X		
Floodplain Management Plan		X		
Stormwater Management Ordinance	X			Stormwater best practices has remained a focus of the Township since 2008, when it first adopted a Municipal Stormwater Management Plan and a Stormwater Control Ordinance.
Stormwater Management Plan		X		
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Shrewsbury Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		X	
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Shrewsbury Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		The Township's website provides information on solutions to stormwater pollution.
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Shrewsbury Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Township of Shrewsbury would like to prioritize improvements their critical facilities, including a generator for the municipal building, air conditioning for gymnasium to use as a cooling station, and lighting to assist with safety and security concerns for the park and recreation.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
There are no completed or withdrawn 2021 actions at the time of this update.										

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 46-1	Purchase and Install a Generator for the Township Municipal Building and Make Necessary Improvements to EOC	The Township Municipal Building needs an emergency generator and EOC needs improvements to the telecom and electrical systems to remain operable during power outages.	All Hazards	Medium	Township Engineer and Township Clerk	FEMA HMA	\$300,000	1 year	Ongoing	Currently having a discussion with Mayor Jennings about the funding and purchase of a Generac Generator for Municipal building knowing that it would not cost 300k
Action 46-2	Implement BMPs from the Stormwater Management Plan	Ongoing implementation of the practices identified in the current Stormwater Management Plan.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Mayor and Committee	Municipal budget	\$300,000	1 year	Ongoing	This is Ongoing
Action 46-3	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe	Acquire, elevate, or relocate structures that repetitively flood. Currently there are no properties on NFIP's RL/SRL property list, however if a property becomes a RL/SRL property, then work with	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Engineer	FEMA HMA	TBD	5 + years	Ongoing	This is Ongoing.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
	Repetitive Loss (SRL) properties	residents to mitigate the repetitive flooding.								
Action 46-4	Purchase and Install Surveillance Cameras and additional lighting at DPW, Parks, and Municipal Building	Install surveillance cameras at both the DPW & Township Municipal Building.	Terrorism	Medium	Township	Homeland Security grants	TBD	1 year	Ongoing	Cameras are already in place. New system has been purchased and delivered. Awaiting instillation at this time.
Action 46-5	Coordinate with State Police on Emergency Response Time	Create a plan with the State Police on quicker response time. The Township is open to allowing the State Police to have a staging area within the Township.	All Hazards	Medium	Township, State Police, City of Long Branch	Homeland Security grants, Monmouth County budget, municipal budget	TBD	2 years	Ongoing	This is Ongoing
Action 46-6	Purchase and Install Generator for Pump Station	Purchase and maintain generators to continue critical community services during utility interruptions and storm events.	All Hazards	High	Township	FEMA HMA	TBD	1 year	Ongoing	Pump station has been toured during routine maintenance. There is a Generac on site and all in in good operational readiness.
Action 46-7	Purchase a HVAC system for the Gymnasium to serve as a cooling center	Air Conditioning for Gymnasium to use as a cooling station for the town as we have already replaced the Heating System	Extreme Heat	High	Township	FEMA HMA	TBD	5 years	New	

47 – SPRING LAKE BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Edwin J. Hale	Deputy Coordinator, Spring Lake OEM	Attended Municipal Meeting
Bryan Dempsey	Municipal Business Administrator	Reviewed municipal appendix
Robbin Kirk	Municipal CFO	Reviewed municipal appendix

COMMUNITY PROFILE

Overview

Spring Lake Borough is a coastal community along the Jersey Shore in Monmouth County. The community was formed from portions of Wall Township in 1892 and named for a spring-fed lake in the center of town. The Borough is a desirable residential community, consistently named as a “Best Place to Live,” and shares its eastern border with the Atlantic Coast. It is bordered to the south by Wreck Pond and the Wreck Pond Brook, to the north by Lake Como, and to the west by the Borough of Spring Lake Heights.

With a land area of 1.30 square miles and two miles of beachfront, the Borough of Spring Lake serves as a popular summer tourist destination in addition to year-round residential community. The central lake, also named Spring Lake, is a popular spot for leisure and recreation. The Spring Lake boardwalk has been recognized as the longest, uninterrupted, non-commercial boardwalk in the State of New Jersey.

Spring Lake is primarily a coastal community, with beachfront and dunes making up the eastern border of the Borough. Spring Lake is a central attraction and green space for the community, surrounded by Divine Park and bordering nearby Potter Park. To the south, the North Branch of the Wreck Pond Brook and Wreck Pond provide some green space and water flow ultimately reaching the Wreck Pond Inlet at Pier Beach. The community has green space and parks access at Marucci Memorial Park along Polypod Brook to the north of the Borough.

Land Use, Development, & Growth

Spring Lake is a predominantly residential community and home to substantial publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; urban or developed land accounted for nearly 80 percent of its total area during this period. The area covered by water did decline marginally by 7 percent or 7.3 acres, while its barren land gained 12 percent more land or 6.3 acres, but the town’s overall land use composition remained largely the same.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	53.7	60.0	12%
Forest	3.8	3.8	0%
Urban	756.2	757.2	0%
Water	102.7	95.4	-7%
Wetlands	29.6	29.6	0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Spring Lake Borough is largely built out and has experienced no major development in recent years since 2020.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In 2023, Spring Lake purchased a vacant property along Third Avenue, for \$3.3 million, with the goal of turning the building into a mixed-use development. The Borough currently plans to find a restaurant tenant for the first floor with three upper-story affordable apartments.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Spring Lake Borough has a total estimated population of 2,788. Of these residents, nearly 2.0% are estimated to be under age 5, and 37.8% are over age 65. The Borough experienced an estimated -6.4% population decline over the ACS survey periods between 2013-2017 and 2018-2022. With an aging population making up nearly thirty eight percent of their total community, Spring Lake may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. Additionally, a population loss of over six percent over two five-year survey periods illustrates that changes to the built and social environment may be present locally which impact pre-hazard communication and post-disaster response.

There are no areas of Spring Lake which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	2,788
Population Change since 2017	-6.4%
Percent of Population Age < 5	2.0%
Percent of Population > 65	37.8%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm/Nor’easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
Storm Surge	Tornado	Earthquake
Coastal Erosion	Winter Storm	Wildfire

High	Medium	Low
Natural Hazards		
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	Power Failure
	Terrorism	

The Borough ranked Dam Failure and Landslide as N/A.

Hazard Ranking Explanation

Flooding in Spring Lake is the hazard of primary concern due to the community's proximity to the coast, its location between coastal lakes, and the presence of waterways that flow to the Atlantic. The Borough experiences regular flooding, with high water tables causing minor flooding in basements and yards. Coastal erosion is also a significant concern, which has been mitigated to date by beach replenishment projects. These projects are particularly impactful following storm events such as hurricanes, tropical storms, and Nor'easters. The ongoing efforts to replenish the beaches help to protect the shoreline and reduce the impact of coastal erosion on the community.

The Wreck Pond Inlet and Dunes Restoration Project, completed in 2016, included dredging and berm construction to address water quality issues and provide flood mitigation. This project has been instrumental in improving the resilience of the area to flooding and enhancing the overall environmental quality of the region.

Significant Hazard Events Since Last Plan Update

Since the last plan update, there have been no major flood events in Spring Lake. However, the Borough continues to experience regular flooding, particularly during high water and post-storm events with heavy rainfall. These recurring flooding incidents highlight the ongoing need for effective flood management and mitigation strategies to protect the community and its infrastructure from the adverse effects of flooding.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Spring Lake, NJ. Rising sea levels and increased storm intensity will exacerbate coastal erosion and increase the frequency and severity of coastal flooding. This will likely result in greater property damage, more frequent disruptions to community life, and increased costs for mitigation and recovery efforts. The Borough's location between Wreck Pond and Lake Como heightens its vulnerability to flooding, necessitating more robust flood management and mitigation strategies.

Additionally, climate change is expected to bring more intense and frequent extreme weather events, such as Nor'easters and hurricanes. These high wind hazard events have already caused significant property damage in Spring Lake, and their increased frequency and intensity will likely lead to even greater impacts in the future. The Borough will need to invest in more resilient infrastructure and emergency preparedness measures to mitigate the effects of these storms. By proactively addressing these challenges, Spring Lake can better protect its residents and infrastructure from the growing risks posed by climate change.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Spring Lake Borough	
Initial FIRM Date	2/17/82
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	550
Total Losses:	506

Spring Lake Borough	
Total Payments:	\$15,881,860.67
Number of RL Properties:	79
Number of Mitigated RL Properties:	2
RL – Total Losses:	200
RL – Total Paid:	\$6,205,142.30
Number of SRL Properties:	12
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	48
SRL – Total Paid:	\$1,698,859.49

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

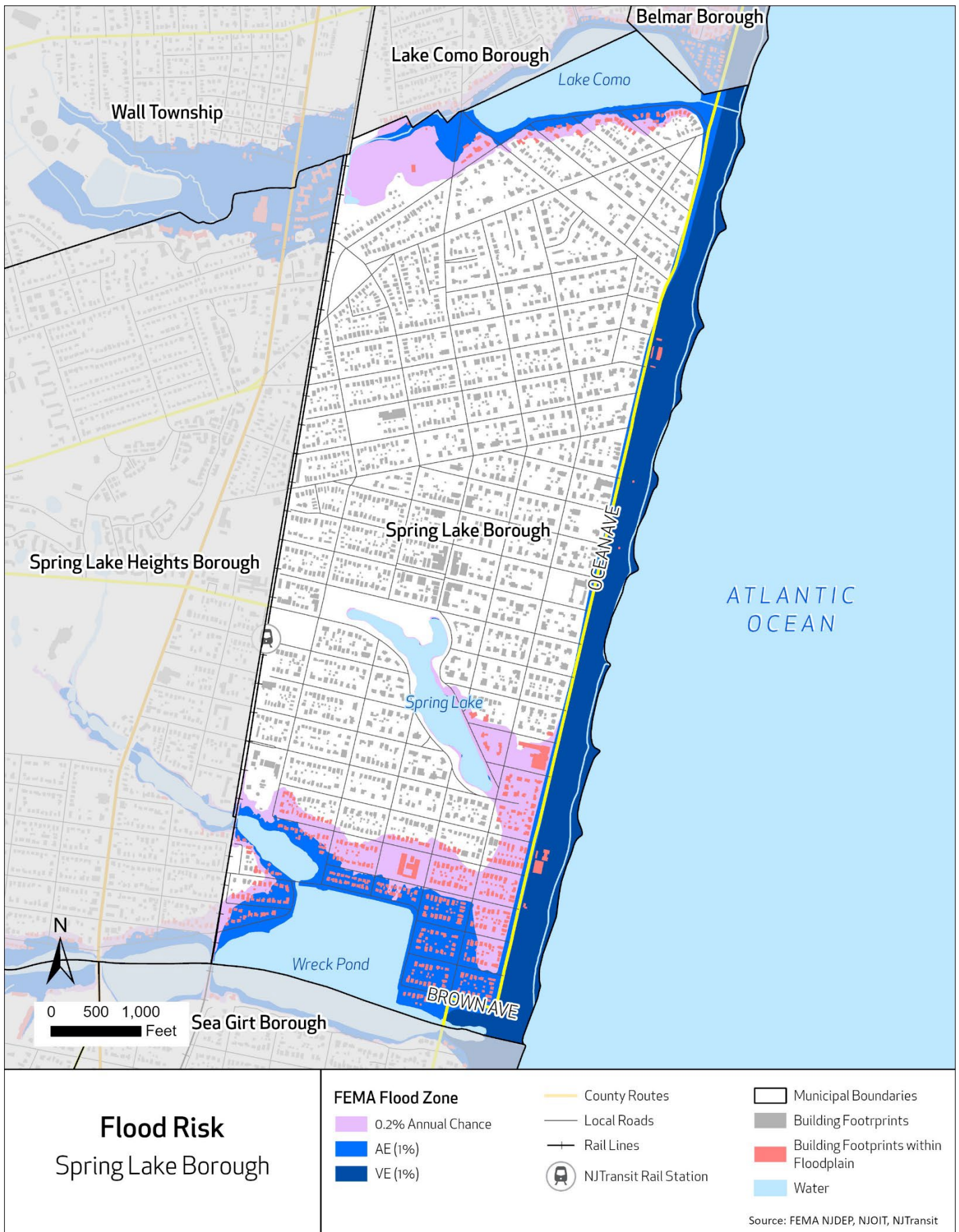
The Special Flood Hazard Area (SFHA) in the Borough of Spring Lake is primarily located adjacent to the main waterbodies of the Borough including Spring Lake, Wreck Pond, Lake Como, and the Atlantic Ocean. Approximately 27.2 percent of the total area of Spring Lake lies within the 1% annual chance flood zone as defined by FEMA. An additional 8.8 percent of the area of the municipality is in the 0.2% annual chance flood zone.

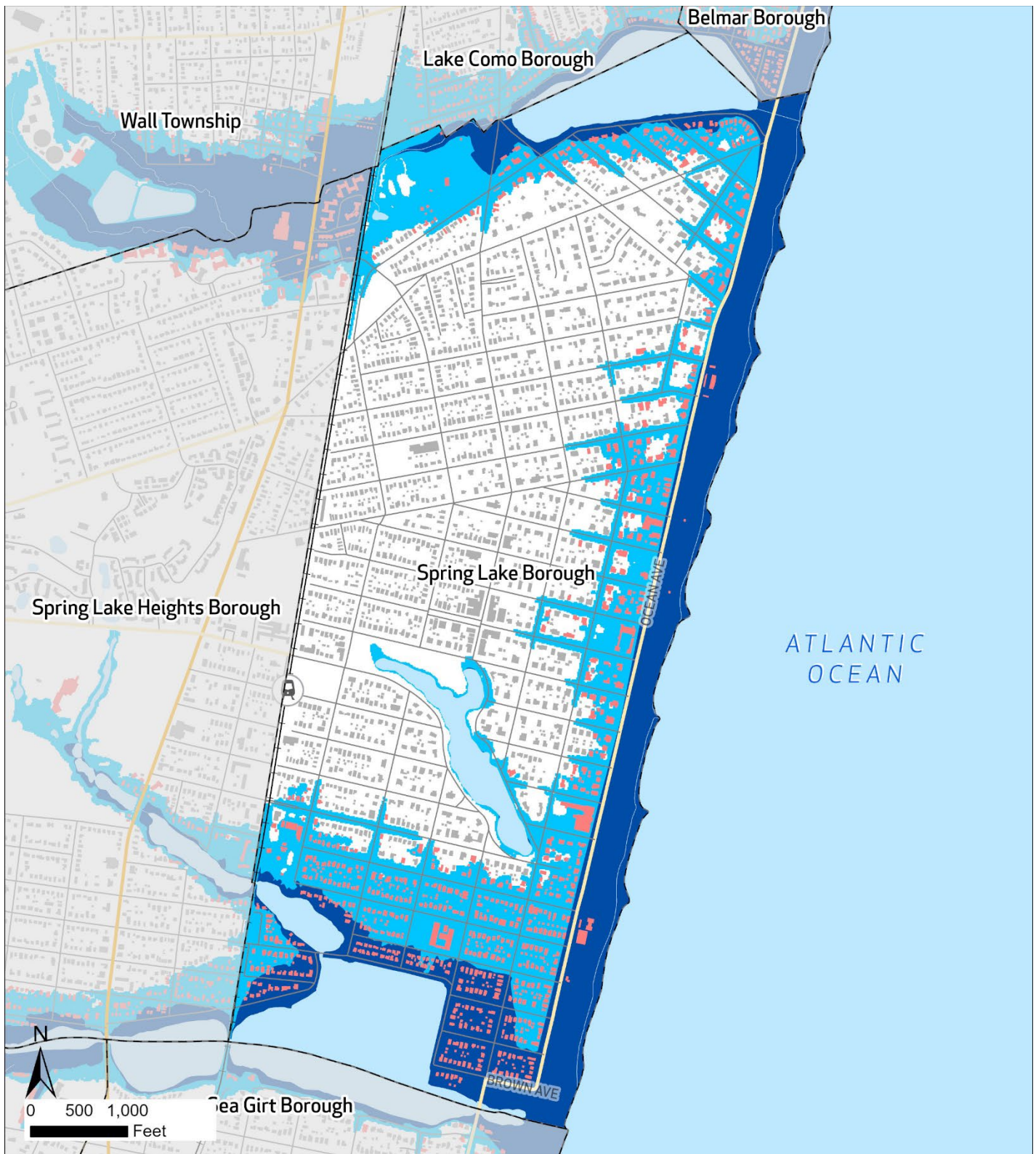
About 68.9 percent of Spring Lake is considered developed. Of the developed parcels of the town, 12.8 percent fall within the 1% annual chance flood zone and 8.6 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	
Developed Parcels	5.3%	8.6	0.0%
Exposed Land Area	27.2%	8.8%	2.4%

During the planning process, Spring Lake identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 11 total facilities. Of these facilities two are located within the floodplain and none are within the area projected to be inundated under sea level rise.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	-	1	-
Water Systems	1	-	-





NJ Inland Design Flood Elevation Spring Lake Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

County Routes

Local Roads

Railroad

NJ Transit Rail Station

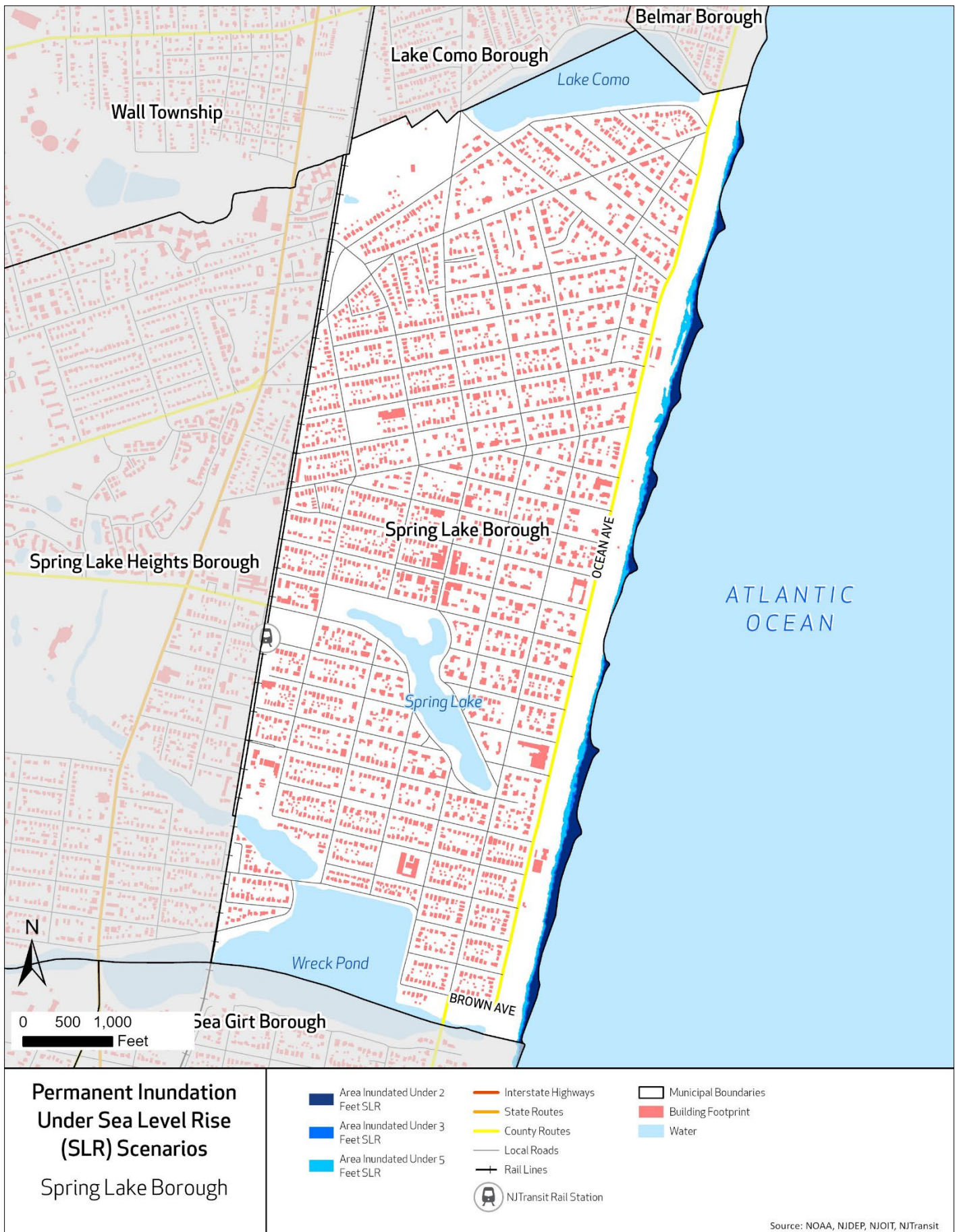
Municipal Boundaries

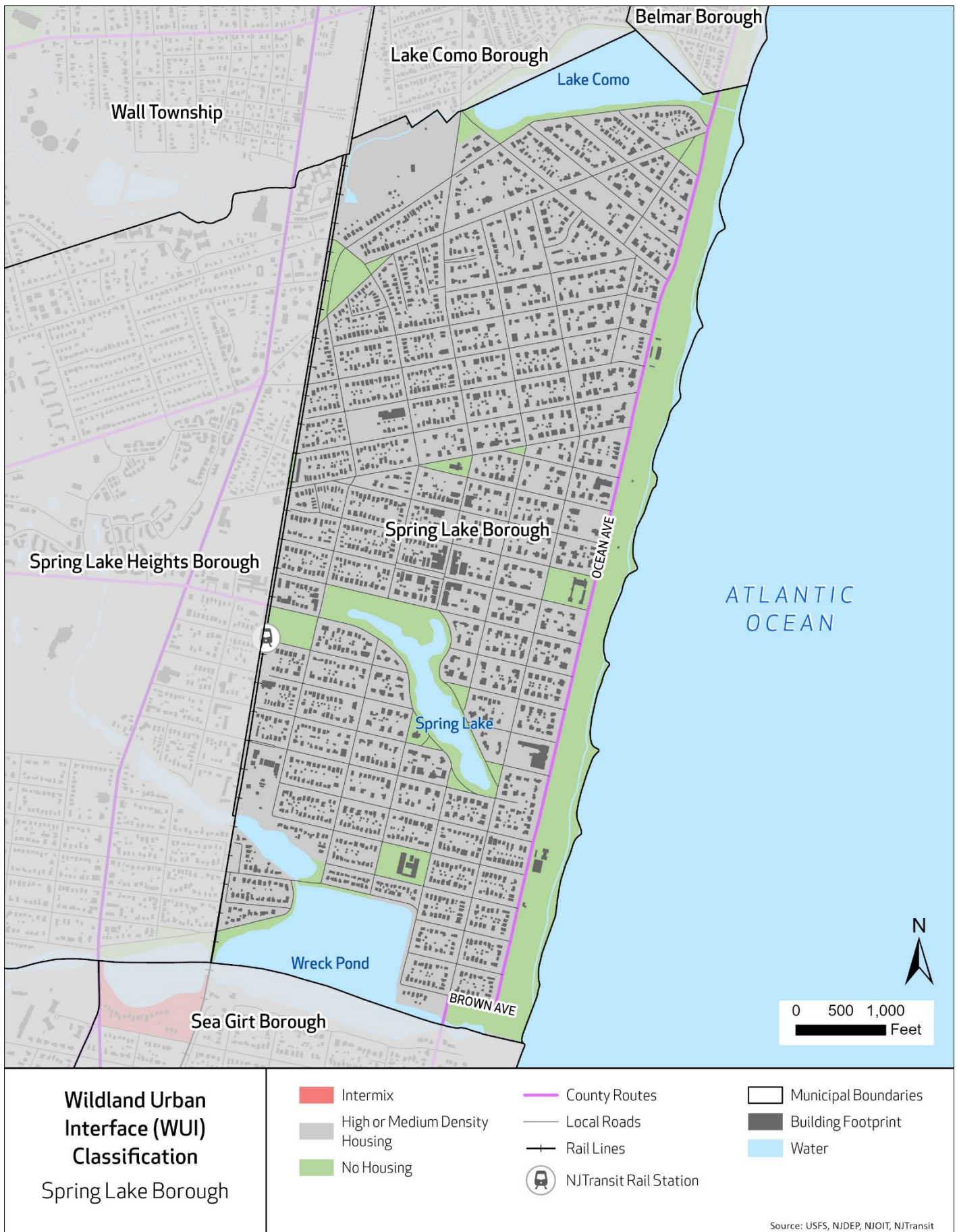
Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit





CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Spring Lake Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		06/01/2020	Controls development in flood prone areas
Capital Improvement Plan	X		06/01/2024	Improves stormwater quality
Local Emergency Operations Plan/Continuity of Operations Plan	X		2022	Preparedness and mitigation
Floodplain Development Ordinance	X		09/01/2024	Restricts Development with more stringent building requirements
Floodplain Management Plan	X		09/01/2024	Restricts Development with more stringent building requirements
Stormwater Management Ordinance	X		02/25/2025	Improves water quality and stormwater storage
Stormwater Management Plan	X		09/01/2024	Improves water quality and stormwater storage
Watershed Management Plan		X	09/01/2024	Improves water quality and stormwater storage
Sheltering Plan	X		2022	Provides shelter during emergencies
Evacuation Plan	X		2022	Provides a means of egress for evacuation
Substantial Damage/Improved Structures Response	X		09/01/2024	Post disaster evaluation of structures that need to be fortified
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		09/01/2024	Temporary debris disposal locations to promote recovery operations
Tracking elevation certificates and/or Letter of Map Change	X		09/01/2024	Ensures development meets flood height standards
Post-Disaster Recovery Plan	X			Promotes a quick recovery process
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Spring Lake Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Christine Bell
Grant Writer	X		Peter Avakian Consulting Engineers
Staff trained to support mitigation	X		DPW
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		County of Monmouth
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		Red Cross, Monmouth County Health Department
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Spring Lake Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Communicate to residents by email, community bulletin, radio, paper, code red, code blue and social media
StormReady		X	,
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Spring Lake Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities	X		
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Spring Lake is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System (CRS) Classification:** 6
- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Spring Lake has placed hazard mitigation and resilience as a high priority. Multiple hazard mitigation projects have been designed and constructed to improve the stability of our coastal shores and to manage our stormwater management infrastructure. The Borough continues to make the community more resilient by upgrading infrastructure and by controlling development in flood prone areas. The Spring Lake Office of Emergency Management has updated our Emergency Operations Plan and provided a plan for evacuation routes, public communication and temporary shelters. We currently have funding and a plan in place to perform dredging in Lake Como to provide adequate storm water storage, water quality and storm water management.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 47-01	Install Wreck Pond-Sluice Gate	The installation of sluice gates on the existing Wreck Pond outlet control structure. Prior to a major storm event, the gates would be closed to prevent flooding.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer	FEMA, HMGP Grant and the Borough of Spring Lake	\$300,000	N/A	Completed	Stormwater management, climate change (rising sea levels will have an impact)
Action 47-02	Dredge Wreck Pond: Phase III and Remove Dredge Materials from Wreck Pond to Another Location	The dredging will result in the removal of approximately 20,000 cubic yards of material. Work will be performed by Monmouth County as a shared service. Materials dredged from the middle of the pond cannot be reused on the beach and must be trucked out.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer	FEMA, HMGP Grant and the Borough of Spring Lake	\$300,000	N/A	Completed	Ongoing Maintenance Required on 5-year cycle (one cycle taking 5 years for full project). Took on tasks from withdrawn Action 47-08. Stormwater management, climate change (rising sea levels will have an impact)
Action 47-03	Reconstruct the Sand Dune at Pier Beach	Reconstruct the 20-foot-high mature sand dune for protection from tidal flooding and will provide a buffer against wave action and over-wash.	Flood, Wave Action, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer	FEMA HMA, Army Corp. of Engineers, NJDEP, and Borough of Spring Lake	\$100,000	N/A	Completed	Completed - ongoing maintenance required. On annual cycle Stormwater management, climate change (rising sea levels will have an impact)
Action 47-04	Bypass Culvert from the Emergency Spillway to Ocean	Install an additional outflow pipe from Wreck Pond to the Atlantic Ocean. Project will double the current outflow	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer, DEP, United States Fish and Wildlife,	Grant of \$2.0 million from the US Fish and Wildlife/ remainder	\$4,300,000	N/A	Completed	Stormwater management, climate change (rising sea levels will have an impact)

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		capacity of the Pond during a heavy rainfall event.			Coordinate with Sea Girt	from Borough and Sea Girt				
Action 47-05	Lake Como Outflow Reconstruction Project	Project will consist of construction of new outfall structure(s) from Lake Como to Ocean.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineers from Spring Lake, lake Como and Belmar	Monmouth County, NJDEP, FEMA, Spring Lake, Lake Como and Belmar	\$2,500,000	N/A	Completed	Stormwater management, climate change (rising sea levels will have an impact)
Action 47-06	Remove of Dredge Materials from Wreck Pond to Another Location	Materials dredged from the middle of the pond cannot be reused on the beach and must be trucked out. This results in higher costs for the Borough.	Flood, Nor'easter, Hurricane and Tropical Storm	N/A	Borough	Municipal budget		N/A	Withdrawn	Withdrawn to merge with (Completed) Action 47-02.
Action 47-07	Purchase and Install Generators for Critical Facilities	Generators for Borough Hall, HW Mountz School, recreation center, and the fire house/first aid station.	All Hazards	N/A	Borough	FEMA HMA	\$150,000	N/A	Completed	New warming shelter (rec center) - not in a floodplain but low lying.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 47-08	Improve Water Quality of Wreck Pond	Project will use dedicated funding to implement improvements identified in the Wreck Pond Infrastructure Assessment. The improvements include repair of piping defects of the 5,000 acres watershed.	Flood	High	Borough Engineer	Project funded by NJEIT loan	\$500,000.00	1 year	Ongoing	Shared services agreement - county v. municipal roads determine improvement implementation. Working with Spring Lake Heights and Wall Township. Ongoing work is maintenance and largely out of jurisdiction. Stormwater management, climate change (rising sea levels will have an impact)

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 47-09	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties - focus on pump stations, wells, and public municipal infrastructure.	Elevate approximately 100 flood-prone structures that are below the approved base flood elevations, specifically RL/SRL properties.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Engineers from Spring Lake	FEMA HMA	\$100,000.00	2 years	Ongoing	Ongoing - some pump stations have been elevated (Manasquan on South Blvd.). Altered action to expand beyond 'residential structures'. Building resilience, climate change (rising sea levels will have an impact)
Action 47-10	Target Harden Police Headquarters with Bollards and Surveillance Cameras	Install bollards and surveillance around Police Headquarters to increase security.	Terrorism	Medium	Borough Police	Homeland Security grants	\$75,000	1 year	Ongoing	Stormwater management, climate change should not have an impact
Action 47-11	Divine Park Outlet Structure	Design, plan, build outlet structure for Spring Lake to Atlantic - Need 2,000' of linear pipe restoration.	All Hazards	Medium	Township Engineer/DEP		\$1.8 Million	5 Years	New	Stormwater management, climate change (rising sea levels will have an impact)

48 – SPRING LAKE HEIGHTS BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Jim Giuliano	Emergency Management Coordinator	Point of Contact, attended Municipal Meeting
Joe May	Municipal Engineer/DPW Director	Attended internal meeting to update appendix
Christine Bell	Flood Manager	Attended internal meeting to update appendix
Janine Gillis	Deputy Administrator	Attended internal meeting to update appendix
DSG Casey Willms	Police Dept Representative	Attended internal meeting to update appendix

COMMUNITY PROFILE

Overview

Spring Lake Heights is a borough located in the southern coastal portion of Monmouth County, New Jersey. Established in 1927, the Borough describes itself as a blend of old and new, with an integration of historic buildings meeting the needs of present and future residents. The largely residential community is an inland borough, bordering Spring Lake to the east, Sea Girt to the south, and Belmar to the north. Proximity to local beaches, commercial areas, transit, and services have made Spring Lake Heights a popular year-round residential community.

The Borough of Spring Lake Heights features residential and commercial development, and is home to two large golf courses, Spring Lake Golf Club and Fairway Mews Community and Golf Club, which make up much of the central acreage of Spring Lake Heights. Wreck Pond and the North Branch of the Wreck Pond Brook makes up a southern border of the township before outflowing to the Atlantic through Wreck Pond Inlet in Spring Lake.

With the Borough approaching full build out, the 2019 Master Plan Reexamination Report addresses the continued maintenance of open space and establishing long-term goals for the environmentally sensitive areas of the municipality. Borough officials continue to guide growth away from environmentally sensitive areas, directing it to more suitable locations while recognizing a lack of vacant developable land to meet the many competing needs in the community.

Land Use, Development, & Growth

Spring Lake Heights is a predominantly residential community and home to substantial commercial and publicly owned land. From 2015 to 2020, the community underwent minimal change in its land use composition; urban or developed land accounted for nearly 92 percent of its total area during this period. Although the Borough's forested land and barren land diminished by 6 acres and 2 acres respectively, and its urban or developed land grew by 9 acres, its overall land use composition remained largely the same.

Spring Lake Heights is primarily a residential community. In 2022, 48% of the total land accounted for Residential use and 25% accounted for Commercial use. According to NJDEP's Land Use Land Cover dataset, between 2015 and 2020, Spring Lake Heights Borough's barren land increased by 6.3 -acres. Throughout this period, the share of urban/developed land was roughly 80% of the total Borough's total area.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	0.0	0.0	>0%
Barren Land	53.7	60.0	12%
Forest	3.8	3.8	>0%
Urban	756.2	757.2	>0%
Water	102.7	95.4	-7%
Wetlands	29.6	29.6	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Spring Lake Heights is largely built out and has experienced no major development or infrastructural projects over the past five years. The borough continues to be home to single-family home development and small redevelopment projects.

There is one ongoing residential redevelopment project building townhomes, located along the railroad line which makes up Spring Lake Heights's eastern border with Spring Lake.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

No known anticipated major development or infrastructure projects in Spring Lake Heights over the next five years.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Spring Lake Heights has an estimated population of 4,864, of which an estimated 5.3% are under age 5 and 23.7% are over age 65. Spring Lake Heights experienced an estimated 4.7% population growth over the 2013-2017 and 2018-2022 ACS survey periods. With an aging population making up nearly twenty-four percent of their total community, Spring Lake Heights may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. Additionally, a nearly five percent population growth across two five-year survey periods may illustrate shifts in the built environment which may impact hazard vulnerability.

There are no areas of the Borough which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	4,864
Population Change since 2017	4.7%
Percent of Population Age < 5	5.3%
Percent of Population > 65	23.7%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Flooding	Extreme Temperatures	Lightning
Hurricane/Tropical Storm/Nor'easter	Tornado	Drought
Storm Surge	Winter Storm	Earthquake
		Wildfire
Human-made Hazards		
Power Failure	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Pandemic	

The Borough ranked Dam Failure, Landslide, Wave Action, and Coastal Erosion as N/A.

Hazard Ranking Explanation

Spring Lake Heights experiences regular nuisance flooding, which is related to both storm events and heavy rain. This type of flooding remains a high priority for mitigation. Due to the location of Spring Lake Heights and its border with coastal Wreck Pond, concerns about storm surge and related impacts, including flooding, also remain a high priority for the Borough.

Other hazards that are ranked as 'Low' have not posed significant concerns for Spring Lake Heights in recent years.

Significant Hazard Events Since Last Plan Update

Spring Lake Heights reports regular nuisance flooding, but there have been no significant floods in recent years. Specifically, Lake Avenue has experienced some regular flooding. Additionally, recurring localized flooding occurs on Route 71 near Spring Lake Heights High School (at Route 71 and Brighton Avenue) from Black Creek, which runs behind the school, a critical infrastructure site. If a rain event upstream is large enough, this overflow can reach Spring Lake Golf Club as well.

No other significant hazard events have been noted since the last plan update.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Spring Lake Heights. As a coastal community, Spring Lake Heights is particularly vulnerable to rising sea levels and increased storm intensity. The New Jersey Department of Environmental Protection (NJDEP) projects that sea levels along the Jersey Shore could rise between 7 and 21 inches by 2100. This rise in sea level will exacerbate coastal erosion, increase the frequency and severity of coastal flooding, and lead to more sustained extreme storm surges. These changes will likely result in greater property damage, more frequent disruptions to community life, and increased costs for mitigation and recovery efforts. Additionally, climate change is expected to bring more intense and frequent extreme weather events, such as Nor'easters and hurricanes. The borough will need to invest in more resilient infrastructure and emergency preparedness measures to mitigate the effects of these storms. Overall, the impacts of climate change on Spring Lake Heights will require a comprehensive and proactive approach to hazard mitigation and community resilience. By addressing these challenges head-on, Spring Lake Heights can better protect its residents and infrastructure from the growing risks posed by climate change.

Rising temperatures and shifting precipitation patterns will likely increase the frequency and intensity of extreme weather events such as Nor'easters, hurricanes, and heavy rainfall. This will exacerbate existing flooding issues, particularly in areas adjacent to the tributaries of the Wreck Pond, which already lie within the 1% and 0.2% annual chance flood zones. The increased flooding risk will necessitate more robust flood management and mitigation strategies to protect residential properties, critical infrastructure, and community lifelines.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Spring Lake Heights Borough	
Initial FIRM Date	12/15/81
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	83
Total Losses:	47
Total Payments:	\$926,883.63
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$17,996.31
Number of SRL Properties:	2
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	8
SRL – Total Paid:	\$2,38,348.49

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

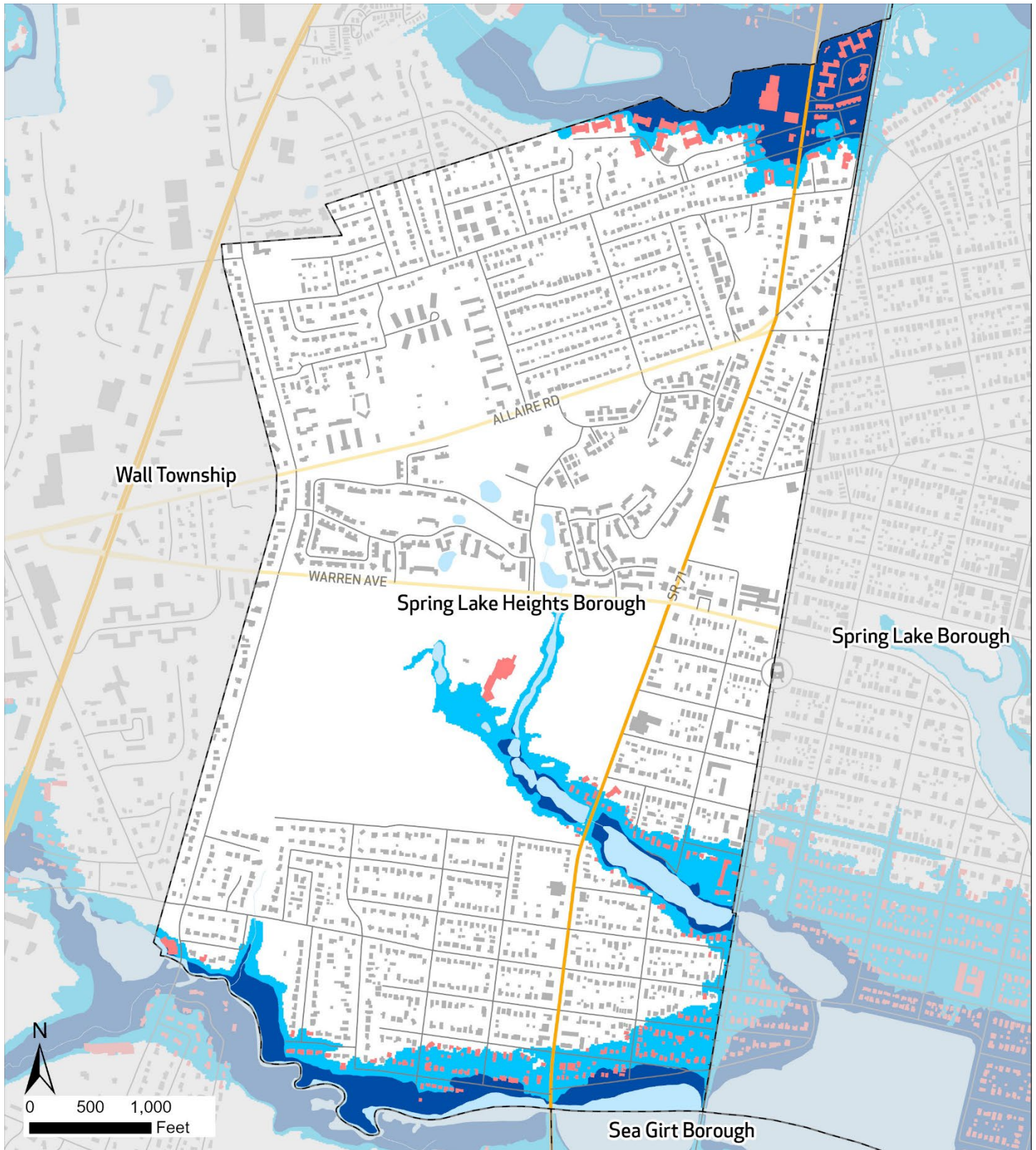
The Special Flood Hazard Area (SFHA) in the Borough of Spring Lake Heights is primarily located adjacent to the main waterbodies of the borough including Wreck Pond in the south and Polypod Brook in the north of town. Approximately 6.3 percent of the total area of Spring Lake Heights lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 80.3 percent of Spring Lake Heights is considered developed. Of the developed parcels of the town, 4.3 percent fall within the 1% annual chance flood zone and 1.1 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	8.3%	1.1%	NA
Exposed Land Area	7.1%	1.3%	NA

During the planning process, Spring Lake Heights identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified six total facilities. Of these facilities, none are within floodplain.

	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Community Lifelines and Critical Facilities	-	-	-



NJ Inland Design Flood Elevation Spring Lake Heights Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

🚆 NJ Transit Rail Station

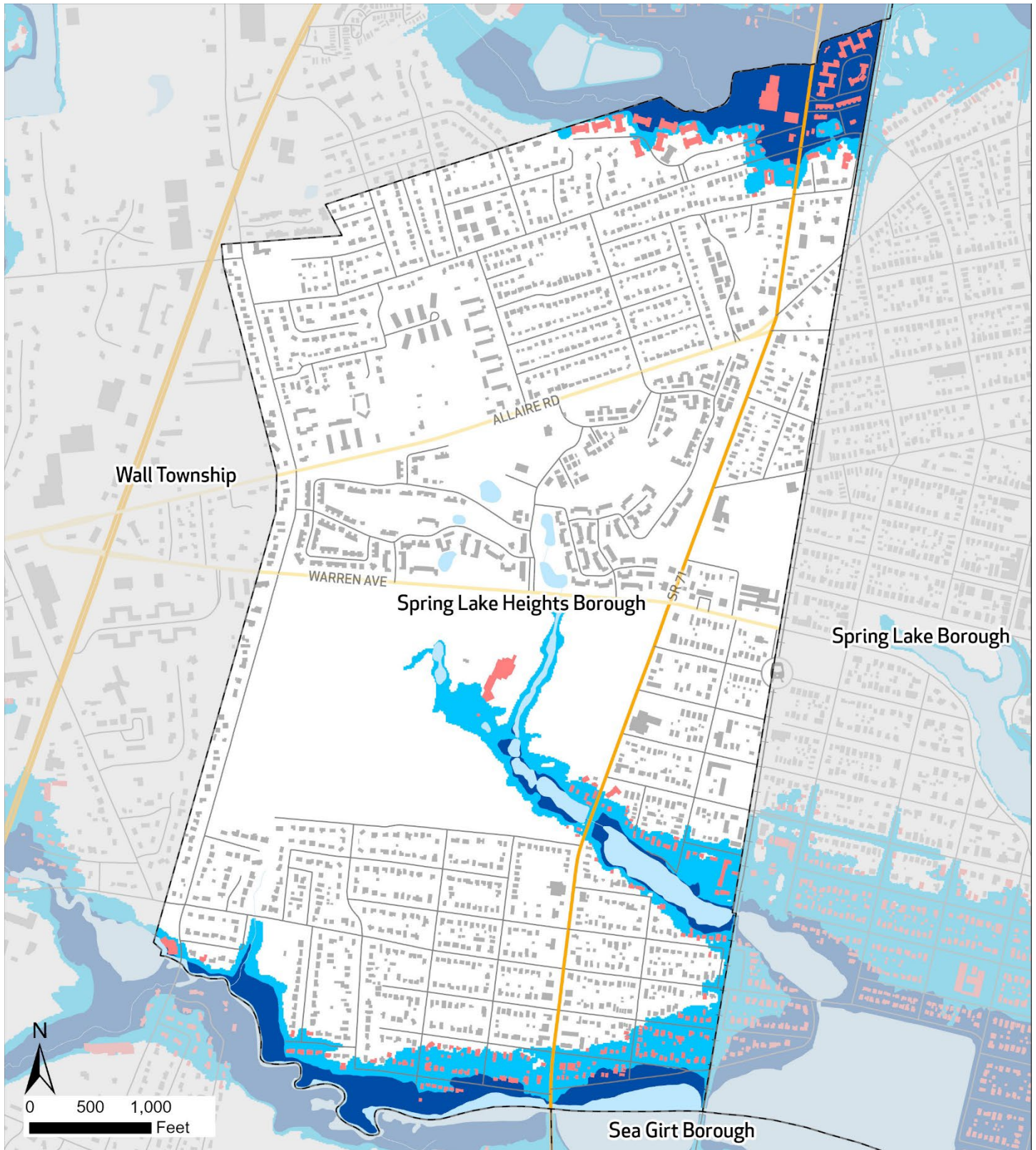
▬ Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Spring Lake Heights Borough

FEMA Flood Zone

■ Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

■ FEMA BFE (1%) plus 3
Feet

— State Routes

— County Routes

— Local Roads

— Railroad

🚆 NJ Transit Rail Station

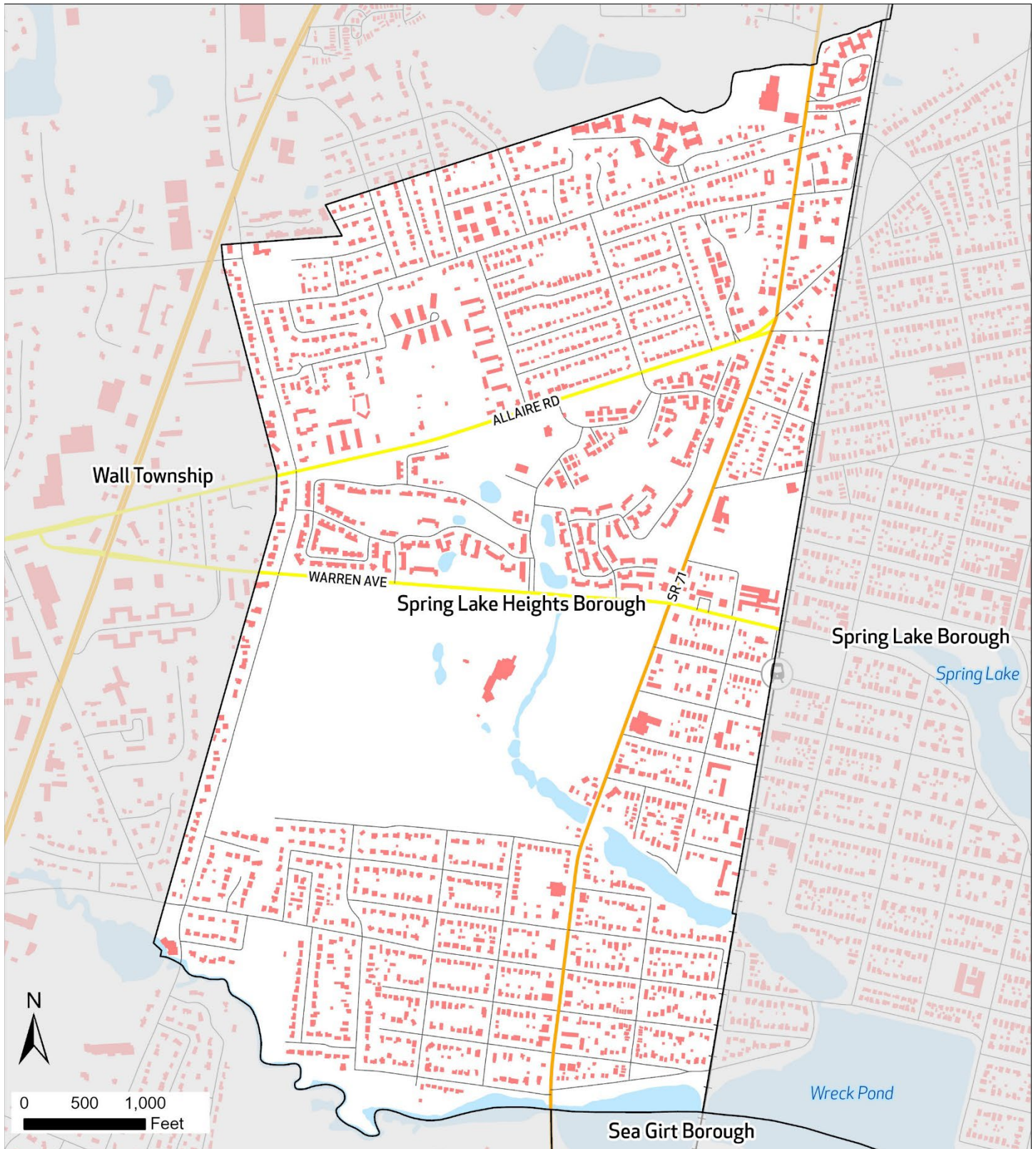
▬ Municipal Boundaries

■ Water

■ Building Footprints

■ Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit

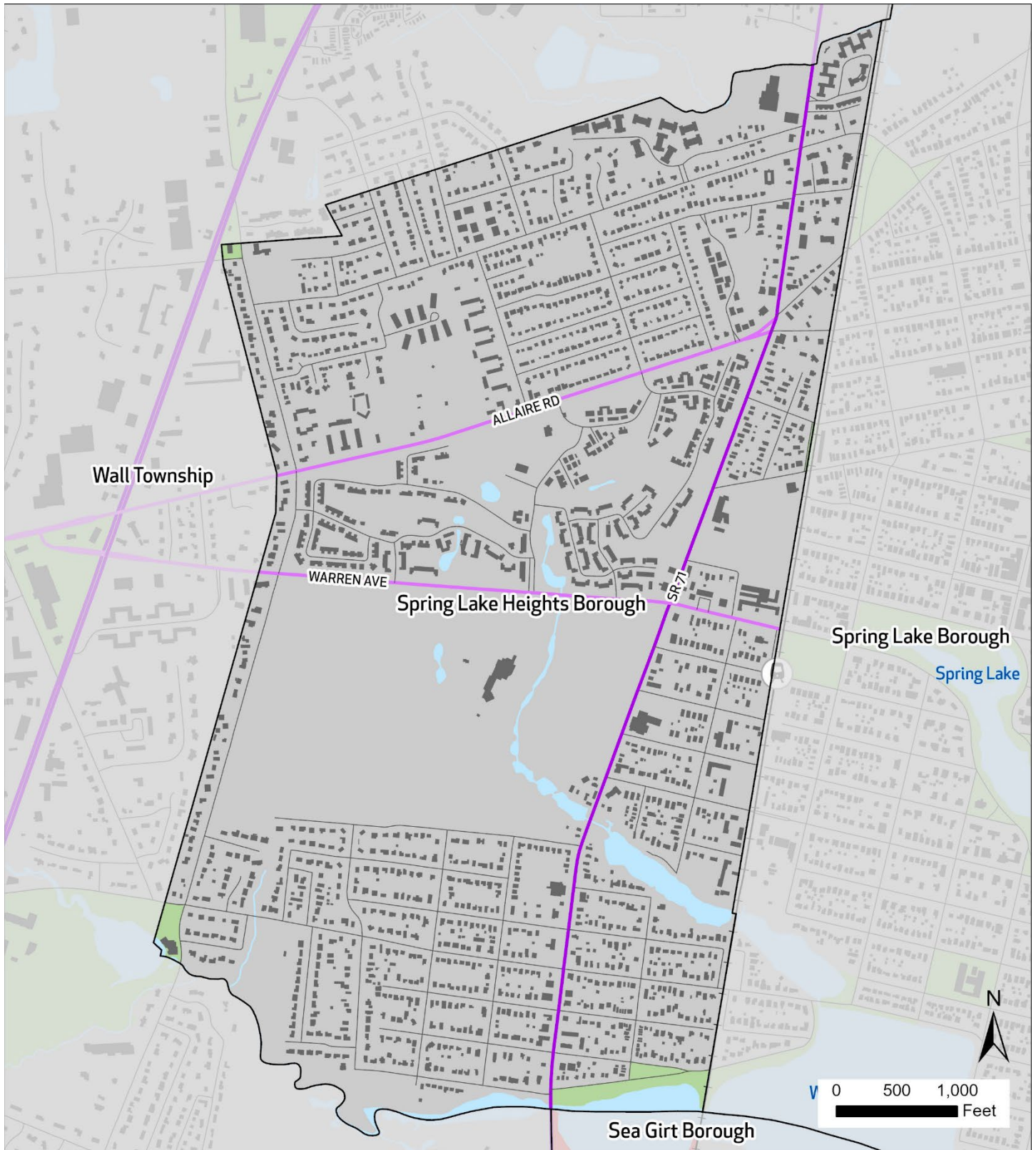


Permanent Inundation Under Sea Level Rise (SLR) Scenarios

Spring Lake Heights Borough

- | | | |
|---------------------------------|-------------------------|----------------------|
| Area Inundated Under 2 Feet SLR | Interstate Highways | Municipal Boundaries |
| Area Inundated Under 3 Feet SLR | State Routes | Building Footprint |
| Area Inundated Under 5 Feet SLR | County Routes | Water |
| | Local Roads | |
| | Rail Lines | |
| | NJ Transit Rail Station | |

Source: NOAA, NJDEP, NJOIT, NJTransit



Wildland Urban Interface (WUI) Classification

Spring Lake Heights Borough

- Intermix
- High or Medium Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines
- NJ Transit Rail Station

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Spring Lake Heights Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		11/19	Ensure development that promotes sustainability and mitigates hazard risk
Capital Improvement Plan	x		2024	Expenditure for risk mitigation
Local Emergency Operations Plan/Continuity of Operations Plan	x		10/23	Supports All Hazards
Floodplain Development Ordinance	x		2022	Manage Floodplain Development
Floodplain Management Plan	x		2022	Manage Flood Plain Development
Stormwater Management Ordinance	x		2024	Mitigate Risk from Stormwater
Stormwater Management Plan	x		2022	Mitigate Risk from Stormwater
Watershed Management Plan	x			
Sheltering Plan	x		10/23	Protection of Human Life
Evacuation Plan	x		10/23	Protection of Human Life
Substantial Damage/Improved Structures Response		x		
Repetitive Loss Plan				
Disaster Debris Management Plan	x		10/23	Post Disaster Return to Full Community Functioning
Tracking elevation certificates and/or Letter of Map Change	x		Ongoing	Flood Structure Mitigation
Post-Disaster Recovery Plan	x		Ongoing	Public Assistance and Individual Assistance Engagement
Current/recent redevelopment plans or studies		x		
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation	x		10/23	
Other ordinance and regulation that mitigate the impacts of natural hazards	x			Various Codes and Ordinances that serve to address potential infrastructure, residential or commercial activity that may introduce risk to the community

Administrative and Technical Capabilities

Spring Lake Heights Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		Management of Floodplain
Grant Writer	x		Borough Engineer
Staff trained to support mitigation	x		DPW/Emergency Management/Administrative Staff
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	x		Both Formalized and informal Agreements with Neighboring Communities and County
Non-governmental organizations/other partners that work with the municipality on mitigation projects	x		South Monmouth Regional Sewage Authority Fairway Mews Condominium Association Spring Lake Golf Club Other Community Partners
Organizations that work with socially vulnerable or underserved populations	x		Emergency Management Register Ready Administration County Health and Division of Aging

Education and Outreach Capabilities

Spring Lake Heights Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Website, social media and public forums
StormReady	x		Member
Firewise USA		x	
Severe Weather Awareness Week	x		Website
Community Rating System (CRS)		x	

Financial Capabilities

Within the last five years, Spring Lake Heights Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC			
FEMA FMA			
FEMA Public Assistance			
FEMA HMGP	x		Elevation of Pump Station
Non-FEMA Federal Funding Programs			
Other FEMA resources			
NJ Infrastructure Bank			
Other state municipal assistance or grant programs			
Evaluation process on the prioritization of risk reduction projects against other local activities	x		Risk reduction is considered amongst other projects
Other ongoing efforts to build additional financial capabilities	x		Grants if available

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Registered

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Spring Lake Heights is committed to fostering a robust shore community by engaging in both planning and mitigation actions which serve to build resiliency, sustainability and which recognize and manage risk on an ongoing basis. The Borough will continue to seek broad stakeholder participation in this effort and maintain a keen awareness of climate change as it evaluates risk/all-hazards with local, state and federal partners. Major weather events and nuisance flooding remain a future focus.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
48-01	Hazard Zoning & High-Risk Hazard Land Use Ordinances	Revise zoning ordinance to address development in hazardous areas and also implement changes in design requirements to develop structures that are flood resilient. Introduce and adopt development ordinances which require compliance with new base flood elevation, mandatory flood proofing, and other similar measures.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	The Borough Mayor and Council	Planning Grants	\$50,000	N/A	Completed	
48-02	Increase Education and Risk Awareness	Public outreach includes discussion and handouts at Municipal Council meetings or other publicly supported events and meetings.	All Hazards	N/A	The Borough Mayor and Council	Future Municipal Grants	\$75,000	N/A	Completed	
48-03	Protect from Tidal Flooding	Continue to implement mitigation practices such as development regulations and enforcement of mitigation practices in flood prone areas. Enforce zoning ordinances which restrict development in hazardous areas and also implement changes in design requirements to develop structures that are flood resilient.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	The Borough Mayor and Council	Future Municipal Grants	\$75,000	N/A	Completed	
48-04	Elevate and Secure Pump Stations	The Black Creek Pump Station is located at the south end of Sixth Avenue along the northern bank of the North Branch of Wreck Pond. The elevation of this pump	Flood, Nor'easter, Hurricane and	N/A	The Borough Engineer	HMGP Grant	\$1,400,000	N/A	Completed	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		station does not meet the recommended freeboard. The Shore Road Pump Station is located along the north shore of Wreck Pond. The elevation of this pump station is below the 100-year flood elevation.	Tropical Storm							
48-05	Elevate or Retrofit of Existing Utilities above the BFE	Raise existing utilities above expected flood levels to reduce flood damage. The utility improvements include the elevating of outdoor HVAC equipment, relocation of overhead electrical services to underground conduit and weather proofing of these services as required.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	The Borough Mayor and Council	Future Municipal Grants	\$36,000	N/A	Completed	

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
48-06	Acquire and demolish or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Acquisition of 11 flood-prone properties in the Borough.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough Mayor and Council	FEMA HMA	\$3,933,000	2 years	Ongoing	Currently looking for funding.
48-07	Elevate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevation of 12 properties in the Borough previously located in the SFHA.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	The Borough Mayor and Council	FEMA HMA	\$600,000	4 years	Ongoing	
48-08	Desilt and De-snag the North Branch of Wreck Pond	Desilt and De-snag the North Branch of Wreck	Flood, Nor'easter, Hurricane	Medium	Borough Public Works	Municipal budget	\$450,000	1 year	Ongoing	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		Pond to allow for more stormwater infiltration.	and Tropical Storm							
48-09	Upsize or Replace Stormwater Pipe under Route 71	Route 71 is constantly flooded in front of Spring Lake Heights Elementary School. This is due to NJDOT tying into the stormwater pipe and as a result, the pipe is over capacity.	Flood	High	NJDOT, Borough of Spring Lake Heights	NJDOT, Municipal funding, FEMA HMA	\$800,000	2 years	Ongoing	Coordinate with engineers to learn what has been done - some progress made but not complete.
48-10	Upsize the Culvert under NJ Transit and De-slag and Clean Polly Pod Brook	Coordinate with Wall Township and Spring Lake on cleaning debris, such as fallen trees, from the Brook. Additionally, upsize the culvert under New Jersey Transit's railroad.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Wall Township, Spring Lake, Spring Lake Heights, and New Jersey Transit	Municipal budget, NJ Transit, County budget		2 years	Ongoing	Culvert partially cleaned out and deslagged but still flooding in town center.
48-11	Increase Security at the Borough Water Tower	Install a surveillance camera system and more secure fencing around the water tower.	Terrorism	Medium	Borough Police, Public Works	Homeland Security grants	\$75,000	2 years	Ongoing	Partially complete- there is secure fencing but no surveillance.
48-12	Purchase and Install Generator for Spring Lake Heights Elementary School	Spring Lake Heights Elementary School is very secure with a high-tech surveillance camera system, however if power goes down, so does the camera system. Therefore, the school needs backup power.	All Hazards	Medium	Borough Schools, OEM, Public Works	FEMA HMA	\$286,000	1 year	Ongoing	
48-13	Build resilience at DPW site by installing a generator	Currently the Department of Public Works has no standby power – this action would install a generator for DPW building.	Power Failure	Medium	DPW, Municipality		\$75,000	1 year	New	

49 – TINTON FALLS BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Dave Boehning	Emergency Management Coordinator	Point of Contact, Municipal Workshop #1
Thomas Neff	Borough Engineer	Municipal Workshop #2
Charles Terefenko	Borough Administrator & Director of Public Safety	Review Appendix

COMMUNITY PROFILE

Overview

The Borough of Tinton Falls has a land area of 15.20 square miles and though bisected by the Garden State Parkway, is known for its varied uses. Tinton Falls is home to portions of Fort Monmouth, Naval Weapons Station Earle and the Tinton Falls itself, located north of the Route 13A and Tinton Ave intersection.

In 2021 Tinton Falls was awarded an Open Space Trust Fund matching grant from the Monmouth County Board of County Commissioners for the development of Wardell Park on Wardell Road. The park, acquired through NJDEP Green Acres funding and the borough's Open Space Trust Fund, will be located on approximately two acres of the 45-acre Wardell Park property. The existing open space surrounding Wardell Park will be preserved for passive recreation. In 2021, the Borough allocated \$3.7 million in funding from the Open Space Trust Fund and a County Open Space Grant to install improvements at Sycamore Recreation Complex, Liberty Park II, Riverdale West Park and Hockhockson Park.

Land Use, Development, & Growth

Tinton Falls is home to substantial publicly owned and residential land, as well as several parcels of commercial, industrial and agricultural land. As a result, there is no predominant land use in the Borough; urban or developed land constitutes 41 percent of its area, while wetlands and forested land each account for 21 percent of its land base. From 2015 to 2020, the Roosevelt did not experience any significant change in its land use. Between 2015 and 2020, Tinton Falls lost nearly 187 acres of forests and 21.5 acres of wetlands, while gaining 200 acres of developed land.

Between 2016 and 2022, Tinton Falls Borough's Farm land and Commercial land use decreased by 35% and 21%, respectively. According to NJDEP's Land Use/Land Cover dataset, between 2015 and 2020, its forested land decreased by 187 acres while its Urban land increased by nearly 200 acres. Throughout this period, the share of Urban/Developed land was around 49% of the total land. In 2020, Wetlands and Forest land accounted for 21% each of the total land area.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	97.3	93.6	-4%
Barren Land	599.1	610.6	2%
Forest	2295.9	2108.8	-8%
Urban	4745.1	4945.4	4%
Water	116.9	117.5	1%
Wetlands	2136.8	2115.3	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Tinton Falls has experienced both residential and commercial development since 2020. As far as residential development, 45 single-family homes called Anthem Place, 243 townhouses and condominiums called Patriots Square, 70 one-bedroom apartment units in Solider on Veterans Housing at 275 Essex Road, and 112 beds at All American Assisted Living at 1530 West Park Avenue have been constructed. Anthem Place and Patriots Square fall within FEMA's "Area of Undetermined Flood Risk" (NJFloodMapper).

There has been significant commercial development over the past five years. This includes 369 Essex Road Warehouse, 57 Apple Street Office Building, 5030 Shafto Road Warehouse, FLM Associates Flex Space (3212 Shafto Road), Stavola Flex Space (1511 Wayside Road), 150 Tornillo Way Flex Space, 151 Tornillo Way Flex Space, Medline Warehouse (1470 Shafto Road), Amazon Warehouse (1251 Jumping Brook Road), Mid-Monmouth Tech Center Warehouse (1200 Pine Brook Road), and Suburban Disposal (5299 Asbury Avenue).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

Ironworks Crossing, a 108-unit townhouse development, is an approved residential development currently under construction.

Commercial development that has been approved to be constructed or is under construction includes Massaro Realty Warehouse/Flex Space (3162 Shafto Road), Stavola Wayside West Commercial Development (1810 Wayside Road), Mid-Monmouth Tech Center II Warehouse (Park Road), Stavola Flex Space (Centre Plaza), Cutler Produce Warehouse (301 Commerce Drive), RWJ Barnabas Vogel Medical Campus (100 Pearl Harbor Road), 49 Shark River Road Warehouse, 5171 Asbury Ave Self Storage Facility, Platinum Properties Liquor Store (990 Shrewsbury Ave), and 91 Apple Street Office Building. RWJ Barnabas Vogel Medical Campus falls within FEMA’s “Area of Undetermined Flood Risk” (NJFloodMapper).

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Tinton Falls has an estimated population of 19,180. Of these residents, 4.2% are estimated to be under age 5 and 27.1% are over age 65. The Borough experienced an estimated 7.1% population growth over the periods between 2013-2017 and 2018-2022 ACS surveys. With an aging population making up over twenty-seven percent of their total community, Tinton Falls may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. Additionally, a population growth of over seven percent across two five-year survey periods indicates a rate of growth which may present hazard vulnerabilities related to shifts in the built environment.

There are two block groups within Tinton Falls which are identified as potentially vulnerable due to overburden (OBC) according to the State of New Jersey, both meeting criteria for vulnerable Minority populations. No parts of the Borough meet designation criteria for CDRZ or CEIST identification.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	19,180
Population Change since 2017	7.1%
Percent of Population Age < 5	4.2%
Percent of Population > 65	27.1%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperatures	Lightning
Flood	Extreme Wind	Drought
	Landslide	Dam Failure
	Tornado	Earthquake
	Winter Storm	
	Wildfire	
	Hurricane/ Tropical Storm	
Human-made Hazards		
	Cyber Attack	Civil Unrest
	Terrorism	Economic Disruption
	Pandemic	
	Power Failure	

Hazard Ranking Explanation

Dam failure remains a low level of concern due to the reservoir in Lincroft. Although the reservoir is technically in Middletown, it borders Tinton Falls.

Significant Hazard Events Since Last Plan Update

In the south end of town, the intersection of Asbury Avenue and Pine Street/Essex Road used to flood frequently. This issue has since been resolved, which is beneficial as the area contains several important assets, including independent senior living apartments, an assisted living facility, a utilities center, and an animal surgery hospital. Occasionally, the Pine Brook tributary stream that crosses beneath Water Street overtops and floods the road. Shafto Road also experiences occasional flooding.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Tinton Falls. Rising temperatures and shifting precipitation patterns will likely increase the frequency and intensity of extreme weather events such as heavy rainfall, hurricanes, and Nor'easters. This will exacerbate existing flooding issues, particularly in areas adjacent to the Pine Brook tributary stream and Shafto Road, which already experience occasional flooding. The increased flooding risk will necessitate more robust flood management and mitigation strategies to protect residential properties, critical infrastructure, and community lifelines.

Additionally, the borough's varied landscape, which includes portions of Fort Monmouth and Naval Weapons Station Earle, may face heightened risks due to climate change. The urban development and reduction in forested land observed between 2015 and 2020 could further amplify the impact of extreme weather events, as less natural land is available to absorb excess water. Therefore, Tinton Falls will need to prioritize sustainable land use practices and enhance its resilience to climate-related hazards to safeguard its community and infrastructure.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Tinton Falls Borough	
Initial FIRM Date	12/31/76
Effective FIRM Date	6/15/2022
Number of Policies In-Force:	33
Total Losses:	12
Total Payments:	\$66,504.82
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$17,620.24
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

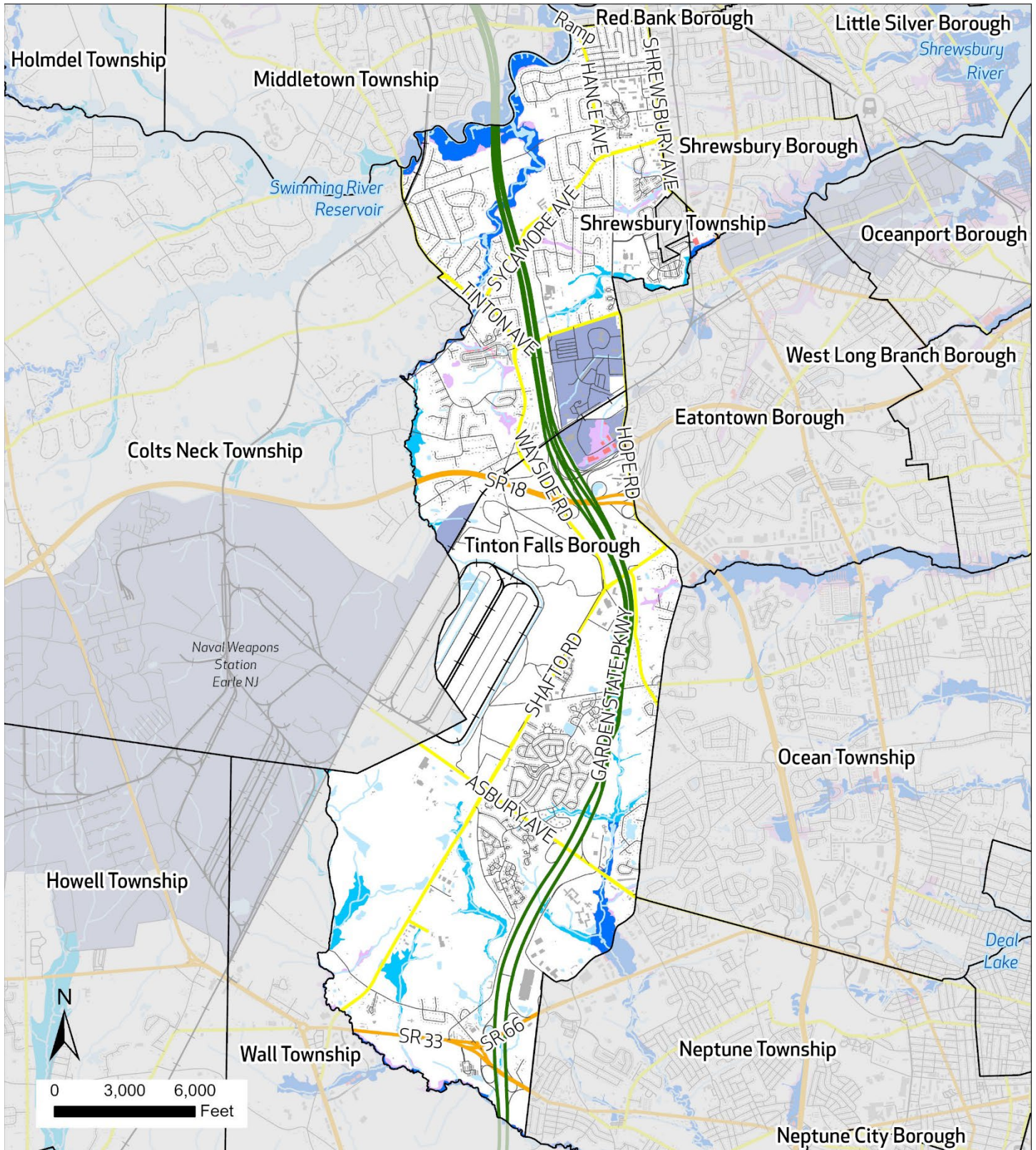
The Special Flood Hazard Area (SFHA) in the Borough of Tinton Falls is primarily located adjacent to the many streams which crisscross the Borough. Approximately 5.6 percent of the total area of Tinton Falls lies within the 1% annual chance flood zone as defined by FEMA. An additional 1.6 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 80.3 percent of Tinton Falls is considered developed. Of the developed parcels of the town, 2.7 percent fall within the 1% annual chance flood zone and 1.4 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	2.7%	1.4%	0.7%
Community Lifelines and Critical Facilities	6.1%	NA	NA
Exposed Land Area	5.6%	1.6%	1.6%

During the planning process, Tinton Falls identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 33 total facilities. Of these facilities, two are within the floodplain. These facilities are categorized as Water Systems community lifelines. Examples of Water Systems lifelines include dams or pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	2	-	-



Flood Risk Tinton Falls Borough

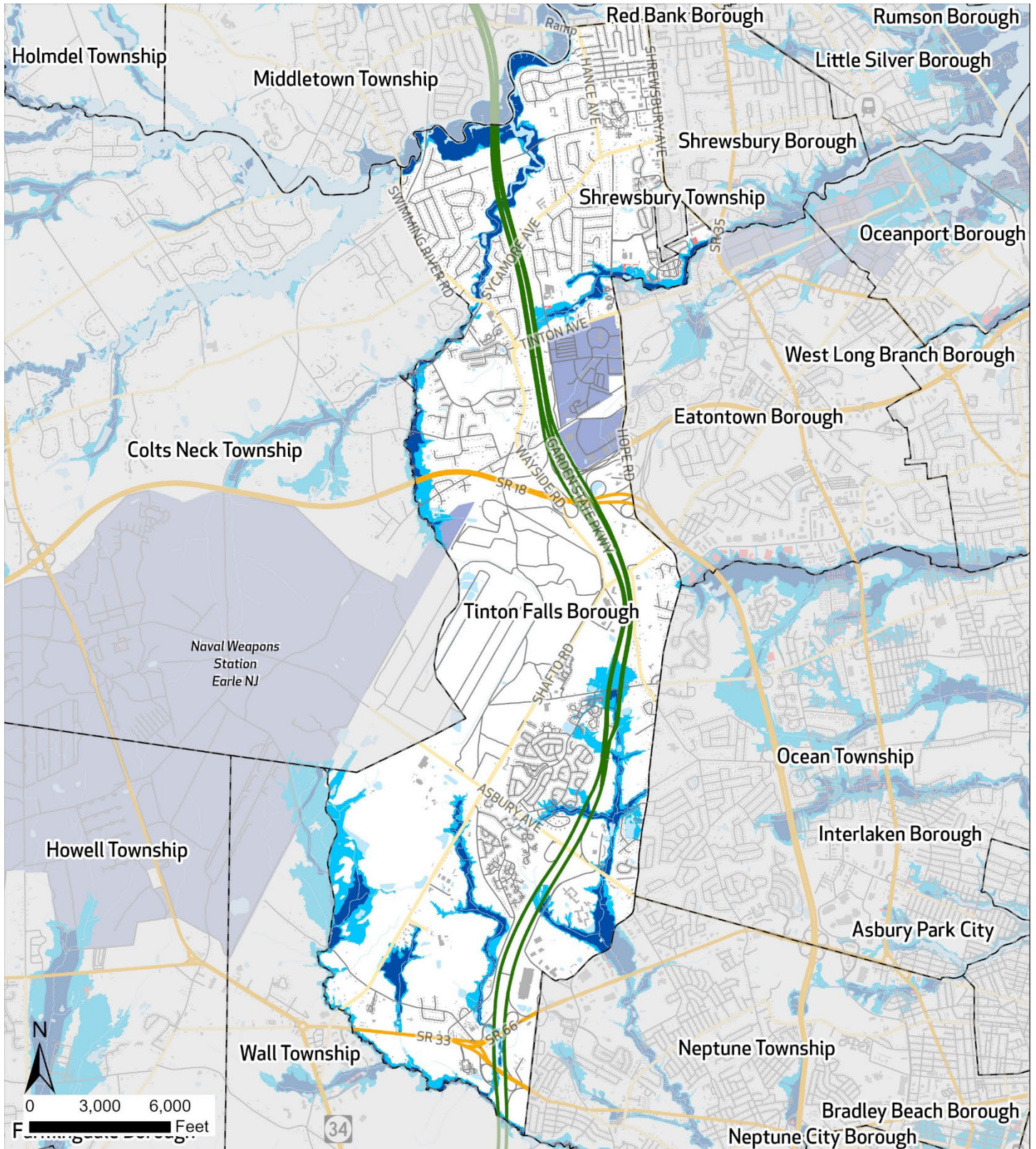
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Tinton Falls Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Railroad

NJ Transit Rail Station

Municipal Boundaries

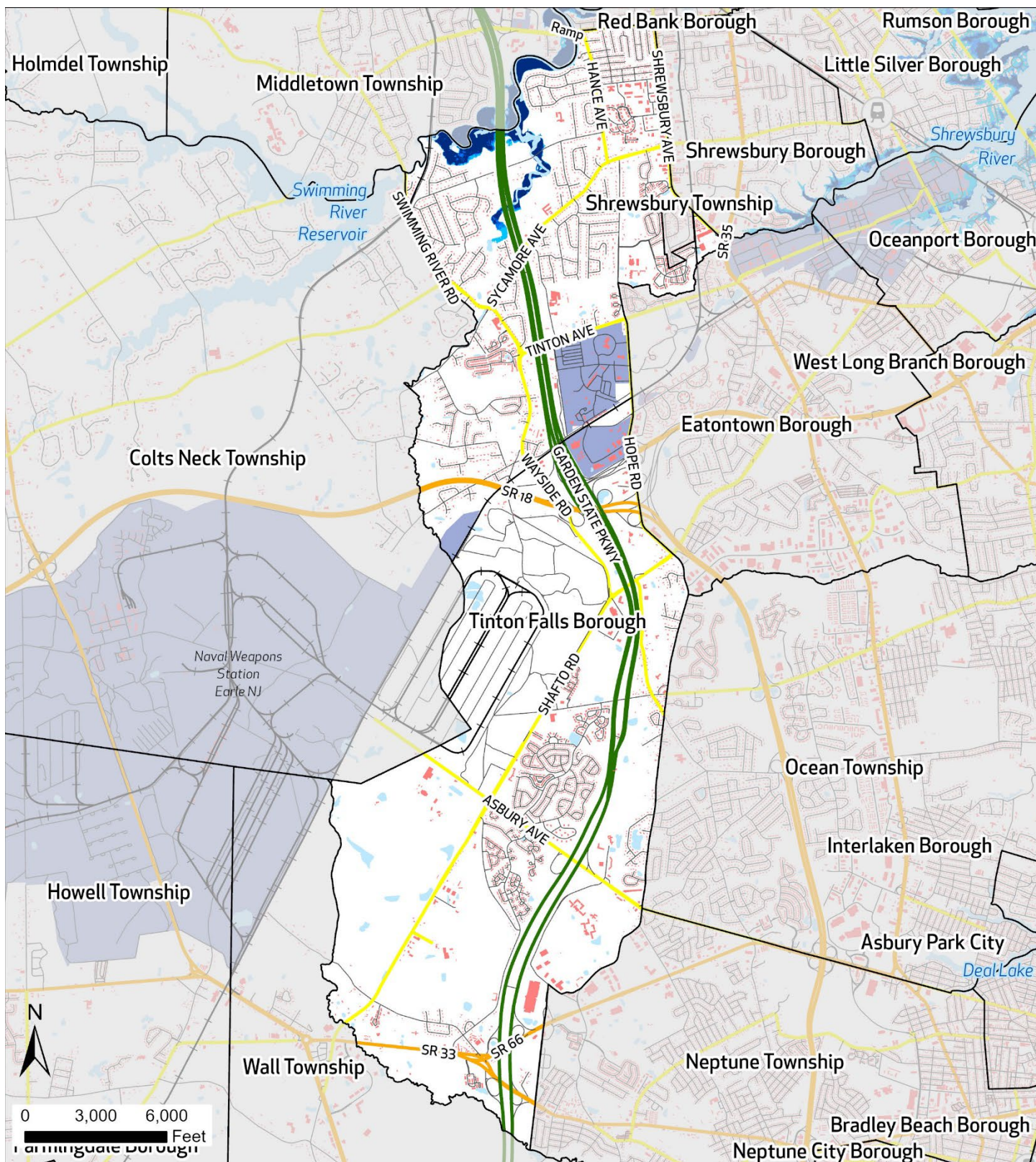
Water

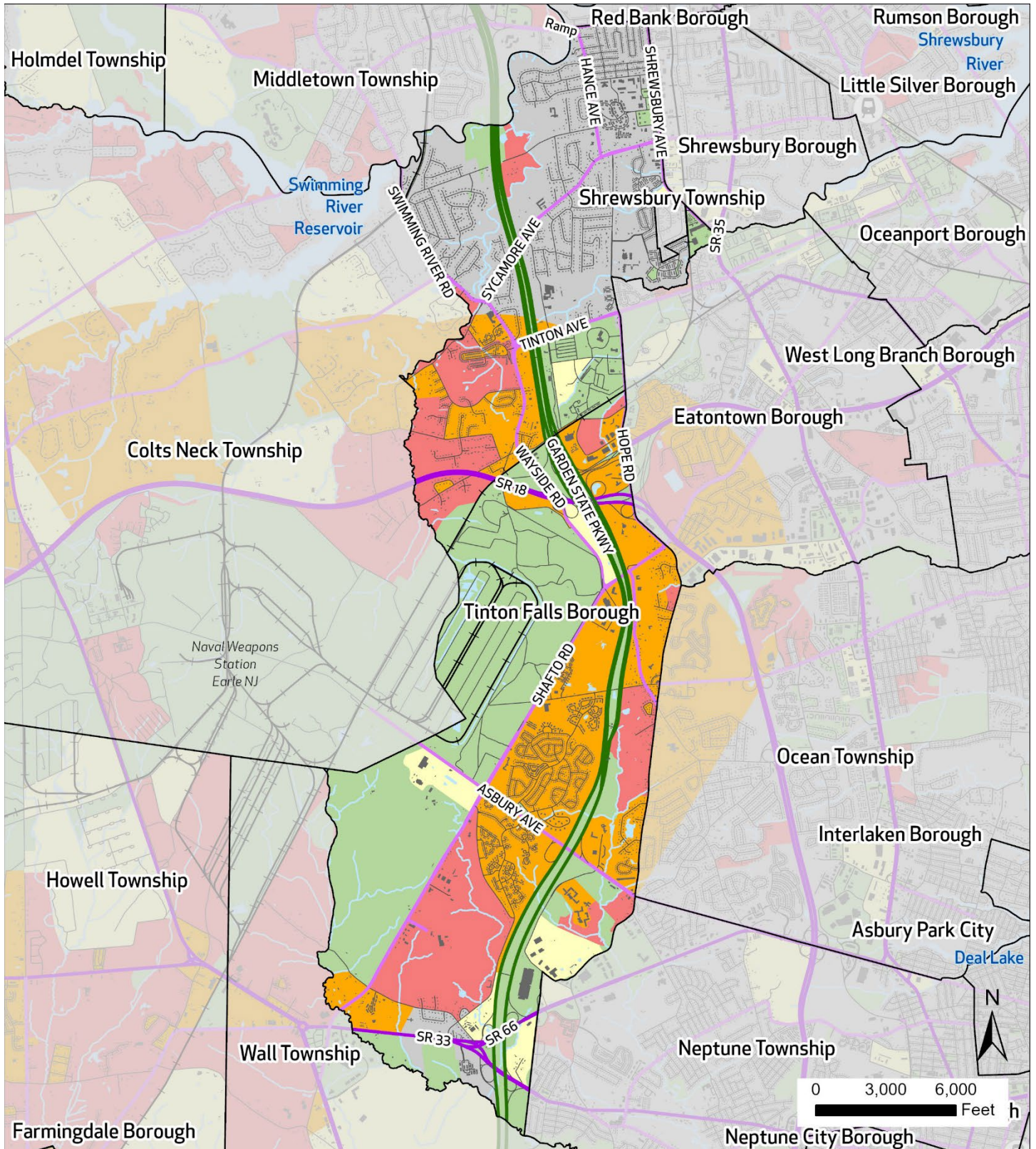
Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJ Transit





Wildland Urban Interface (WUI) Classification

Tinton Falls Borough

- | | | |
|---|---|--|
| Interface | Garden State Parkway | Municipal Boundaries |
| Intermix | State Hwy | Building Footprint |
| High or Medium Density Housing | Interstate Highways | Water |
| Low or Very Low Density Housing | State Routes | |
| No Housing | County Routes | |
| | Local Roads | |
| | Rail Lines | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Tinton Falls Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2024	Contains objectives to preserve environmentally sensitive areas
Capital Improvement Plan	X		2024	Identifies capital improvements that may reduce flooding
Local Emergency Operations Plan/Continuity of Operations Plan	X		2022	
Floodplain Development Ordinance	X		2022	Sets design and construction standards to reduce impacts from flooding
Floodplain Management Plan		X		
Stormwater Management Ordinance	X		2024	Sets design and construction standards to reduce stormwater runoff and flooding
Stormwater Management Plan	X		2005	Sets design and construction standards to reduce stormwater runoff and flooding
Watershed Management Plan		X		
Sheltering Plan		X		
Evacuation Plan		X		
Substantial Damage/Improved Structures Response	X			Reviewed during the construction permit process
Repetitive Loss Plan		X		
Disaster Debris Management Plan		X		
Tracking elevation certificates and/or Letter of Map Change	X			Reviewed during the zoning/construction permit process. Documents saved to SDL software program.
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies	X			Residential and commercial development throughout the Borough. Tinton Falls is not prone to flooding or other natural hazards, especially in the areas of new development.
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discuss hazard mitigation	X			Next Steps to Compatibility Planning Study, Monmouth County, New Jersey (2022) encourages compatible development within the NWS Earle's Military Influence Area. Among the environmental constraints are natural hazards including wildfire, flooding, and storm surge.
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Tinton Falls Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Thomas Neff Full-time Borough Engineer, Zoning Officer, and Floodplain Administrator PE, PP, CME, CFM
Grant Writer	X		Various in-house full-time employees
Staff trained to support mitigation	X		Borough Administrator, Borough Engineer & OEM Director
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		X	
Non-governmental organizations/other partners	X		Borough Green Team with support from Sustainable Jersey

Position	Yes	No	Explanation
that work with the municipality on mitigation projects			
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

Tinton Falls Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Emergency notifications sent to residents through Nixle alerts, as well as posts to the Borough website and Facebook page
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Tinton Falls Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities	X		Review the cost vs benefit of various projects against each other
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

The Borough of Tinton Falls is committed to doing all we can to mitigate hazards before they happen to create a more resilient community that reduces the threat of loss of life and property due to both natural and manmade events. Since the last plan update, we have completed various stormwater and flooding improvement projects, as well as nearing the completion of security and safety upgrades at the Municipal Complex. We have also obtained Bronze Level with Sustainable Jersey. Over the next five years, we plan to continue to address areas with chronic flooding and complete the security and safety upgrades at the Municipal Complex and other Borough-owned properties. We also plan to take a more proactive approach to community awareness and education through increased social media posts.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
-	-	-	-	-	-	-	-	-	-	There are no completed or withdrawn actions since the last plan update.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
Action 49-1	Continue to Enforce the Borough's Stormwater Management Plan	Enforce the Stormwater Management Plan that includes subdivision regulations to control runoff; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides.	Flood, Nor'easter, Hurricane and Tropical Storm	Medium	Engineering	FEMA Hazard Mitigation Grant, Borough funding	\$25,000	5 + years	Ongoing	This is an ongoing action that will continue in perpetuity
Action 49-2	Create a Mitigation Outreach Program and Community Response Team Program	Create mitigation outreach program to prepare residents for disasters. Support and fund Community Response Team programs that also include mitigation component.	All Hazards	Low	Administration; OEM	Municipal budget	\$15,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-3	Create a Program for Routine Stormwater Maintenance and Seek Financial Assistance to Clean Stream Segments	Conduct a routine maintenance program and seek financial assistance to clean out stream segments with heavy sediment deposits. Develop specific mitigation solutions for flood-prone roadways and intersections.	Nor'easter, Hurricane and Tropical Storm	Medium	Public Works, Engineering, County Mosquito Commission, County	Borough funding	\$200,000	1 year	Ongoing	DPW conducts stormwater facility inspections regularly per NJDEP requirements. Underdrain systems are typically installed where needed with bi-annual road improvement programs. This work will continue.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
		Implement identified stormwater recharge, rate or volume projects to decrease flash in streams during and after storms. Create plans for underdrain systems to collect sump pump and/or roof leader discharges.								
Action 49-4	Limit Development along Steep Slopes Through a Steep Slope Ordinance	Locally identify and map specific areas of potential slope failure and limit future development in these areas. Then adopt a steep slope ordinance to regulate development in these higher risk areas.	Landslide	Medium	Administration, Engineering, Planning	Borough funding	\$200,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-5	Create a Wildfire Risk Map	Develop mapping of wild and urban interface areas. Review local EOPs for possible wildfire components regarding fire rescue, alert warning and communications. Initiate public outreach program for homeowners to reduce the possibility of damage and losses due to wildfires. Mitigation for streets.	Wildfire	Medium	Administration, Police/Fire/EMS, Planning	FEMA HMA, Borough funding	\$5,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-6	Purchase NOAA Weather Radios for Critical Facilities	Promote use of or purchase NOAA weather radios for critical Borough facilities.	All Hazards	Low	Public Works, OEM	Borough funding	\$3,000	1 year	Ongoing	This action item will be considered when funding and resources become available. In the meantime, the Borough subscribes to WeatherWorks for accurate weather forecasting.
Action 49-7	Develop Educational Programs on Winter Hazards	Educate residents about driving in winter storms and handling winter-related health effects.	Nor'easter, Winter Storm	Low	Administration, OEM	Borough funding	\$10,000	1 year	Ongoing	This action item will be considered when funding and resources become available

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
Action 49-8	Enforce Landscaping Practices that Reduce Hazards from Winter Storms	Plant ice and windstorm resistant trees and use landscaping practices to reduce related hazards.	Winter Storm	Low	Public Works	Borough funding	\$50,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-9	Purchase and Install Generators for Critical Facilities	Purchase and install permanent emergency natural gas-fired generators capable of powering sanitary sewer pump stations and emergency generators capable of powering traffic signals at key intersections.	All Hazards	High	Public Works, Engineering, and County Engineering	FEMA Hazard Mitigation Grant, Borough funding	\$500,000	1 year	Ongoing	This is an ongoing action that is about 85% completed. Each generator costs about \$150,000. It is funded by capital funds.
Action 49-10	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties, Especially along Pine Brook	Elevation and/or Acquisition of Flood-prone Residential Structures, with particular focus on those in our community that are on FEMA's Repetitive Loss List and Severe Repetitive Loss List. New Jersey is committed to continuing the reduction of RL and SRL properties in the State; in turn, they have assigned a high priority to mitigating SRL and RL properties in the State Hazard Mitigation Plan. We are committed to supporting these projects as interested homeowners come forward and will support such homeowners, despite the loss in tax revenue, because we recognize the importance of making our community more disaster-resistant and reducing the financial burden of repetitive flooding in our community.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Mayor and Council; Monmouth County	FEMA HMA	\$500,000	2 years	Ongoing	The Borough is looking to work with Monmouth County to increase the size of the culvert along the Pine Brook tributary beneath Water Street to alleviate flooding issues.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
Action 49-11	Upgrade Critical Facilities to Serve as a Comfort Station and Temporary Area of Refuge During or After a Disaster	Upgrade a portion of a Borough or School building to serve as a comfort station and temporary area of refuge during or after natural disasters where power is out for an extended period of time. Install a permanent generator, obtain or upgrade internet/TV service, construct a Wi-Fi network within the building, install charging stations for cell phones, tablets, laptops, etc., obtain a large flat panel TV or projector to display updated news broadcasts, upgrade HVAC equipment as necessary.	Flood, Nor'easter, Hurricane and Tropical Storm, Winter Storm	Medium	Administration, OEM, Public Works	Borough Funding	\$100,000	2 years	Ongoing	This action item will be considered when funding and resources become available
Action 49-12	Target Harden the Municipal Complex (Borough Hall, Police Headquarters, DWP Facility) by Installing Surveillance Cameras, an Access Control System, Security Personnel, and/or Bulletproof Glass	Install security cameras throughout the Municipal Complex to monitor the safety of all employees, residents, and visitors, as well as the security of the Borough's Police, Emergency Management, and Public Works equipment that is needed in times of emergencies and disasters.	Terrorism, Cyber Attack	Medium	Administration, Police, OEM	Homeland Security grants, Borough funding	\$50,000	1 year	Ongoing	This project is nearly complete.
Action 49-13	Implement Security Upgrade Measures at Borough Hall	The public currently has uncontrolled access throughout nearly the entire building of Borough Hall. In addition, the employees who interact with the public have very little in the way of separation and protection. This project would propose numerous security upgrades such as security	Terrorism, Cyber Attack	High	Administration, Police, OEM	Homeland Security grants, Borough funding	\$300,000	2 years	Ongoing	This project is currently underway, with electronic door locks and access control upgrades being completed.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
		guard/reception area with a check-in/check-out policy, electronic door locks added to all necessary doors, relocating doors and access points, panic buttons, and renovating the counter areas to include bulletproof transaction windows.								
Action 49-14	Develop a Civil Unrest Response Plan	Action plan to address a coordinated public safety response to civil unrest should it occur within the Borough. The plan will address the appropriate response levels of all public safety entities including Police, Fire, and EMS.	Terrorism, Cyber Attack	Medium	Administration, Police, OEM	Homeland Security grants, Borough funding	\$20,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-15	Develop a Cyber Attack Response Implementation Plan	Update emergency response plans to address, mitigate, and recover from a potential cyber-attack affecting the operation of Borough activities.	Terrorism, Cyber Attack	Medium	Administration	Homeland Security grants, Borough funding	\$20,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-16	Develop an Action Plan for a Pandemic Event	Emergency Response Plan to address a pandemic event.	Terrorism, Cyber Attack	Medium	Administration, Police, OEM, County Health Officer	Borough Funding	\$20,000	1 year	Ongoing	This action item will be considered when funding and resources become available
Action 49-17	Construct an OEM Vehicle Garage	The Borough's Office of Emergency Management owns and operates a large, high-tech emergency response vehicle that is used during a multitude of emergency situations such as vehicular accidents, fires, flooding, power outages, human-based hazards, and other events. The Borough currently does not have a garage or other form of shelter for this vehicle. Based on the high-tech and electronic features of this vehicle, it	All Hazards	Medium	Administration, OEM	Borough funding	\$150,000	1 year	Ongoing	The Borough is in the process of renovating a former EMS building to be used for OEM headquarters and storage of OEM vehicles and equipment.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time -line	Action Status	Notes
		should be stored in an indoor environment where its features will be protected from degradation as a result of the outdoor elements. A garage should be constructed on the Municipal Complex property.								
Action 49-18	Construct Flood Measure (e.g. floodwalls or berms) along Pine Brook and Expand the Culvert under Water Street (S-12A)	Use minor structural projects that are smaller and more localized (e.g., floodwalls or small berms) along Pine Brook, which causes repetitive flooding.	Flood, Nor'easter, Hurricane and Tropical Storm	High	Borough Engineering, Monmouth County	FEMA HMA	\$250,000	3 years	Ongoing	The Borough is in the process of installing new curb in areas to prevent runoff and erosion along the stream slopes. The Borough is also looking to work with Monmouth County to increase the size of the culvert along the Pine Brook tributary beneath Water Street to alleviate flooding issues.

50 – UNION BEACH BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Michael DeRupo	OEM Coordinator	Municipal Meeting, 11/11/2024
Dennis Dayback	Floodplain Administrator	Updated municipal appendix
Tim Davis	Construction Official	Updated municipal appendix

COMMUNITY PROFILE

Overview

With a land area of 1.80 square miles bordering Raritan Bay, portions of the Borough of Union Beach's coastline were formerly zoned for heavy industrial purposes but are now designated for residential and public use. Union Beach offers abundant public space along its waterfront with impressive views of Manhattan, especially at Waterfront Park.

When Superstorm Sandy hit in 2012, more than 85 percent of the homes in Union Beach flooded with at least two feet of water. Union Beach adopted a Master Plan Reexamination Report in July 2015. The report places special emphasis on facilitating recovery from Superstorm Sandy, as well as promoting resiliency to future storm impacts and other potential hazards. To achieve this, the report recommends several changes to the Borough's master plan and development regulations.

In May 2015, Union Beach adopted a Commercial Corridors Resiliency Plan for State Highway 36 and Union Avenue that combines flood protection and commercial revitalization to provide a stronger response to the next major storm event. The overall goal of the plan is to encourage sustainable and resilient commercial development and provide critical amenities and services for recovery after major storm events. It promotes growth in strategic areas to foster long-term recovery by increasing the Borough's tax base and reducing repetitive loss. It also encourages a pedestrian-oriented environment to provide economic viability and develop the community's sense of place.

The municipality is the focus of a U. S. Army Corps of Engineers (USACE) study evaluating potential designs to address coastal flooding. In 2022, the USACE awarded a construction contract for Phase 1 of the Raritan Bay and Sandy Hook Bay, New Jersey Coastal Storm Risk Management Project. In 2023 construction of improvements began, including, replenishing the Boroughs beach, and building up dunes.

Union Beach participated in the 2022 Coastal Resilience Design Study undertaken by the Monmouth County Division of Planning. The study, funded by the Department of Defense, focused on evaluating existing conditions at the wetlands along Flat Creek and identifying potential improvements.

Land Use, Development, & Growth

Union Beach is home to substantial publicly owned residential land, as well as several parcels of wetlands; in 2020, urban or developed land made up nearly 57 percent of its total area, while wetlands made up 29 percent. From 2015 to 2020, the Borough experienced only marginal changes; its forests diminished by 14.4 acres while its urban or developed land grew by 13.6 acres. The Borough's agricultural land experienced a marginal increase, while its water and wetlands diminished by 1.3 percent each.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	-	-	-
Barren Land	6.9	10.3	49%
Forest	76.7	62.3	-19%
Urban	670.2	683.8	2%
Water	95.1	93.8	-1%

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Wetlands	354.4	353.1	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

The Borough Council is working with the County to elevate part of Front St. that is prone to flooding. This street falls under the FEMA 1% and 0.2% annual chance floodplain and NJ Inland Design Flood Elevation which is FEMA's 1% annual chance floodplain + 3 feet (NJFloodMapper).

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

None since 2020.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country's population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of Union Beach has a total population estimated to be 5,751, of which 5.1% is estimated as under age 5 and 11.9% over age 65. The Borough gained an estimated 2.1% in population between the ACS survey periods of 2013-2017 and 2018-2022. Though borough population is relatively evenly distributed, an aging population of nearly twelve percent may focus local hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There is one block group identified within Union Beach that meets criteria for overburden (OBC) according to Low Income community overburden. There are no parts of the Borough which meet the definition of CDRZ or CEJST tracts.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	5,751
Population Change since 2017	2.1%
Percent of Population Age < 5	5.1%
Percent of Population > 65	11.9%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough's hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Hurricane/Tropical Storm	Extreme Temperatures	Lightning
Nor'easter	Extreme Wind	Drought
Flood	Tornado	Wildfire
Storm Surge	Winter Storm	Earthquake
Coastal Erosion	Wave Action	
	Power Failure	
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	

Hazard Ranking Explanation

- **Power Outages:** These have occurred due to issues with the transformer.
- **Tornados:** The Borough has received only one warning so far.
- **Coastal Erosion:** The Army Corps has conducted significant replenishment efforts.

Significant Hazard Events Since Last Plan Update

There have been multiple flood events caused by high tides. While the damage to homes has been minimal and no properties have been lost since Sandy, roads have been inundated, hindering access. Specific areas affected include:

- **Union Ave and Washington Ave:** Flooding has extended to Shore Road.
- **Herbert St, Chingarora, and Bay Ave:** These streets have also experienced flooding.
- **County Road before the bridge on Union Ave (near Union Ave and Front St):** This area gets flooded, and the Borough Council is collaborating with the county to raise Front St.
- **Brook Ave:** Houses along Brook Ave are raised to mitigate flooding.

Additionally, houses near the shore of the lake opposite the International Flavors and Fragrances (IFF) building near Jersey Ave are RL properties. The solar panels on the IFF premises need to be de-energized before entering the premises. The main International Flavors and Fragrances facility at 36 and Rose Ln poses a Hazmat threat due to the chemicals used in the facility.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of Union Beach. As sea levels continue to rise, the frequency and severity of coastal flooding will likely increase, exacerbating the existing challenges posed by high tides and storm surges. The Borough's extensive coastline and low-lying areas make it particularly vulnerable to these effects, which could lead to more frequent inundation of roads and properties, as well as increased erosion of coastal areas. The ongoing efforts by the U.S. Army Corps of Engineers to replenish beaches and build up dunes are crucial, but these measures may need to be intensified and expanded to keep pace with the accelerating impacts of climate change.

Additionally, climate change is expected to bring more extreme weather events, such as stronger hurricanes and more intense rainfall, which could further strain the Borough's infrastructure and emergency response capabilities. The increased frequency of such events will likely lead to more power outages, disruptions to transportation, and potential damage to critical facilities. The Borough's efforts to elevate roads, maintain shore protection features, and implement flood control measures will be essential in mitigating these risks, but ongoing adaptation and resilience planning will be necessary to address the evolving challenges posed by climate change.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Union Beach Borough	
Initial FIRM Date	5/15/80
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	870
Total Losses:	1556
Total Payments:	\$90,171,594.53
Number of RL Properties:	43
Number of Mitigated RL Properties:	0
RL – Total Losses:	119
RL – Total Paid:	\$4,604,156.90
Number of SRL Properties:	8
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	37
SRL – Total Paid:	\$1,817,078.07

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

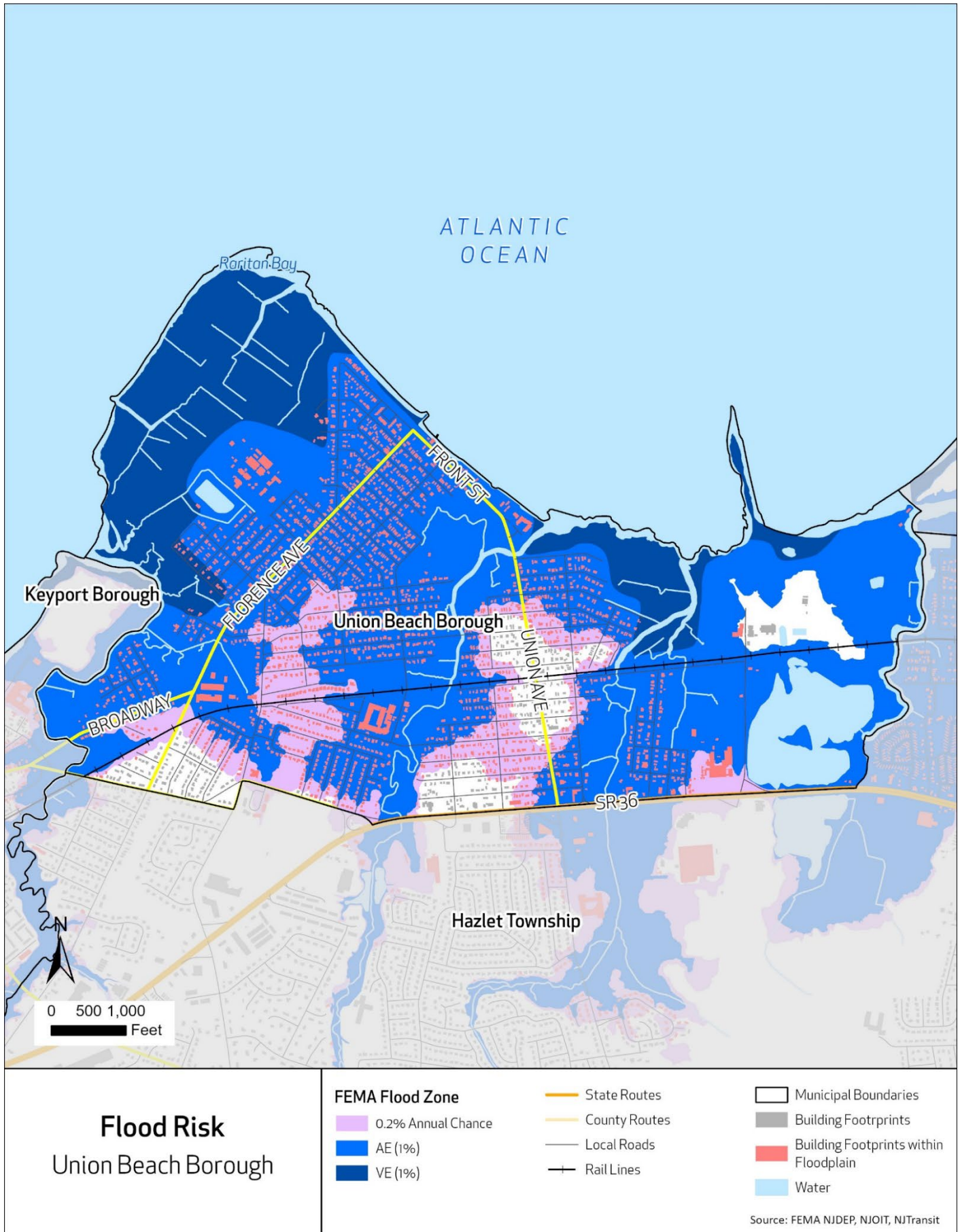
The entire Borough is in the 1% Floodplain, however the dune system protects the ocean side of Union Beach. The Special Flood Hazard Area (SFHA) in the Borough of Union Beach consists of the vast majority of the land area of town. Approximately 81.9 percent of the total area of Union Beach lies within the 1% annual chance flood zone as defined by FEMA. An additional 10.2 percent of the area of the municipality is in the 0.2% annual chance flood zone.

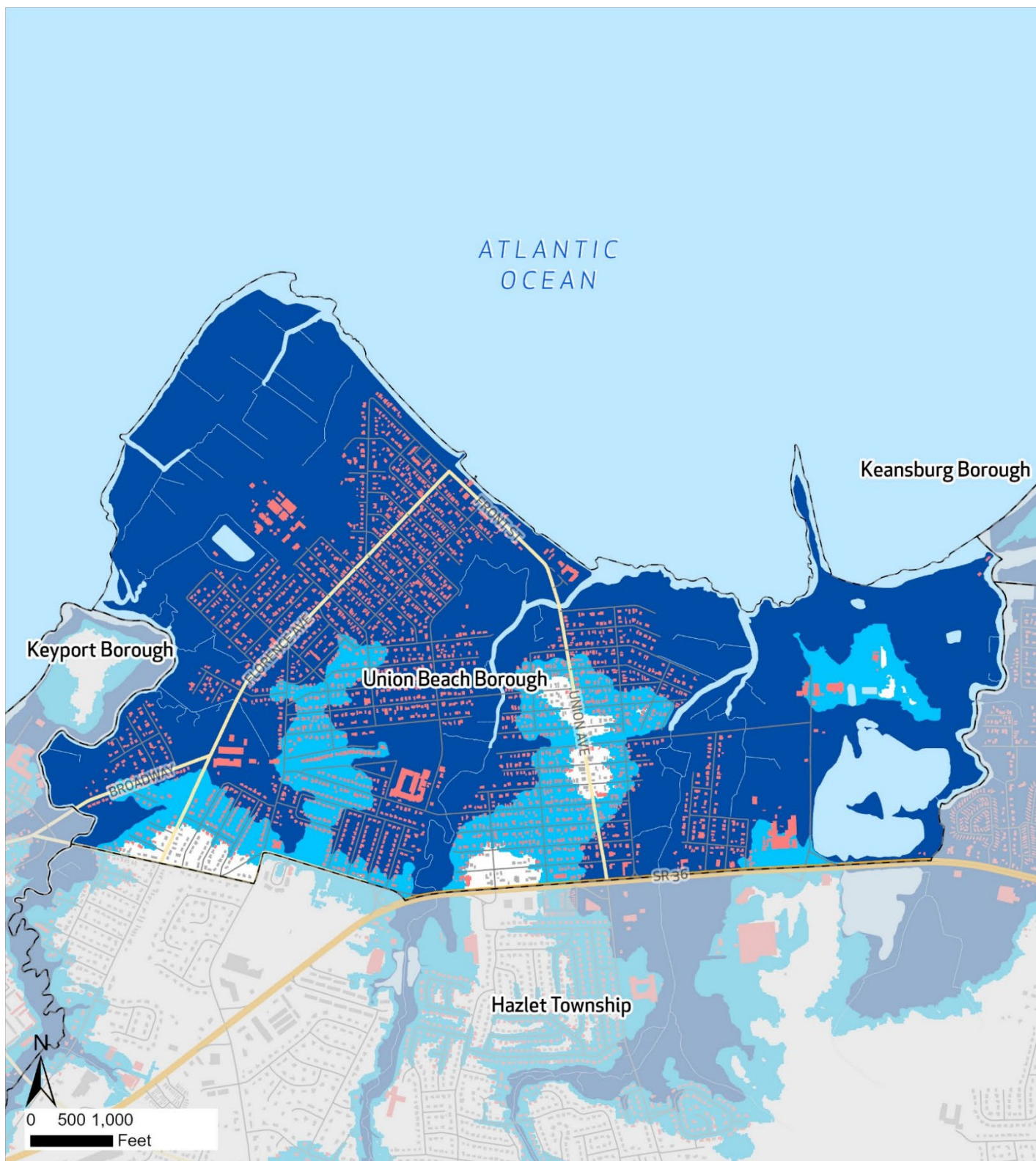
About 52.9 percent of Union Beach is considered developed. Of the developed parcels of the town, 64.3 percent fall within the 1% annual chance flood zone and 13.4 percent are within the 0.2% annual chance flood zone. This illustrates that development the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Flood-plain	Percentage in the 0.2% Flood-plain	5 feet of Sea Level Rise
Developed Parcels	64.3%	13.4%	34.6%
Exposed Land Area	81.9%	10.2%	48.3%

During the planning process, Spring Lake identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 14 total facilities. Of these facilities, nine are located within the floodplain. Of those nine, one is also in an area projected to be inundated under sea level rise.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Hazardous Materials	-	1	
Health and Medical	1	-	
Safety and Security	5	1	1
Water Systems	1	-	





NJ Inland Design Flood Elevation Union Beach Borough

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

State Routes

County Routes

Local Roads

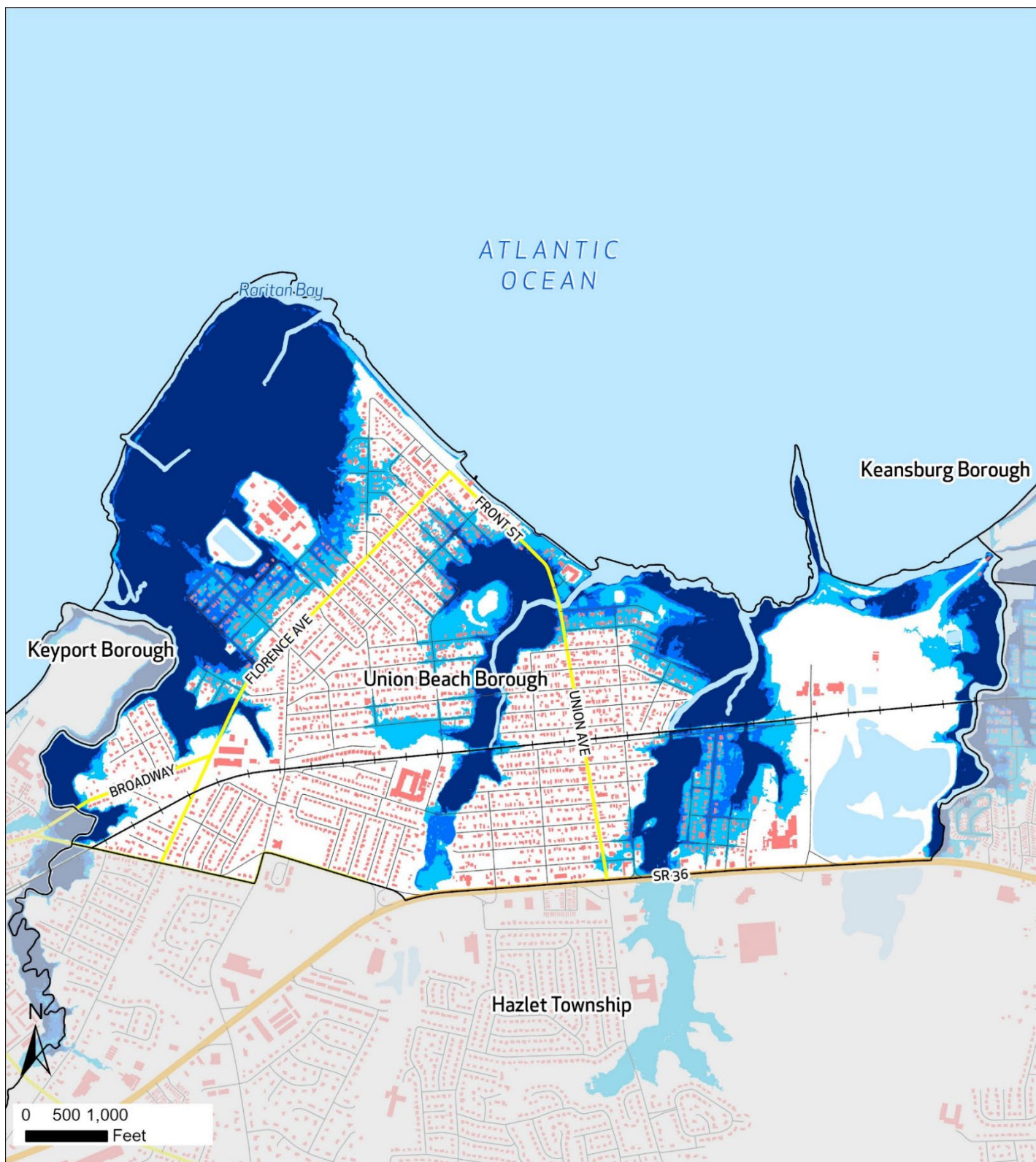
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios

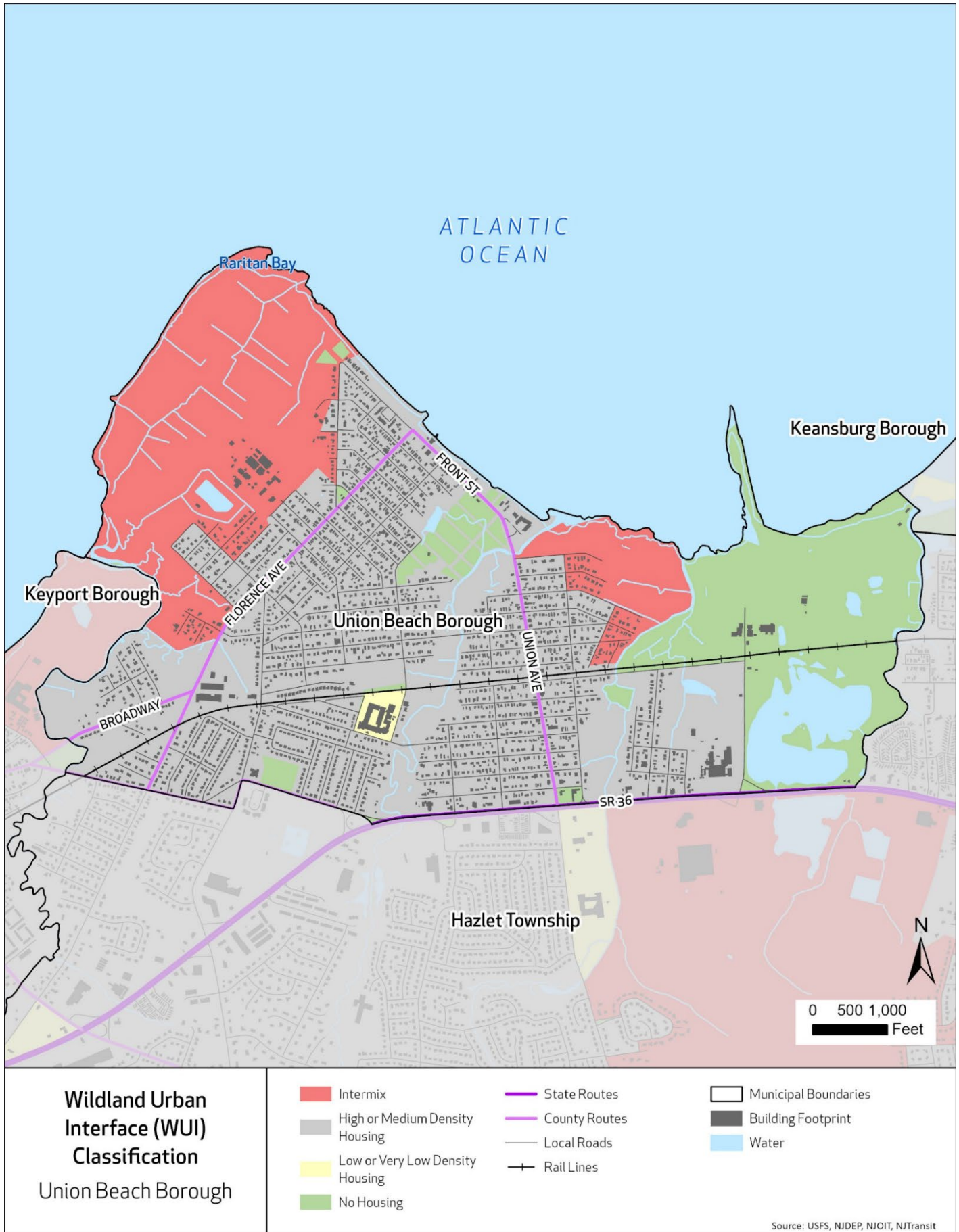
Union Beach Borough

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOIT, NJTransit



CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Union Beach Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	x		2015	
Capital Improvement Plan	x		2024	The Borough revises their capital improvement plan annually depending on available funding and need.
Local Emergency Operations Plan/Continuity of Operations Plan	x		2024	
Floodplain Development Ordinance	x		2021	The Borough maintains a Floodplain Damage Prevention Ordinance which regulates all development withing the floodplain.
Floodplain Management Plan	x		2021	The Borough maintains a Floodplain Damage Prevention Ordinance which regulates all development withing the floodplain.
Stormwater Management Ordinance	x		2024	The Borough maintains a Stormwater Management Control Ordinance establishes a minimum stormwater management requirement for all major developments.
Stormwater Management Plan	x		2024	The Borough maintains a Stormwater Management Control Ordinance establishes a minimum stormwater management requirement for all major developments.
Watershed Management Plan		x		
Sheltering Plan		x		
Evacuation Plan	x			The Borough has evacuation routes mapped and signed throughout the Borough.
Substantial Damage/Improved Structures Response	x			The Borough reviews all SD/SI requirements as part of the Zoning/Floodplain Development applications.
Repetitive Loss Plan		x		
Disaster Debris Management Plan	x		2022	
Tracking elevation certificates and/or Letter of Map Change	x			The Borough tracks and receives EC's for all structures within the Flood Hazard Area as part of the Zoning/Floodplain Development application process.
Post-Disaster Recovery Plan		x		
Current/recent redevelopment plans or studies	x		2016	The Borough adopted a redevelopment plan for the commercial corridor along Union Avenue. One of the sites is currently under construction.
Community Wildfire Protection Plan		x		
Climate Adaptation Plan		x		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

Union Beach Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	x		
Grant Writer	x		
Staff trained to support mitigation	x		
Existing mutual aid or technical assistance agreements to support hazard mitigation projects		x	
Non-governmental organizations/other partners that work with the municipality on mitigation projects		x	

Position	Yes	No	Explanation
Organizations that work with socially vulnerable or underserved populations		x	

Education and Outreach Capabilities

Union Beach Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	x		Floodplain Damages Prevention is discussed annually in the Borough's new letter. Floodplain Administrator has office hours weekly and available to discuss Floodplain Management with the public.
StormReady	x		
Firewise USA			
Severe Weather Awareness Week		x	
Community Rating System (CRS)	X		Class 7

Financial Capabilities

Within the last five years, Union Beach Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		x	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- Union Beach is a Forerunner community. Forerunner has dynamic tools to better manage flood risk and increase resilience by enforcing floodplain compliance and increasing disaster response by documenting damages in the field and providing timely information to residents. Forerunner's public features give residents access to relevant property-level flood risk details that help inform key decisions and minimize the number of assistance requests. Forerunner is also designed to make CRS participation easier for the Borough.
- **Community Rating System (CRS) Classification: 7**
- **Sustainable Jersey Participation Status: Registered**

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since Superstorm Sandy, the Borough of Union Beach has focused on enhancing flood resilience, improving emergency response capabilities, and upgrading critical infrastructure to mitigate natural hazard risks. Key completed actions include elevating homes to meet updated FEMA standards and raising critical roads that impact response and evacuation. Over the next five years, Union Beach aims to prioritize projects that address emerging climate challenges, such as sea-level rise, by expanding mitigation strategies like updated flood mapping, advancing the Boroughs advance warning system, and continuing the Army Corps project for the beach. These efforts will benefit the Borough of Union Beach and its residents for many years to come.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
50-1	Elevate Spruce Street, Center Street, and Fifth Street	Raising the elevation of the roadway to decrease the occurrence and severity of flooding in the area.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough administrator	FEMA Hazard Mitigation Grant, Borough funding	\$684,457	N/A	Completed	Project completed 2017 as part of PW4616.
50-2	Elevate Florence Ave.	Raising the elevation of the roadway to decrease the occurrence and severity of flooding in the area.	Flood, Extreme Wind, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Administrator , Monmouth County	FEMA Hazard Mitigation Grant, Borough funding, County funding	\$300,000	N/A	Completed	This project recently completed by Monmouth County.
50-3	Elevate Park Avenue	Elevate Park Avenue to keep roadway clear from flooding.	Flood, Hurricane and Tropical Storm	N/A	Borough Administration	FEMA HMA, Borough funding		N/A	Completed	This project was recently completed by the Borough. Construction cost \$367,430 paid for in part from NJDOT Municipal aid Grant.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
50-4	Relocate Harris Garden Fire Company Building (Station 65-4) outside a Flood Zone	Relocate Harris Garden Fire Company Building to a location above the FEMA working FIRM maps.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding, CDBG	\$1.5M	N/A	Ongoing	Fire Department to be relocated to the existing fire house on Union Avenue. Existing building to be converted to residential unit.
50-5	Maintenance of Shore Protection Programs	Maintenance of the existing shore protection features.	Flood, Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Borough Engineer, Public Works	FEMA Hazard Mitigation Grant, Borough funding	\$100,000	N/A	Ongoing	The Borough continues to maintain all shore protection features. Inspection is done biannually and after every major storm event.
50-6	Implement the Army Corps of Engineers Shore Protection and Flood Control Plan for Flood Reduction Projects	The Army Corp Plan includes the following recommendations: installation of earthen levees, concrete flood walls, interior levees, primary and secondary drainage outlet structures, tide gate structures, road closure gate, road raising, and three pump stations.	Wave Action, Coastal Erosion, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Mayor and Borough Council, USACE, NJDEP	FEMA Hazard Mitigation Grant, Borough funding, Army Corp of Engineers, NOAA	\$275M	1 year	Ongoing	This is a Federal and State project. Phase I completed in 2024. The project included terminal groins, sea grass, beach nourishment
50-7	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Mitigate RL/SRL homes.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Homeowners, with assistance from the Borough	FEMA HMA	\$100M	2 years	Ongoing	The Borough continues to elevate all SD/SI homes located within the flood hazard area.
50-8	Elevate Front Street	Raising the elevation of the roadway to decrease the occurrence and severity of flooding in the	Flood, Extreme Wind, Nor'easter, Hurricane and	High	Union Beach and Monmouth County	FEMA Hazard Mitigation Grant,	\$400,000	1 year	Ongoing	Project is of the highest priority. Since Front Street is a County Road, the Borough continues to work with the County officials on a cooperative

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		area.	Tropical Storm, Storm Surge			Borough funding, County Funding, NJDOT				program to Elevate Front Street in the area of the Union Ave Bridge (County).
50-9	Relocate Department of Public Works Main Building out of Flood Zone	Relocate Department of Public Works main building to a location above the FEMA working FIRM maps.	Flood, Extreme Wind, Hurricane and Tropical Storm, Storm Surge	High	Borough Administrator	FEMA HMA, Borough funding, CDBG- DR	\$1,5M	1 year	Ongoing	Due to the lack of Borough owned property to relocate the DPW facility, the Borough plans to redevelop the existing DPW facility.
50-10	Install Flood Warning Signage	Installation of flood warning signage.	Flood, Extreme Wind, Hurricane and Tropical Storm, Storm Surge	High	Borough OEM	Borough funding	\$5,000	1 year	Ongoing	The Borough maintains a Borough wide flood warning system.
50-11	Stream/Creek Cleaning and Maintenance	Debris and sediment accumulation in receiving waterways and creeks impedes flood flows.	Flood, Extreme Wind, Hurricane and Tropical Storm, Storm Surge		Public Works, County Mosquito Commission	NRCS, HMA	\$5,000		Ongoing	The Borough maintains all the creeks and waterways within the Borough limits. However, due to the state all requirements and restrictions it is difficult to maintain the waterways properly.
50-12	Construct a Stone Revetment Wall	Construct a stone revetment wall along the Raritan Bay Waterfront beginning at the point of juncture of the Raritan Bay and Flat Creek and continuing east along the Borough's bay front for approximately 875 linear feet.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge	Medium	Borough Administrator	FEMA Hazard Mitigation Grant, Borough funding	\$1,9M	5 + years	Ongoing	With the implementation of Phase 2 and 3 of the Federal and State shore Protection project this project is no longer needed.
50-13	Storm Drain/Inlet Maintenance	Cleaning and maintenance of the existing storm drains and inlets.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm, Storm Surge		Public Works	Borough funding, FEMA grant funding	\$5,000		Ongoing	The Borough has a quarterly plan to clean and maintains all existing storm drains through out he Borough.
50-14	Update the Borough's Emergency Warning System	Upgrade Borough's existing emergency warning system.	Extreme Temperatures, Flood, Extreme Wind, Lightning, Nor'easter,	Medium	Office of Emergency Management, Police Department	Borough funding	\$700,000	1 year	Ongoing	

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
			Hurricane and Tropical Storm, Storm Surge, Winter Storm, Tornado							
50-15	Purchase and Install Generators for Memorial School and Borough Hall	Memorial School and Borough Hall need generators in order to operate as shelters.	All Hazards	High	Borough Administration	FEMA HMA	\$400,000	1 year	Ongoing	A new generator was recently installed at Borough Hall.
50-16	Restore the Marsh Surrounding Flat Creek and Create an Upland Maritime Forest Berm	Restore the marsh surrounding Flat Creek and create an upland maritime forest berm buffering local residences from the marsh. The proposed concept could enhance, but not interfere with any USACE work for Union Beach, and help reduce flooding on Route 36.	Flood, Nor'easter, Hurricane and Tropical Storm, Storm Surge	High	Borough, County	NJCWRP, FEMA HMA, NFWF, Acres for America, NOAA, EPA, NJDOT	TBD	2 years	Ongoing	

51 – UPPER FREEHOLD TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
James Rosenbauer	OEM Coordinator	Point of Contact, Municipal Meeting, 11/6/2024
Dana Tyler	Municipal clerk	Municipal meeting, 1/23/25
Sal Fiorinzo	DPW Manager	Meting 1/3/25

COMMUNITY PROFILE

Overview

Located in the far western section of the county's Panhandle region, the Township of Upper Freehold has a land area of 47.45 square miles. Upper Freehold is a primarily agricultural and residential community with limited commercial development.

Assessed farmland encompasses nearly 60 percent of the township's total acreage. Roughly 33 percent of the county's active agricultural acres, including cropland and permanent pasture, is located within Upper Freehold. The township reached a milestone of preserving 10,000 acres of agricultural land in 2018. Upper Freehold ranks second in the number of acres of farmland preserved in the State.

Land Use, Development, & Growth

In Upper Freehold, farmland covers nearly half of its area, while other land uses make up its remaining land base. However, from 2015 to 2020, the Township lost nearly 156 acres of its farmland. It also lost 77 acres of its barren land and nearly 10 acres of wetlands. Meanwhile, its urban land grew by 198 acres and forested land rose by 44 acres. In 2020, agricultural land accounted for 46 percent of the Township's total area, while wetlands and forested land made up 21 percent and 16 percent respectively of its land base. In the same year, urban or developed land constituted

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	13995.1	13839.4	-1%
Barren Land	132.1	54.9	-58%
Forest	4901.4	4945.7	1%
Urban	4427.2	4625.3	4%
Water	599.7	599.8	>0%
Wetlands	6261.8	6252.1	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

Several projects in scattered pockets have been approved but none have moved forward because of the economic situation.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

A 472,757 square foot warehouse application has been proposed at 1662 Old York Road [Route 539]. The application is currently still under review by the Monmouth County Development Review Committee. Although the warehouse will not be located in Upper Freehold, truck traffic due to the warehouse will affect the Township.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Township of Upper Freehold has an estimated population of 7,244. Of Upper Freehold residents, an estimated 4.0% are under age 5, and 23.5% are over age 65. The Township experienced an estimated 5.0% growth over the periods between 2013-2017 and 2018-2022 ACS surveys. With an aging population making up nearly twenty-four percent of their total community, Upper Freehold may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster. A five percent population growth over two five-year periods may illustrate additional vulnerability to hazards rooted in local built environment shifts (see development plans, above) and changing hazard impacts.

There are no areas of Upper Freehold which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	7,244
Population Change since 2017	5.0%
Percent of Population Age < 5	4.0%
Percent of Population > 65	23.5%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Tropical Storm	Extreme Temperatures	Dam Failure
Nor’easter	Extreme Wind	Earthquake
Flood	Tornado	Wildfire
	Nor’easter	
	Winter Storm	
	Drought	
	Coastal Erosion	
	Wave Action	
	Lightning	
Human-made Hazards		
	Cyber Attack	Civil Unrest

High	Medium	Low
Natural Hazards		
	Economic Disruption	
	Terrorism	
	Pandemic	
	Power Failure	

The Township ranked Landslide and Storm Surge as N/A.

Hazard Ranking Explanation

Extreme temperatures: When temperatures rise beyond a certain threshold, cooling centers for seniors are opened. For instance, during the summer of 2023, there was an extreme heat event that led to the town opening the firehouse for seniors.

Lightning: This is considered a high risk because two homes were hit by lightning. Additionally, the Township's soil is rich in iron, making it more prone to lightning strikes.

Dam failure: The Imlaystown Lake (Class 2 dam) and another Class 4 dam are nearby, but they do not pose a significant risk.

Earthquake: An earthquake occurred in early 2024, but no damage was reported.

Wildfire: Although no wildfires have been experienced within the Township, wildfires in adjacent towns such as Jackson can affect Upper Freehold. The Township has dry ground, several parks, and forested areas, which increases the danger of wildfires spreading.

Drought: During droughts, the Township sends Nixle alerts. However, it is challenging to get people to comply with warnings, especially during parties when people want to use fire pits.

Economic disruption: Storms could impact the Township's economy.

Power failure: Power outages have been caused by animals, falling trees, and car accidents.

Significant Hazard Events Since Last Plan Update

Two tornadoes hit Upper Freehold in June and July of 2021, respectively. One tornado was ranked EF0, while the other was ranked EF1. Although the livability of houses was not affected, there was some damage to trees and cars, along with cosmetic damage to buildings. Flooding is also a concern when there is rainfall beyond two inches, causing creeks and streams to overflow and only gradually subside. Such flooding has occurred three times since the summer of 2024, typically affecting areas by 539 and Holmes Mill Road near the historic Walnford area. Province Line Road, Waln's Mill Road, Iron Bridge, and two other bridges near Waln's Mill Road are also prone to flooding.

Although there have been no wildfires in Upper Freehold so far, neighboring Jackson experienced a wildfire in 2024, and North Jersey had two to three wildfires. Black skies could be seen from Upper Freehold through August. These wildfires affected the particulate matter concentration and overall air quality in the Township, with smoke and haze occurring in its jurisdiction.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by Upper Freehold Township. As global temperatures rise, the frequency and intensity of extreme weather events such as heatwaves, storms, and heavy rainfall are likely to increase. This will exacerbate existing hazards like flooding, which has already been a concern for the

Township. With more intense rainfall, creeks and streams are more likely to overflow, leading to more frequent and severe flooding events. Additionally, the Township's agricultural lands, which make up a significant portion of its area, may face increased drought conditions, affecting crop yields and water availability.

Moreover, climate change can lead to higher temperatures and prolonged dry periods, increasing the risk of wildfires. Although Upper Freehold has not experienced wildfires within its borders, neighboring areas have, and the Township's dry ground and forested areas make it susceptible to wildfire spread. The Township's air quality could also be impacted by smoke and haze from wildfires in nearby regions. Furthermore, the increased frequency of extreme weather events can lead to more power outages and economic disruptions, affecting the Township's overall resilience and quality of life.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Upper Freehold Township	
Initial FIRM Date	10/12/79
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	9
Total Losses:	3
Total Payments:	\$11,545.13
Number of RL Properties:	0
Number of Mitigated RL Properties:	0
RL – Total Losses:	0
RL – Total Paid:	\$0
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

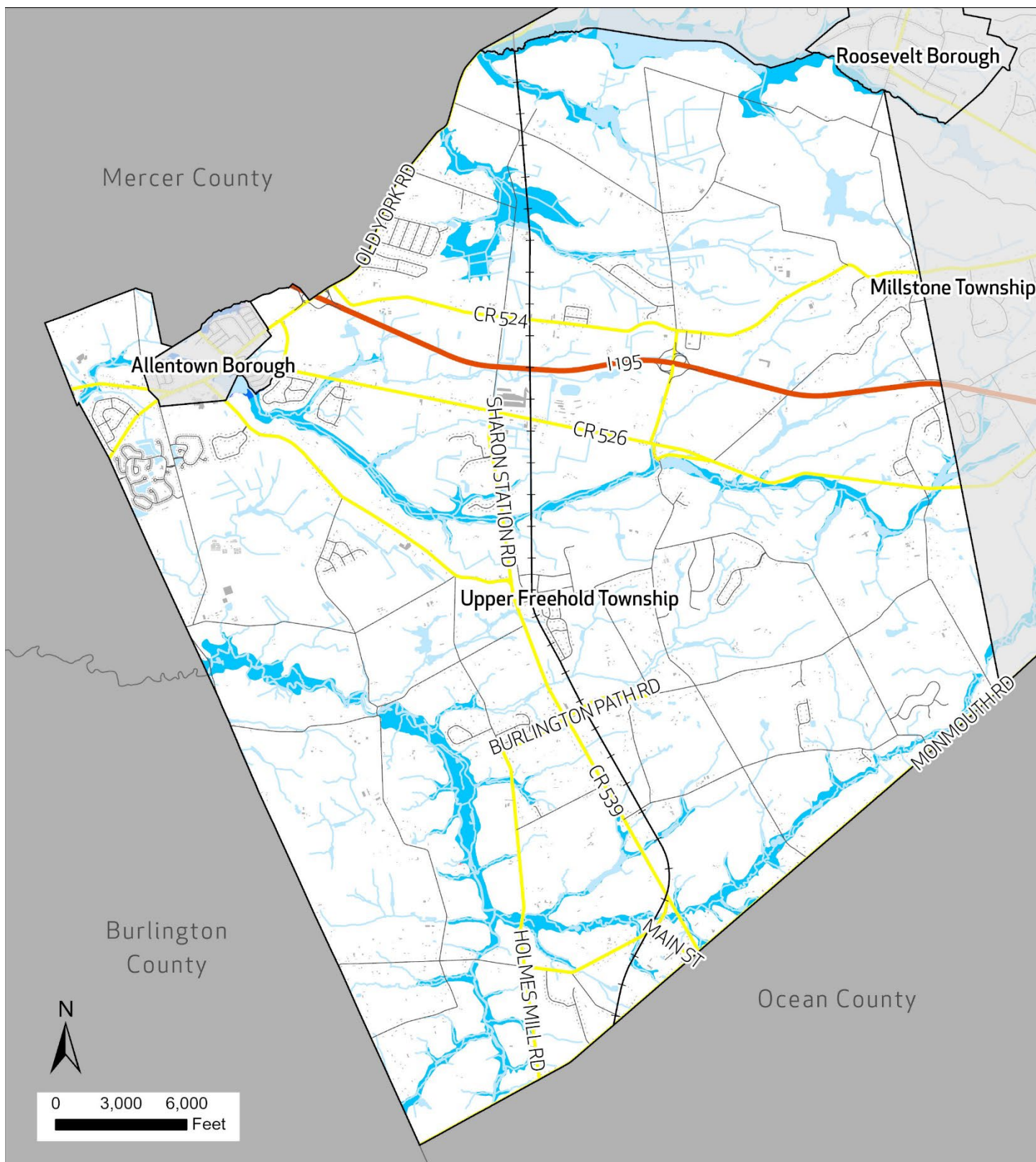
The entire Borough is in the 1% Floodplain, however the dune system protects the ocean side of Barnegat Light. The Special Flood Hazard Area (SFHA) in the Township of Upper Freehold is primarily located adjacent to the many streams which flow through town. Approximately 7.1 percent of the total area of Upper Freehold lies within the 1% annual chance flood zone as defined by FEMA. An additional 0 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 65.6 percent of Upper Freehold is considered developed. Of the developed parcels of the town, 9.9 percent fall within the 1% annual chance flood zone and 0.1 percent are within the 0.2% annual chance flood zone. This illustrates that development in of the municipality has generally occurred in areas that are more prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	9.9%	NA	NA
Exposed Land Area	7.1%	NA	NA

During the planning process, Upper Freehold identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 40 total facilities. Of these facilities, 9 are within the 1% floodplain.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	NA	NA
Water Systems	8	NA	NA



Flood Risk

Upper Freehold Township

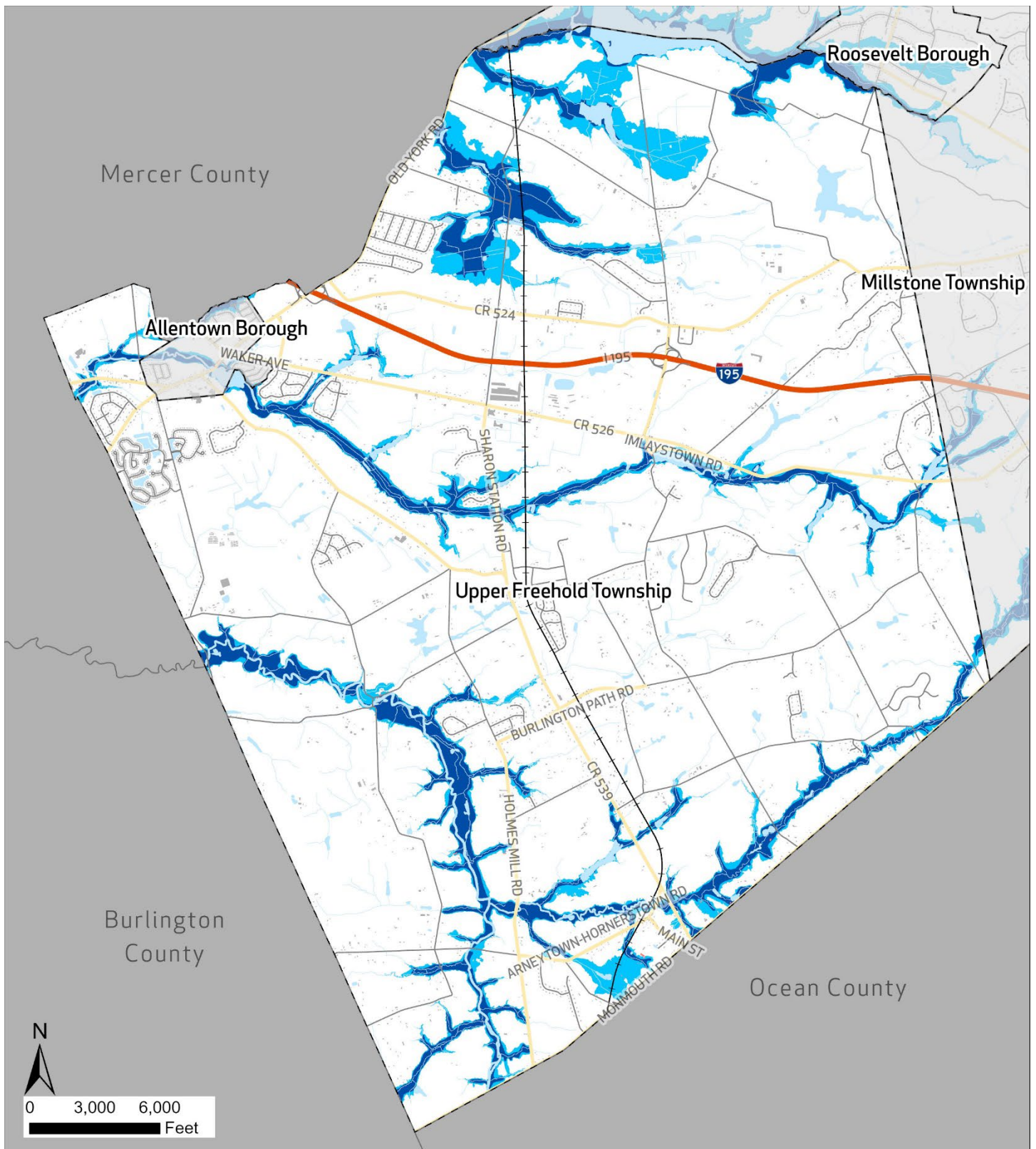
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)

- Interstate Highways
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Upper Freehold Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood
Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

County Routes

Local Roads

Railroad

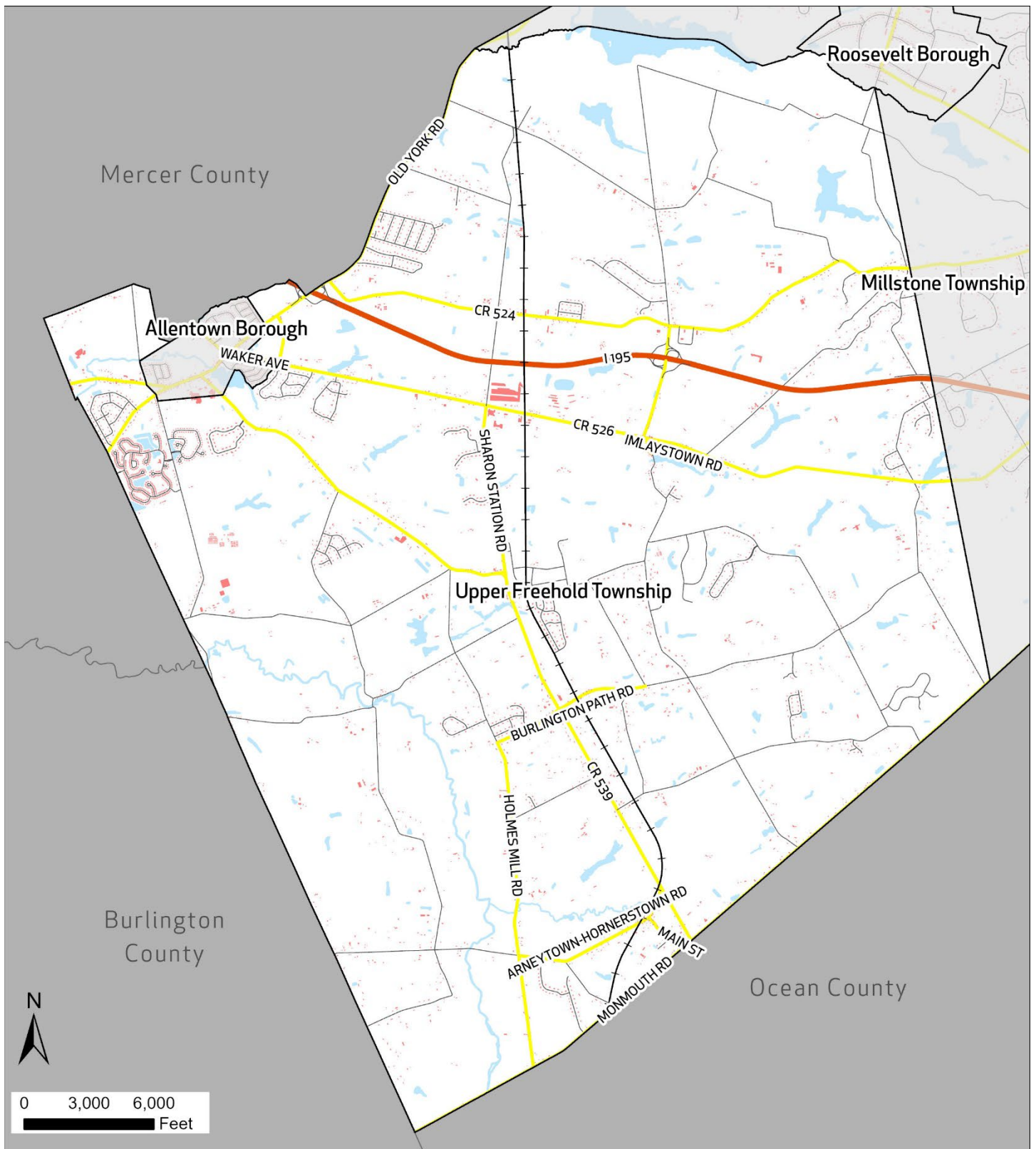
Municipal Boundaries

Water

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Permanent Inundation Under Sea Level Rise (SLR) Scenarios

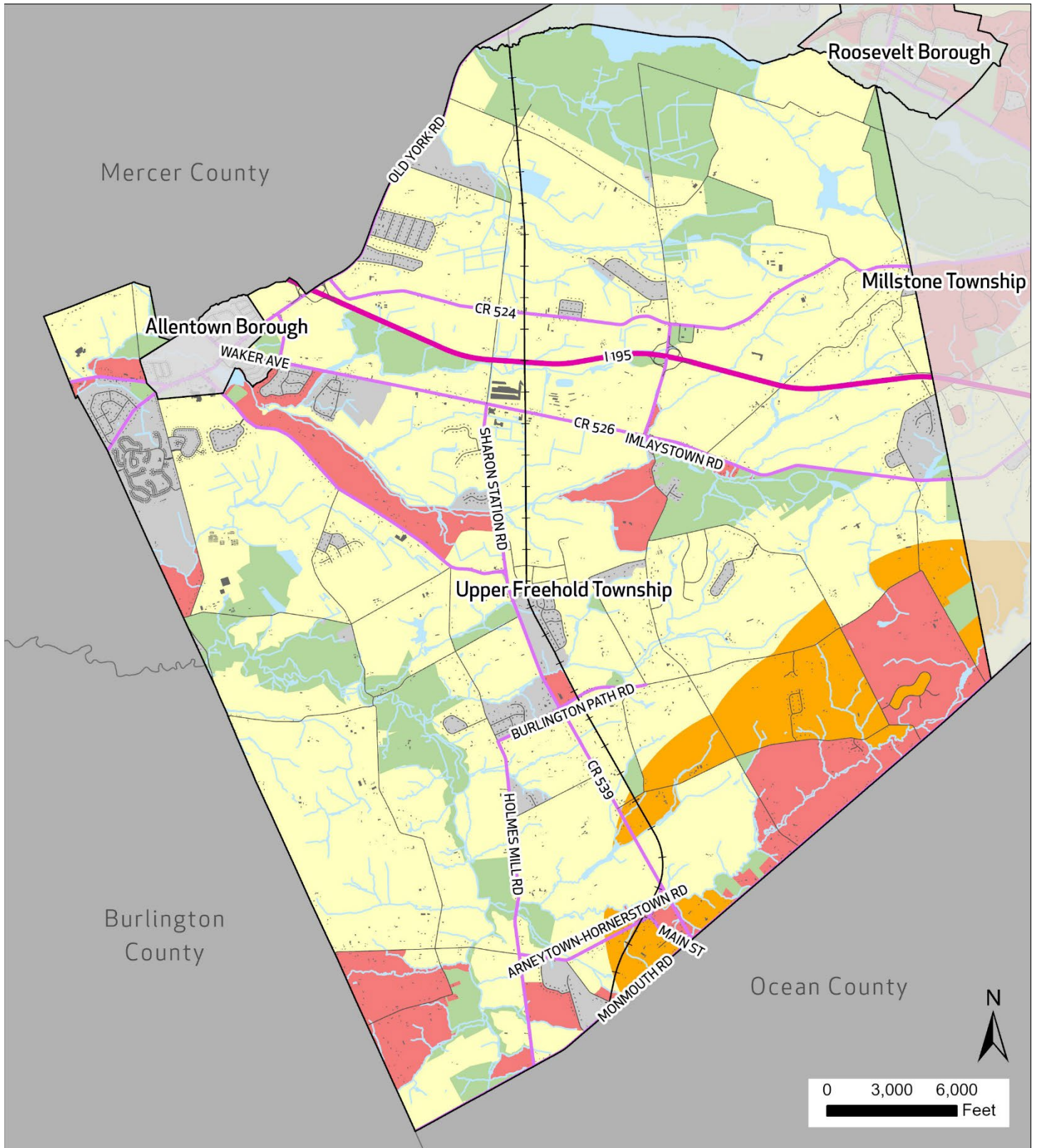
Upper Freehold Township

- Area Inundated Under 2 Feet SLR
- Area Inundated Under 3 Feet SLR
- Area Inundated Under 5 Feet SLR

- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: NOAA, NJDEP, NJOT, NJTransit



Wildland Urban Interface (WUI) Classification

Upper Freehold Township

- | | | |
|---|---|--|
| Interface | Interstate Highways | Municipal Boundaries |
| Intermix | County Routes | Building Footprint |
| High or Medium Density Housing | Local Roads | Water |
| Low or Very Low Density Housing | + Rail Lines | |
| No Housing | | |

Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Upper Freehold Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2017	Allows for sustainable growth and standards
Capital Improvement Plan		X		No major projects are planned
Local Emergency Operations Plan/Continuity of Operations Plan	X		12/1/24	Mitigation of natural disasters. Provides for efficient response and recovery from natural disasters and continuity of government.
Floodplain Development Ordinance	X		2020	Restricts construction and development in flood prone areas
Floodplain Management Plan		X		Local maintenance of stream bed and flood prone areas has reduced the need for a management plan
Stormwater Management Ordinance	X			Identifies risk free lands for development to mitigate flooding
Stormwater Management Plan		X		N/A
Watershed Management Plan		X		N/A
Sheltering Plan	X		6/1/2020	Establishes temporary housing for displaced residents. Agreements with County for sheltering.
Evacuation Plan	X		6/1/2020	Identifies safe routes and provides guidance for evacuation.
Substantial Damage/Improved Structures Response	X		2023	Reconstruction and repair of damages bridges was completed
Repetitive Loss Plan		X		N/A
Disaster Debris Management Plan	X		2020	Notification to residents of the location and procedures for debris removals. DPW staff trained on removal of debris from any disaster.
Tracking elevation certificates and/or Letter of Map Change		X		N/A
Post-Disaster Recovery Plan	X		12/1/2024	Emergency Management basic plan lists the steps for recovery
Current/recent redevelopment plans or studies	X		2020	On going review by the planning board to set standards for development,
Community Wildfire Protection Plan	X		2000	Fire company procedures for controlled burns to prevent wildfire
Climate Adaptation Plan		X		N/A
Other Plans that discusses hazard mitigation		X		None at this time
Other ordinance and regulation that mitigate the impacts of natural hazards	X		6/23/20	Hazard mitigation plan updated

Administrative and Technical Capabilities

BarNEGAT Light Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator		X	N/A
Grant Writer		X	None
Staff trained to support mitigation	X		Quarterly municipal meetings.
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		A mutual aid agreement between Upper Freehold and other municipalities as well as with Monmouth County.
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	None at this time
Organizations that work with socially vulnerable or underserved populations	X		Food Pantry (Allentown Presbyterian Church) and MEALS ON WHEELS-Allentown and UFT

Education and Outreach Capabilities

Upper Freehold has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Nixle alerts by text and web messages. Municipal web page alerts are posted
StormReady	X		Partner with National Weather service for training and assistance
Firewise USA		X	N/A
Severe Weather Awareness Week	X		Information for public awareness of severe weather hazards
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, Upper Freehold has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	N/A
FEMA FMA		X	Minor flooding in the Township has been mitigated by Municipal DPW
FEMA Public Assistance	X		Restored community infrastructure after Hurricane Irene.
FEMA HMGP		X	Upper Freehold plans to explore grant opportunities for risks from climate change
Non-FEMA Federal Funding Programs		X	None at this time
Other FEMA resources		X	None at this time
NJ Infrastructure Bank		X	N/A
Other state municipal assistance or grant programs		X	None
Evaluation process on the prioritization of risk reduction projects against other local activities		X	The planning and zoning boards analyze natural hazards for future development.
Other ongoing efforts to build additional financial capabilities		X	None

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Upper Freehold Township is a rural farming community with a commitment for open space and preservation of our natural resources. In addition, there are numerous horse farms in Upper Freehold Township. The Horse Park of New Jersey is located within our Township.

Upper Freehold has established a Right-to-Farm Ordinance and provides support for Future Farmers of America. The Upper Freehold Country Code provides a framework for our commitment to preserve our lands and forests; to improve our resilience to natural disasters and to mitigate the effects of climate change. This initiative has begun by restricting high density zoning regulations thereby providing more open land for natural drainage during excessive rainfall events. Going forward more work is needed to lessen the impacts of climate change.

Damage from lightning can be mitigated by installing lightning rods on critical facilities and installing surge protection on all electrical equipment. Educational materials for the public can be sent with the municipal tax bill; posted on the municipal web page and OEM Facebook. Lightning safety is currently taught in science classes at the Middle School.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
51-01	Continue to Provide Hazard Education and Risk Awareness	Ongoing development of education materials for distribution on the Township website and the OEM Facebook portal as well as print materials. Emergency notifications will be made as necessary via the Township's emergency notification system.	All Hazards	N/A	Emergency Management Coordinator, Office of Emergency Management	Local budget and personnel are able to maintain & further develop this mitigation.	Staff time	N/A	Completed	OEM Facebook routinely used to post safety messages. The municipal web page is used to provide education on hazards
51-02	Improve Drainage System Capacity	Seasonal cleanup of culverts, roadside water management ditches, and drainage basins in flood prone areas.	Flood	N/A	Department of Public Works	Local budget and personnel are able to maintain & further develop this mitigation.	\$25,000	N/A	Completed	DPW annually cleans culverts and underpasses.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
51-03	Acquire, elevate, or relocate buildings and	Meet with local zoning board to raise awareness of repetitive flood loss and meet with home	Flood, Nor'easter	Low	Emergency Management Coordinator,	FEMA HMA, County funding	TBD	1 year	Ongoing	There are only three RL/SRL properties in the Township. Low priority.

Action	Name	Description	Hazards Addressed	Pri-orty	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
	infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	& property owners with repetitive loss due to flooding to identify mitigation options and seek input to develop a strategy (i.e., elevation, acquisition).	Hurricane and Tropical Storm		Office of Emergency Management					
51-04	Identify and Remove Hazardous Trees	Identify trees and/or tree limbs with the potential to cause loss of life, property damage, utility loss or road closure. Advise property owners of potential hazards and where appropriate, engage community resources, and/or utility company resources.	Extreme Wind	Medium	Public Works	Municipal budget, JCP&L Utility	\$25,000	1 year	Ongoing	Tree service contractors remove dangerous trees. Power company trim trees affecting their power lines
51-05	Create a Wildfire Inventory of Potential At-Risk Properties and Develop an Alerting System to Notify Those Residents	Develop an inventory of addresses that could be affected by a wildfire. Use inventory and develop a route alerting system. Identify property owners for focused outreach, education & awareness of wildfire hazards.	Wildfire	Medium	DPW	Municipal budget	\$5,000	1 year	Ongoing	Forests and open grassy fields have been plotted and an evacuation route has been established
51-06	Coordinate with the County on Clearing Sediment and Debris at Bridges U-15 Breza Rd. and U-52 Ellisdale Rd.	Coordinate with the County on cleaning the sediment, debris, and fallen trees which block waterways at bridges U- 15 Breza Road and U-52 Ellisdale Road.	Flood, Nor'easter , Hurricane and Tropical Storm	Medium	Township and Monmouth County	Municipal and County budget	Staff time	1 year	Ongoing	<i>Upper Freehold OEM communicates with County DPW for assistance in clearing debris and sediment at county bridges and roads</i>
51-07	Clear Sediment and Debris at Bridges U-53, U-47, and U-48	Roadway bank protection at Bridge U-53 Provinceline Road; and Bridges U-47 & U-48 Walnsmill Road. Since Upper Freehold does not have jurisdiction over these county bridges, our action will be to meet with the County advise	Flood, Nor'easter , Hurricane and Tropical Storm	Medium	Township and Monmouth County	Local budget and personnel are able to maintain & further develop this mitigation.	\$1,000	1 year	Ongoing	Any identified culverts and streams that require clearing of debris is completed

Action	Name	Description	Hazards Addressed	Pri-orty	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
		them of the issues we have observe.								
51-08	Purchase and Install Generators for the Municipal Building and the First Aid Building	New generators for the Municipal Building and the First Aid Building.	All Hazards	Medium	Township	FEMA HMA	\$35,000	1 year	Ongoing	<i>Budget constraints has affected purchase of generators. Grants will be investigated</i>
51-09	Repair, Remove, or Rehabilitate the Assunpink #4 Dam (Lake Assunpink)	Repair, remove, or rehabilitate the Assunpink #4 Dam, a High-Hazard Potential Dam, located on the Assunpink Creek.	Dam Failure	High	NJDEP Division of Fish and Wildlife	NJDEP Bureau of Dam Safety and Flood Control	TBD, not in report	5 years	Ongoing	Emergency Action Plan developed in December 2017.
51-10	Create a Plan to Manage Development in Landslide Hazard Areas	Create a plan to implement reinforcement measures in high-risk areas.	Landslide	Low	Township	Municipal funding	Staff time	3 years	Ongoing	<i>Zoning and Planning board identifies hazardous areas.</i>

DRAFT

52 – WALL TOWNSHIP

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Lieutenant Jack Gramlich	Deputy OEM Coordinator	Primary Point of Contact, Municipal Workshop #1, Municipal Workshop #2
Captain Mike Hurden	OEM Coordinator	Reviewed appendix
John Spinapont	DPW Superintendent	Reviewed appendix
Matt Zahorsky	Township Engineer	Reviewed appendix

COMMUNITY PROFILE

Overview

The Township of Wall is approximately 32 square miles. Generally, the eastern portion of the township is made up of single-family homes with commercial development around Route 35. The western portions of Wall are less developed due to the large size of Allaire State Park and Monmouth Jet Center, though there is some commercial and industrial development along Route 34.

The Edgar Felix Bikeway is a popular recreational amenity that follows an abandoned railroad right-of-way, connecting Allaire State Park to Manasquan as part of the Capital to Coast Trail. There is a trail extension north of the Edgar Felix Bikeway that is approximately two miles in length and ends at the Wall Municipal Complex.

In 2008, Wall adopted its Open Space and Recreation Plan, providing an inventory of existing environmental and recreational resources and identifying the current and future needs of the community. In 2019, the NJDEP Green Acres Program and Monmouth Conservation Foundation purchased 190 acres of forests and forested wetlands to be added to Allaire State Park. In 2020, the Township made improvements to many of the parks throughout the Township.

Land Use, Development, & Growth

Wall Township is home to substantial publicly owned and residential land, as well as several parcels of commercial land, farmland, and some industrial land. As a result, there is no predominant land use in the Borough; in 2020, urban or developed land constituted nearly 46 percent of its land base, while forested lands and wetlands made up 23 percent and 20 percent respectively of its total area.

From 2015 to 2020, the Township experienced evident changes in its land use composition; its barren land and forested land declined by 22 acres and 22 acres respectively, while its urban or developed land grew by 86 acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	1028.0	1020.9	-1%
Barren Land	497.3	446.2	-10%
Forest	4778.4	4756.1	>0%
Urban	9286.9	9373.1	1%
Water	694.9	694.7	>0%
Wetlands	4006.0	4000.5	>0%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

- Construction of the new Allenwood Terrace Apartments, an age-restricted affordable-housing complex, was completed in late 2020. The complex is located at the intersection of Allenwood Road and Highway 138 on the site of a former state police building.

- Construction of The Townes at Glen Oaks was completed in 2023, a 120 townhome and apartment community at the intersection of Allenwood Road and Route 138.
- Further east, the Highway 35 corridor has experienced sizable redevelopment of existing shopping plazas in recent years. In 2023 an Old Mill Plaza redevelopment plan was approved by the Wall Township Committee, allowing for up to 230 units of age restricted, affordable, and market rate apartment rentals. The plan also allows for small commercial development along Old Mill Road and Route 35.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

In 2023 a 2,000,000+ square foot warehouse complex was proposed off of West Hurley Pond Road. The application is still under review by Wall and Monmouth County Planning Boards. Traditions at Walls with about 200 units that is coming in. These will need additional water storage to fight fires. Glen Oaks apartments will be approximately 100 townhomes in addition to a three-story apartment building. Additionally, the Allenwood Terrace Apartments.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the township. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

Wall Township has a total estimated population of 26,450. Of these residents, an estimated 4.1% are under age 5 and just over 23% are estimated to be over age 65. The Township experienced a moderate population growth over the periods between 2013-2017 and 2018-2022 ACS surveys, with the population increasing by an estimated 1.7%. With an aging population making up over twenty percent of their total community, Wall may focus hazard mitigation efforts on those with robust messaging and engagement for older residents, evacuation plans inclusive of populations with mobility issues, and resilient networks for resource accessibility post-disaster.

There are no areas of Wall which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	26,450
Population Change since 2017	1.7%
Percent of Population Age < 5	4.1%
Percent of Population > 65	23.2%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor'easter	Extreme Temperature	Lightning
	Extreme Wind	Tornado
	Hurricane/Tropical Storm	Drought
	Winter Storm	Earthquake
	Coastal Erosion	
	Dam Failure	
	Flood	
	Storm Surge	
	Wave Action	
	Wildfire	
Human-made Hazards		
Power Failure	Cyber Attack	Civil Unrest
	Economic Disruption	
	Terrorism	
	Pandemic	

The Township ranked Landslide as N/A.

Hazard Ranking Explanation

Power Failure has escalated from a low-hazard risk in the last HMP update to a high hazard. This issue is significant due to the Township's infrastructure and its ability to exacerbate other potential hazards. For instance, power failures can worsen the effects of extreme temperatures, as not all heating and cooling centers within the Township are fully generator-operated.

Dam failure has also increased from a low to a medium risk. The Township has several dams that pose potential risks, including the high-hazard Manasquan Reservoir Dam and Glendola Reservoir Dam, as well as the class two Hurley Pond Dam. Cyber-attacks are ranked as a medium risk. In 2021, the Township experienced a cyber-attack that affected all departments except the police department. Flooding remains a medium-ranked risk. Any storm event that results in a large amount of rainfall in a short period causes significant flooding along Route 18. Landslides are not applicable as the Township is relatively flat.

Significant Hazard Events Since Last Plan Update

In 2021, the Township experienced a cyber-attack that affected all departments except the police department. The most significant hazard has been straight-line windstorms. In Spring 2022, a plane went down at Monmouth Executive Airport within the Township due to significant winds. Additionally, periodic significant flooding occurs on Route 18 during storm events that result in a large amount of rainfall in a short period.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by wall Township. The Township's vulnerability to natural hazards such as flooding, extreme temperatures, and severe storms is likely to increase. With climate change, the frequency and intensity of such storm events are expected to rise, exacerbating the flooding risk. Additionally, the Township's infrastructure, including critical facilities and developed parcels, is at risk, with approximately 6.5% of the total area and 5.9% of developed parcels lying within the 1% annual chance flood zone. The increased frequency of extreme weather events, such as hurricanes and nor'easters, will likely lead to more power failures, which have already been identified as a high hazard due to their ability to worsen the effects of other hazards.

From an online perspective, climate change adaptation plans and hazard mitigation plans are essential strategies to foster community resilience. These plans aim to reduce the long-term impacts of a changing climate by addressing extreme flood

events and other climate-driven hazards. The climate mapping for resilience and adaptation portal's assessment tool helps communities understand climate risk and develop a roadmap to resiliency. For wall Township, integrating these plans and tools will be crucial in mitigating the increased risks and hazards posed by climate change, ensuring the safety and well-being of its residents.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

Wall Township	
Initial FIRM	2/16/77
Effective FIRM	6/15/2022
Number of Policies In-Force:	137
Total Losses:	82
Total Payments:	\$2,248,185.48
Number of RL Properties:	5
Number of Mitigated RL Properties:	0
RL – Total Losses:	12
RL – Total Paid:	\$90,818.61
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

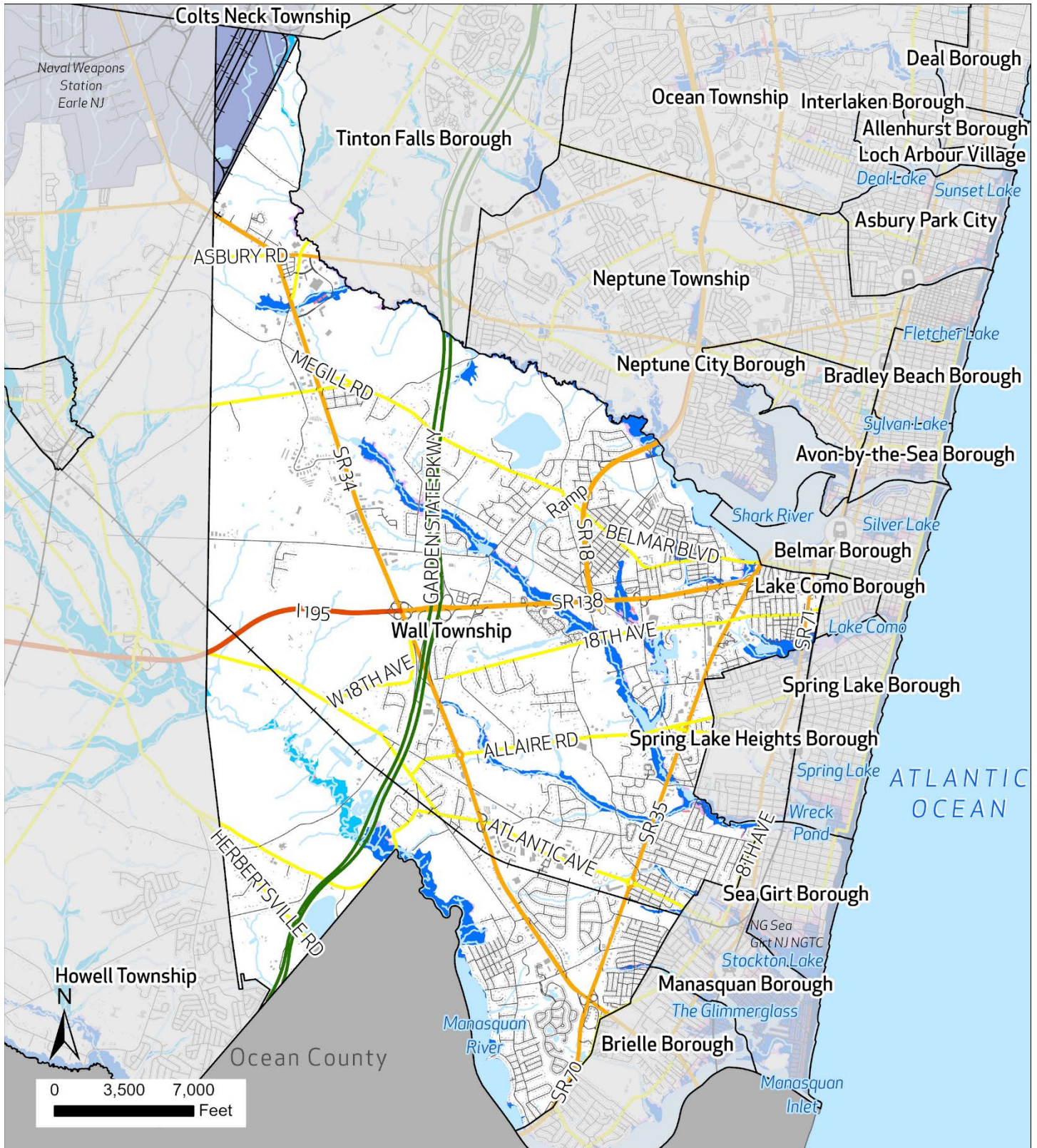
The Special Flood Hazard Area (SFHA) in the Township of Wall is primarily located adjacent to the many streams which flow through town including the Manasquan and Shark Rivers. Approximately 6.5 percent of the total area of Wall lies within the 1% annual chance flood zone as defined by FEMA. An additional 0.5 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 60.7 percent of Wall is considered developed. Of the developed parcels of the town, 5.9 percent fall within the 1% annual chance flood zone and 0.4 percent are within the 0.2% annual chance flood zone. This illustrates that the developed area of the municipality is generally in line with overall flood risk.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	5.9%	0.4%	1.5%
Exposed Land Area	6.5%	0.5%	2.7%

During the planning process, Wall identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 63 total facilities. Of these facilities, six are located within the 1% floodplain as summarized in the table below.

Community Lifeline type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Safety and Security	1	-	-
Water Systems	5	-	-



Flood Risk Wall Township

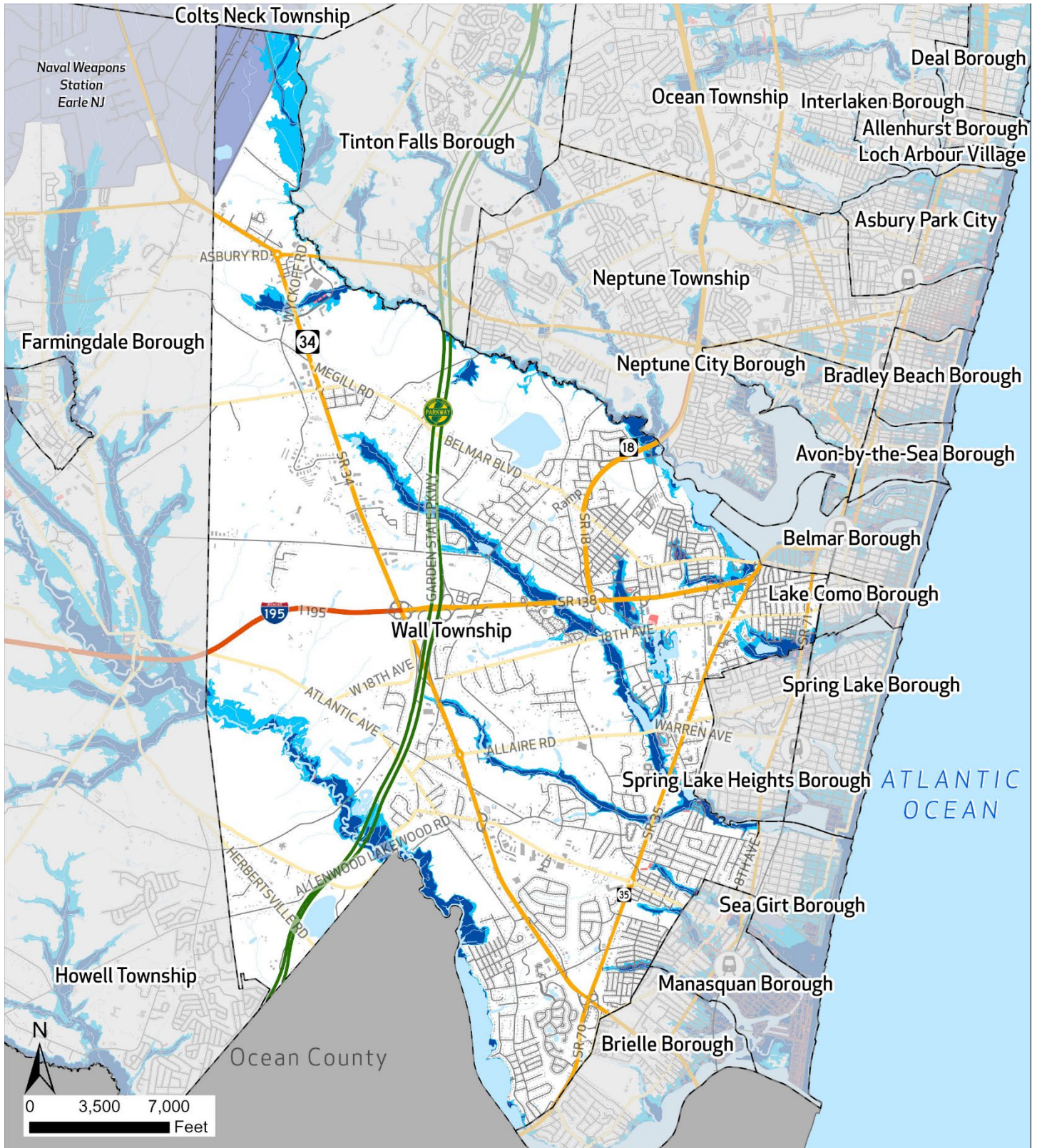
FEMA Flood Zone

- 0.2% Annual Chance
- A (1%)
- AE (1%)
- VE (1%)

- Garden State Parkway
- State Hwy
- Interstate Highways
- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit



NJ Inland Design Flood Elevation Wall Township

FEMA Flood Zone

Current Base Flood
Elevation (1%)

NJ Inland Design Flood Elevation

FEMA BFE (1%) plus 3
Feet

Interstate Highways

State Routes

County Routes

Local Roads

State Hwy

Garden State Parkway

Railroad

NJ Transit Rail Station

Municipal Boundaries

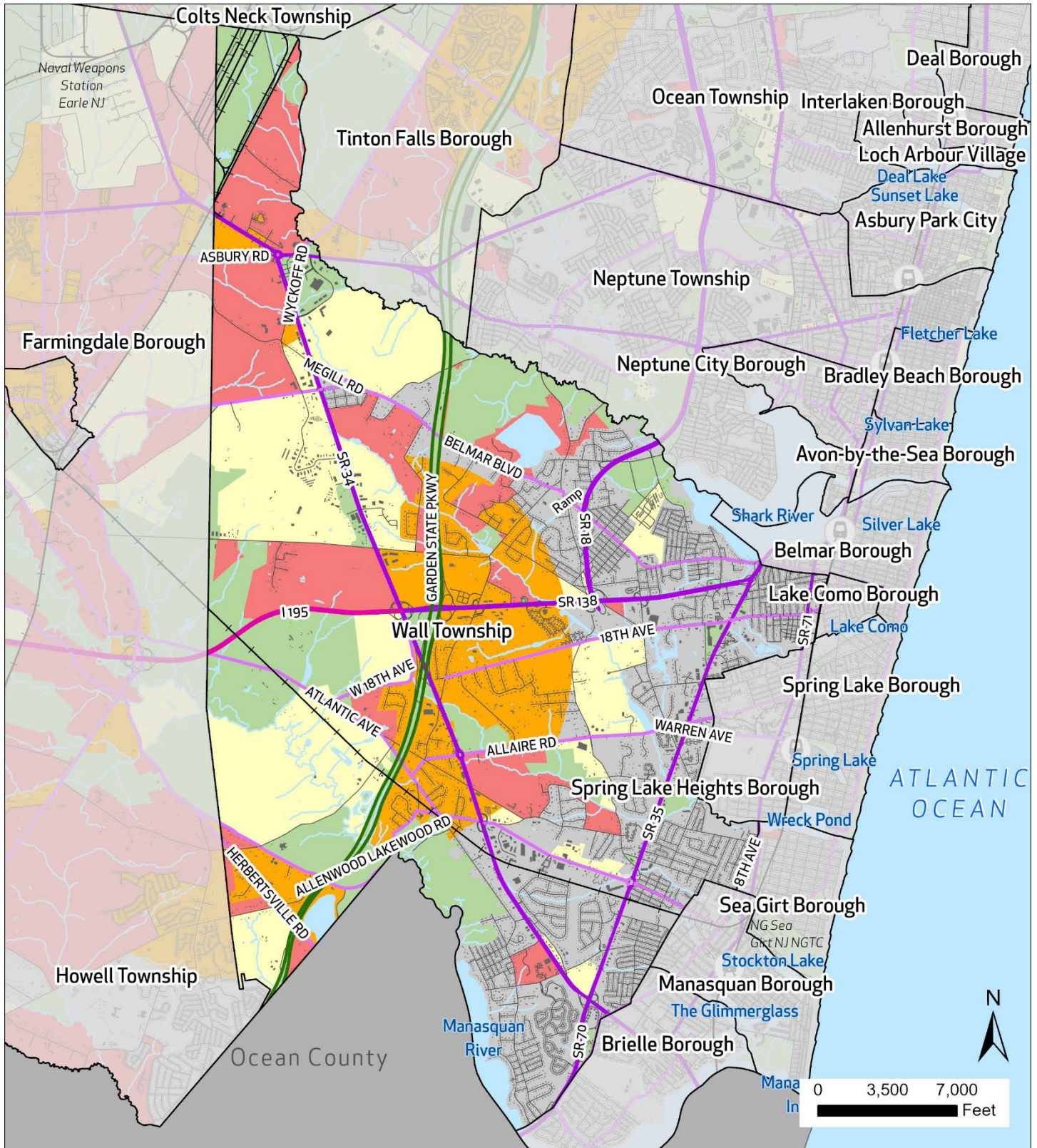
Water

Department of Defense
Land

Building Footprints

Building Footprints within
IDFE

Source: FEMA, Rutgers University, NJDEP, NJOIT, NJTransit



Source: USFS, NJDEP, NJOIT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

Wall Township has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		9/2005	
Capital Improvement Plan	X		1/25	
Local Emergency Operations Plan/Continuity of Operations Plan	X		8/24	
Floodplain Development Ordinance	X		10/24	
Floodplain Management Plan	X		10/24	
Stormwater Management Ordinance	X		10/24	
Stormwater Management Plan	X		10/24	
Watershed Management Plan	X		10/24	
Sheltering Plan	X		8/24	
Evacuation Plan	X		9/18	
Substantial Damage/Improved Structures Response	X		10/24	
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X		8/24	
Tracking elevation certificates and/or Letter of Map Change		X		
Post-Disaster Recovery Plan	X		8/24	
Current/recent redevelopment plans or studies	X		10/24	
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation	X			Next Steps to Compatibility Planning Study, Monmouth County, New Jersey (2022) encourages compatible development within the NWS Earle's Military Influence Area. Among the environmental constraints are natural hazards including wildfire, flooding, and storm surge.
Other ordinance and regulation that mitigate the impacts of natural hazards	X		10/24	

Administrative and Technical Capabilities

Wall Township has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		
Grant Writer		X	
Staff trained to support mitigation		X	
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		
Non-governmental organizations/other partners that work with the municipality on mitigation projects	X		
Organizations that work with socially vulnerable or underserved populations	X		

Education and Outreach Capabilities

Wall Township has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		
StormReady		X	
Firewise USA		X	
Severe Weather Awareness Week		X	
Community Rating System (CRS)	X		

Financial Capabilities

Within the last five years, Wall Township has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance	X		
FEMA HMGP		X	
Non-FEMA Federal Funding Programs	X		
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs	X		
Evaluation process on the prioritization of risk reduction projects against other local activities	X		
Other ongoing efforts to build additional financial capabilities	X		

Additional Capability Assessment Information:

- Sustainable Jersey Participation Status: Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Wall Township's mitigation action strategy focuses on enhancing community resilience by addressing key vulnerabilities to critical infrastructure. Priority initiatives include the removal of dead and hazardous trees around essential power grid components to reduce storm-related outages and the deployment of stationary license plate readers to support homeland security and crime reduction efforts. Additionally, the installation of natural gas generators at all water treatment plants and wastewater pump stations has been completed, with plans to expand generator coverage to all critical Township infrastructure to ensure continuity of operations during emergencies.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
52-1	Purchase and Install Natural Gas Generators at Critical Facilities	Aim to equip all critical facilities used by Township in hazard events (for resources, staging, emergency response, shelter) with natural gas generators.	All Hazards	N/A	Municipal	Municipal Budget, FEMA HMA	\$1M	N/A	Completed	Funded by municipal budget
52-2	Purchase and Install Emergency Power to Critical Facilities	Upgrade and install emergency power to the Wall Township Police Department, Wall Township Office of Emergency Management Emergency Operation Center, Wall Township Municipal Building, Water Treatment Plants, and Wastewater Pump Stations.	Extreme Temperatures, Flood, Lightening, Nor'easter, Hurricane and Tropical Storm, Storm Surge	N/A	Municipal	FEMA Hazard Mitigation Grant, Township funding, Capital Improvement Project	\$1M	N/A	Completed	Funded by municipal budget

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
52-3	Maintain the Removal of Dead and Hazardous Trees along Township Roads	Maintain the removal of dead and hazardous trees along Township roads.	Extreme Wind, Wildfire, Power Failure, Nor'easter, Hurricane and Tropical Storm	Medium	Township Administrator / Township Tree Crews	Municipal budget	\$30,000	1 year	Ongoing	Ongoing maintenance completed (annually). This is funded every year by the municipality to mitigate power loss potential.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
52-4	Dredge or Pump Siltation from the Shark River Basin to Confined Disposal Facility (CDF)	Dredge or pump siltation from entire Shark River Basin to Confined Disposal Facility (CDF).	Flood, Hurricane and Tropical Storm, Storm Surge	Low	Wall Township, Neptune City, NJDEP, Neptune, Belmar, NJDOT	Municipal budget	\$300,000	1 year	Ongoing	Moved to 'Low' priority - Township doesn't have authority for this and it is largely a Neptune City/NJDEP/Neptune Township/Belmar/NJDOT exploration.
52-5	Purchase Stationary License Plate Readers, place strategically throughout municipality.	Purchase a device that allows law enforcement agencies to compare plate numbers against those of stolen cars or cars driven by people suspected of being involved in criminal or terrorist activities.	Terrorism	Medium	Wall Township	Wall Township, Homeland Security grant	\$5,000	2 years	Ongoing	Capital improvement funding approved for 2025. State DOT and Monmouth County each use different software and forbid other software from their roadways. Difficulty finding vendor to accommodate.
52-6	Repair, Remove, or Rehabilitate the Glendola Reservoir Dam	Repair, remove, or rehabilitate the Glendola Reservoir Dam, a High-Hazard Potential Dam, located on the Robins Swamp Brook.	Dam Failure	Medium	New Jersey-American Water Company	Municipal budget, NJDEP Bureau of Dam Safety and Flood Control	TBD	3 years	Ongoing	Owner is New Jersey American Water Company. Emergency Action Plan was last revised in December 2022.
52-7	Increase HAZMAT response capability	Improve HAZMAT response capabilities throughout Wall Township.	All Hazards	Medium	Monmouth County	Fire Districts	Staff time		Ongoing	Fire Districts responsible for response and mutual aid planning.
52-8	Wall Dispatch Update GIS	Updated GIS capabilities and resources can improve dispatch outcomes, times, and clarity for response in all hazard types. Currently using tax maps with minimal knowledge of new development.	All Hazards	Medium	Wall Dispatch, Township	Wall Township	\$50,000		Ongoing	Phase 1 complete, ongoing

53 – WEST LONG BRANCH BOROUGH

PLANNING TEAM AND PARTICIPATION

Name	Title	Participation
Jason Gonter	Borough Administrator, OEM	Point of Contact, Municipal Meeting, 11/27/2024
Steven Cioffi	OEM Coordinator	Municipal Meeting, 11/27/2024
Julie Nastasi	Borough Engineer	Municipal Meeting, 11/27/2024
Anthony Valenti	DPW Director	Review HMP 2/2025

COMMUNITY PROFILE

Overview

The Borough of West Long Branch spans 2.83 square miles and is home to the historic Monmouth University campus. West Long Branch is a primarily residential community with commercial corridors at the intersection of Monmouth Road and Route 71 and at the north end of the Borough along Route 36.

Route 36 is the major byway through West Long Branch and Route 71 also crosses portions of the Borough. NJ Transit offers a discount pass for Monmouth University students and has bus stops for NJ Transit bus 831 on Route 71 adjacent to campus. The nearest NJ Transit railroad station to the university.

Land Use, Development, & Growth

In West Long Branch, residential, publicly owned and commercial land together constitute a large portion of its area. As a result, in 2020, urban or developed land accounted for nearly 92 percent of the town's total area, while wetlands, and barren land respectively make up 5 percent and 2 percent of its land base. From 2015 to 2020, there was a marginal increase of 61 acres in the Township's urban or developed land, which was accompanied by a decrease of 36.5 acres in forested land and 18 acres in wetlands. Between 2015 and 2020, the Borough experienced marginal land use changes; during this period, its barren land decreased by 13 acres, while its developed land grew by 14 acres.

Land Use Type	Total Acres (2015)	Total Acres (2020)	Percent Change
Agriculture	16.7	16.4	-2%
Barren Land	12.9	0.0	-100%
Forest	30.2	30.2	>0%
Urban	1681.0	1695.3	1%
Water	22.8	22.8	>0%
Wetlands	87.1	85.9	-1%

Source: NJDEP Land Use/Land Cover data, 2015-2020

Recent Major Development and Infrastructure from 2020 to Present

An age restricted 55+ community was constructed that went in at 310 Norwood Ave. The project, on a 6.4-acre lot, consists of 40+ 3 bedroom townhomes, 10 garden apartments, walkways, paved roads, and stormwater management. As of February 2025 the project is 85% complete.

Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years

There are approved plans for a 120 Townhouse development to be constructed adjacent to the ShopRite of West Long Branch. The project includes the townhouses across 23 buildings, roads, walkways, recreation improvements and stormwater management. The Turtle Mill Brook runs behind this property, but it does not experience a lot of flooding.

Demographics & Vulnerable Populations

This plan analyzed census-derived data on population trends and population age distributions to help illustrate potential vulnerability within the borough. A population increase or decrease can illustrate potential hazard vulnerability through development pressures on the built environment, or through physical and social impacts of marked population loss. A community with a large share of population under age five may indicate vulnerabilities in hazard response, resource allocation, and evacuation – FEMA identifies that the pediatric population is disproportionately affected during disasters, and requires special consideration in categories of anatomy and physiology, psychological, and education vulnerabilities (FEMA, 2022, NLM, 2022). Individuals over age 65 are a growing share of the country’s population and often represent the greatest share of deaths from extreme weather events and other natural disasters. A larger share of population over 65 may indicate local vulnerabilities to hazard events both before and after a disaster occurs – these populations may have mobility needs, uneven access to resources, and limited social networks that makes pre-disaster engagement challenging (FEMA, 2023).

The Borough of West Long Branch has an estimated population of 8,547, of which an estimated 7.5% is under age 5 and 16.6% is over age 65. West Long Branch saw an estimated growth in population of 7.6% over the periods between 2013-2017 and 2018-2022 ACS surveys. Along with knowledge of proposed future development, a recent population growth of close to eight percent highlights potential local vulnerabilities related to shifts in the built and social environments.

There are no areas of the Borough which have been identified by CDRZ, CEJST, or OBC designation criteria.

Demographics Summary	
Total Population (2018-2022 ACS 5-year Estimates)	8,547
Population Change since 2017	7.6%
Percent of Population Age < 5	7.5%
Percent of Population > 65	16.6%

Source: 2018-2022 ACS 5-Year Estimates, 2013-2017 ACS 5-Year Estimates

HAZARD IDENTIFICATION

One of the first steps in developing a risk assessment is for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern. The following include the Borough’s hazard ranking. The full risk assessment for each hazard is located in Section 4.0.

Hazard Ranking

High	Medium	Low
Natural Hazards		
Nor’easter	Extreme Temperatures	Lightning
Storm Surge	Extreme Wind	Drought
	Hurricane/Tropical Storm	Earthquake
	Tornado	Wildfire
	Winter Storm	
Human-made Hazards		
Pandemic	Cyber Attack	Civil Unrest
Power Failure	Economic Disruption	
	Terrorism	

Hazard Ranking Explanation

- **Extreme wind:** There have been no significant incidents, apart from a few fallen trees.
- **Tornadoes:** While not frequent or consistent, tornadoes have a high severity when they do occur.
- **Power failure:** The ranking has been moved to high due to consistent outages in the Borough. According to JCP&L, the causes are often 'Unknown or Animal,' with squirrels being the main culprits.

Significant Hazard Events Since Last Plan Update

Since 2021, the community has experienced several heavy rainfall events. Whenever it rained consistently for a few hours, resulting in more than a few inches of rain, Turtle Mill Brook overflowed, causing flooding on Eatontown Boulevard and Broadway. Similarly, Whale Pond Brook overflowed, leading to flooding on Monmouth Road and Whale Pond Road. Two properties near Cubero Ct. and Monmouth Road also experienced flooding. Parts of Monmouth University, particularly near Larchwood Ave and Palmer Ave, along with the parking lot of the Corporate Center at 2 Crescent Place, were affected by flooding as well. Despite the large wooded area near Michael Thorne Park, wildfires have not occurred there, as the area is used as a walking path and is regularly maintained by the Roads department.

Climate Change Impacts on Extent and Magnitude of Hazards

Climate change is expected to significantly impact the risks and hazards faced by the Borough of West Long Branch. As global temperatures rise, the frequency and intensity of extreme weather events such as heavy rainfall, hurricanes, and heatwaves are likely to increase. This will exacerbate flooding issues, particularly in areas adjacent to Turtle Mill Brook and Whale Pond Brook, which have already experienced significant flooding events. The increased rainfall and storm surges will put additional strain on the Borough's infrastructure, leading to more frequent and severe flooding of roads, properties, and critical facilities. The Borough's high percentage of developed land, combined with its proximity to water bodies, makes it particularly vulnerable to these climate-induced hazards.

Moreover, the rising temperatures and changing precipitation patterns will also affect the Borough's ecosystem and increase the risk of droughts and wildfires. Although wildfires have not been a significant issue in the past, the changing climate could alter this trend, especially in wooded areas like Michael Thorne Park. Additionally, the increased frequency of power failures, often caused by extreme weather and animal interference, will further complicate the Borough's ability to respond to and recover from these events. Overall, climate change will amplify the extent and magnitude of existing hazards, necessitating proactive measures and robust mitigation strategies to protect the community and its infrastructure.

RISK ASSESSMENT

National Flood Insurance Program (NFIP) statistics

West Long Branch Borough	
Initial FIRM Date	1/16/81
Effective FIRM Date	9/25/2009
Number of Policies In-Force:	20
Total Losses:	16
Total Payments:	\$48,041.45
Number of RL Properties:	1
Number of Mitigated RL Properties:	0
RL – Total Losses:	2
RL – Total Paid:	\$7,772.84
Number of SRL Properties:	0
Number of Mitigated SRL Properties:	0
SRL – Total Losses:	0
SRL – Total Paid:	\$0

Source: FEMA Policy and Loss Data, August 2024

Vulnerability of the Built Environment

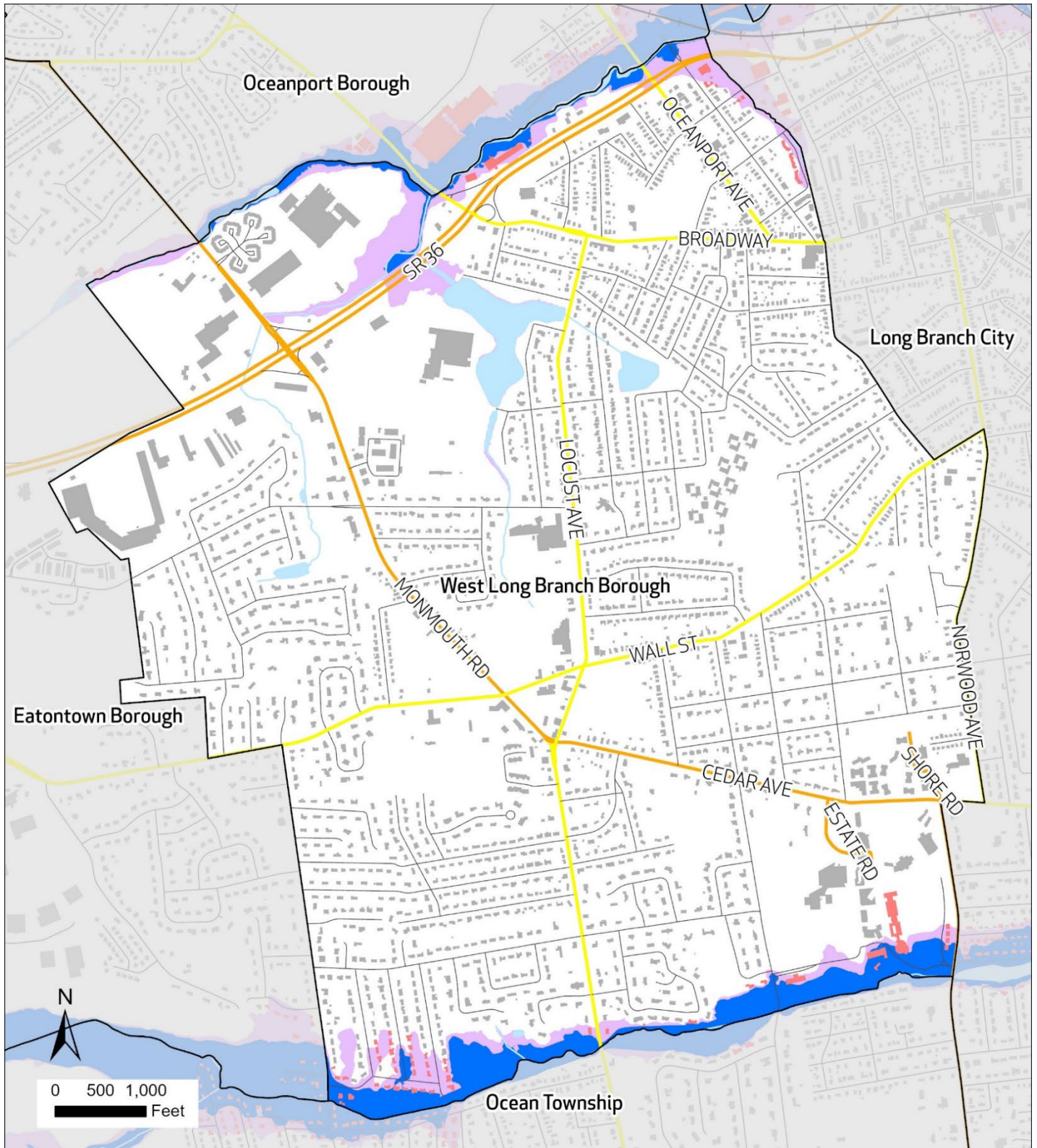
The Special Flood Hazard Area (SFHA) in the Borough of West Long Branch is primarily located adjacent to Turtle Mill and Whale Pond Brooks. Approximately 2.9 percent of the total area of West Long Branch lies within the 1% annual chance flood zone as defined by FEMA. An additional 4.3 percent of the area of the municipality is in the 0.2% annual chance flood zone.

About 91.7 percent of West Long Branch is considered developed. Of the developed parcels of the town, 1.9 percent fall within the 1% annual chance flood zone and 2.5 percent are within the 0.2% annual chance flood zone. This illustrates that development in the municipality has generally occurred in areas that are less prone to flooding.

	Percentage in the 1% Floodplain	Percentage in the 0.2% Floodplain	5 feet of Sea Level Rise
Developed Parcels	1.9%	2.5%	4.0%
Exposed Land Area	2.9%	4.3%	0.2%

During the planning process, West Long Branch identified critical facilities which function as community lifelines. These facilities provide the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The municipality identified 18 total facilities. Of these facilities, two are located within the floodplain. These facilities are categorized as Water Systems lifelines. Examples of Water Systems lifelines includes dams and pump stations.

Community Lifeline Type	Number in the 1% Floodplain	Number in the 0.2% Floodplain	Number within 5 feet of Sea Level Rise
Water Systems	1	1	-



Flood Risk

West Long Branch Borough

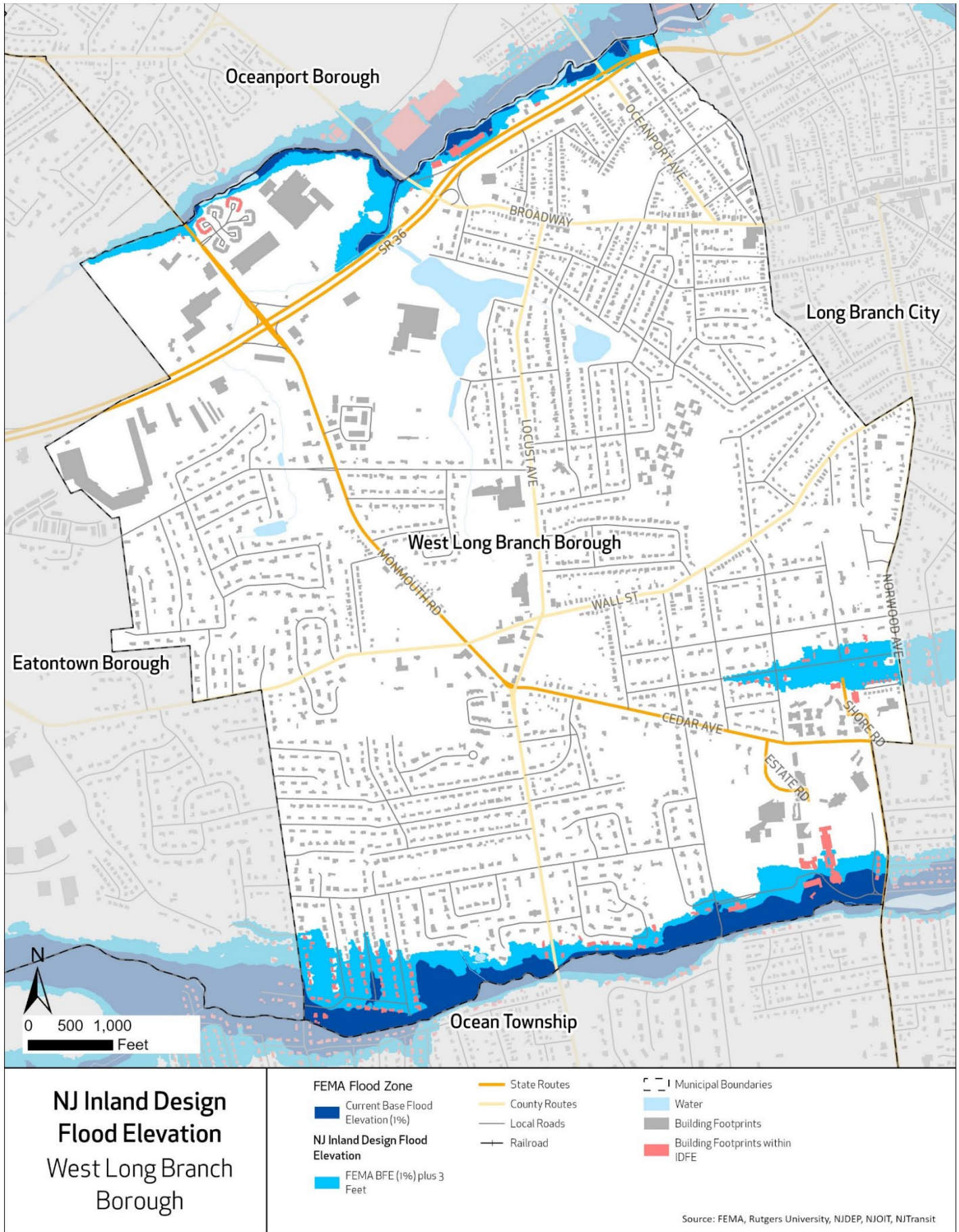
FEMA Flood Zone

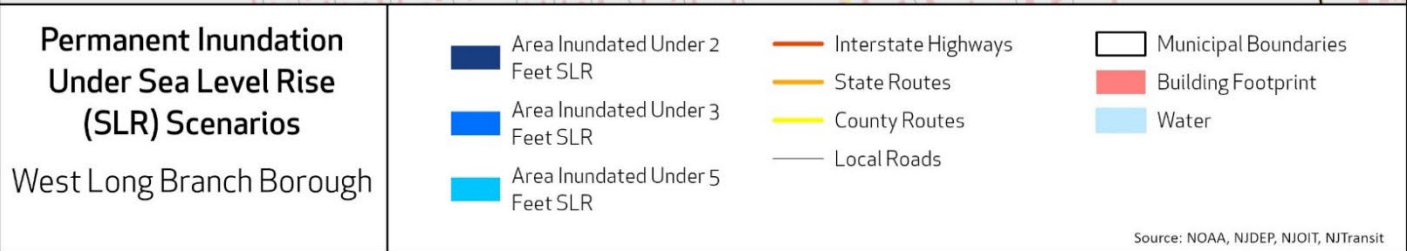
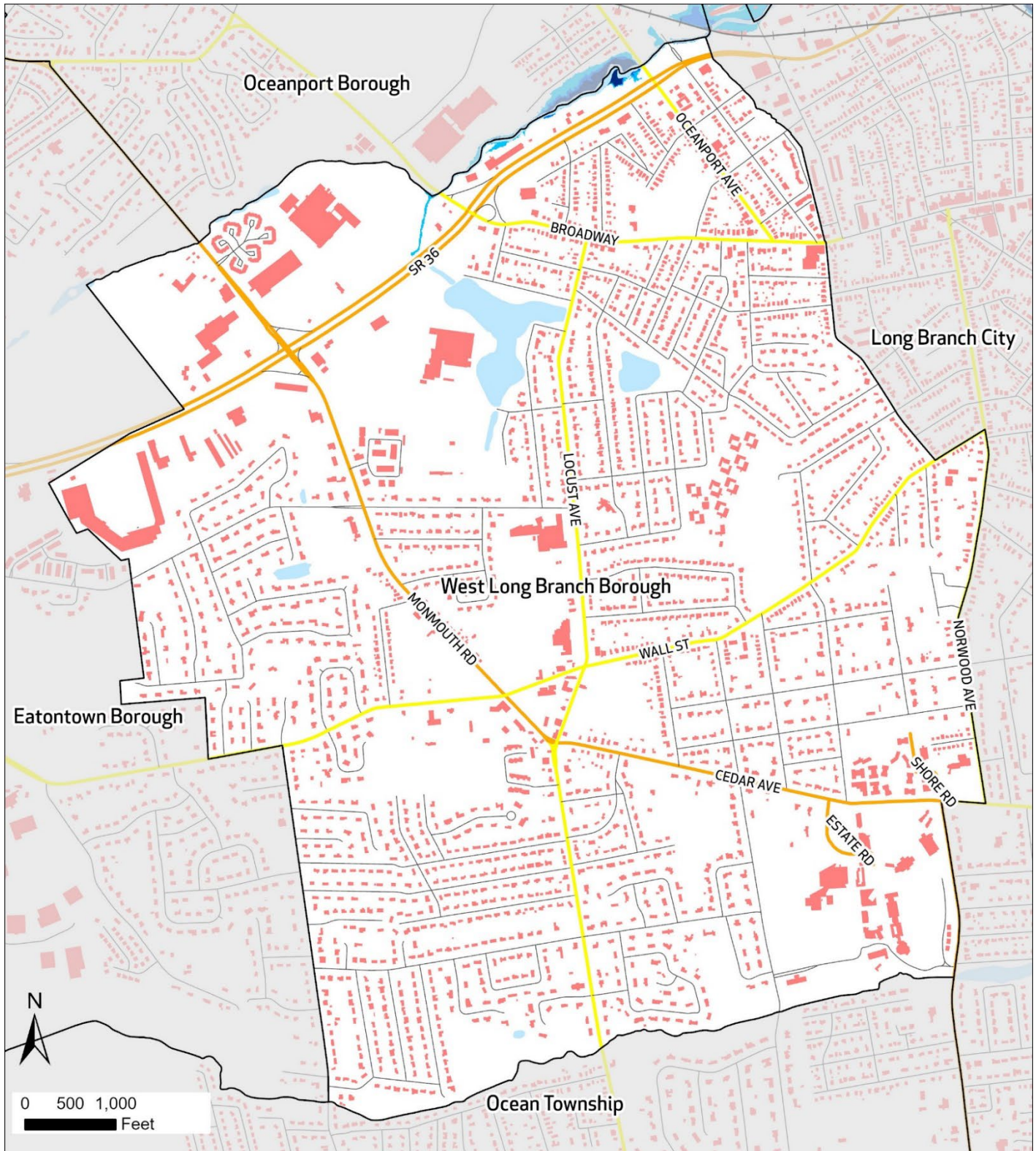
- 0.2% Annual Chance
- AE (1%)

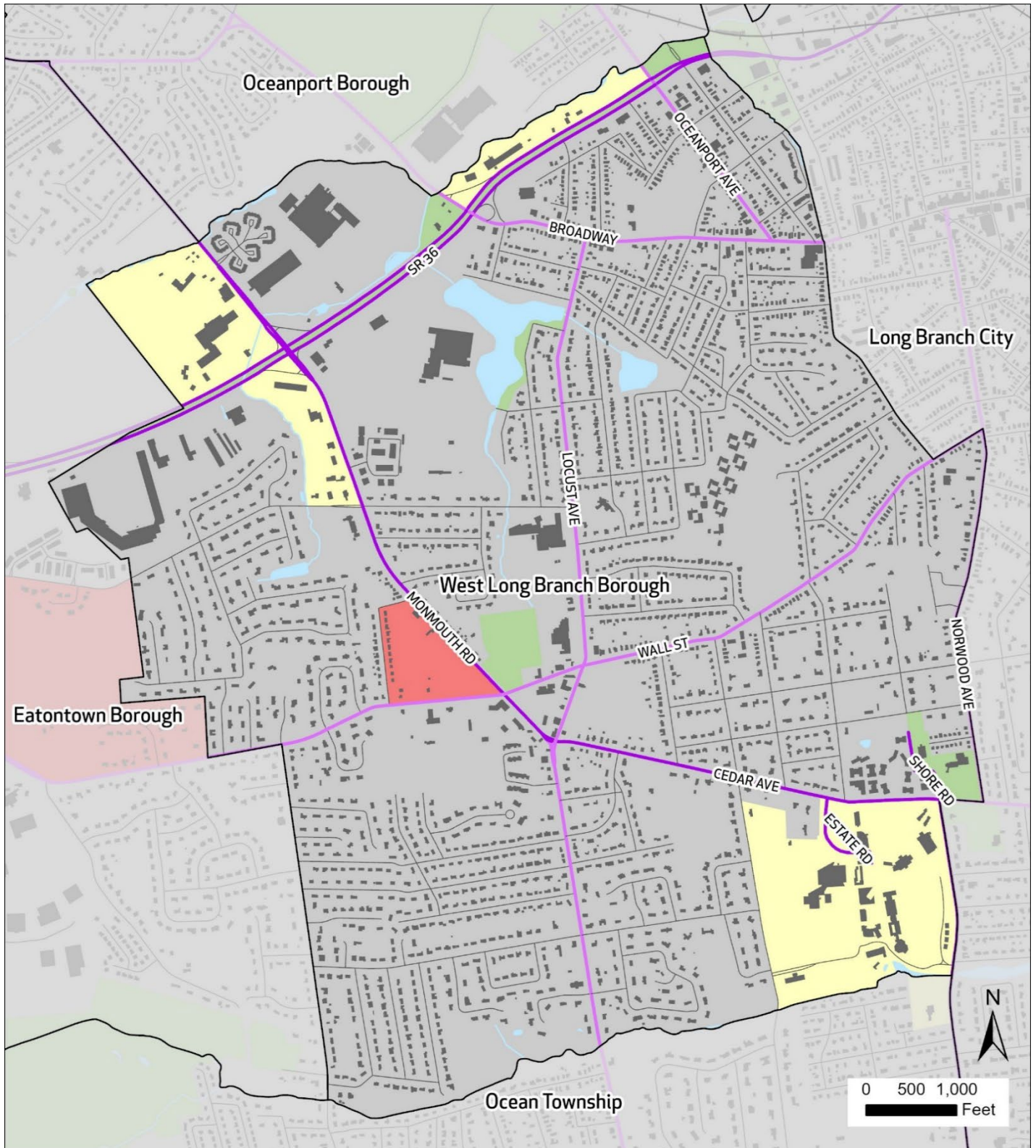
- State Routes
- County Routes
- Local Roads

- Municipal Boundaries
- Building Footprints
- Building Footprints within Floodplain
- Water

Source: FEMA NJDEP, NJOIT, NJTransit







Wildland Urban Interface (WUI) Classification

West Long Branch Borough

- Intermix
- High or Medium Density Housing
- Low or Very Low Density Housing
- No Housing

- State Routes
- County Routes
- Local Roads
- Rail Lines

- Municipal Boundaries
- Building Footprint
- Water

Source: USFS, NJDEP, NJOT, NJTransit

CAPABILITY ASSESSMENT

Planning & Regulatory Capabilities

West Long Branch Borough has the following additional Planning & Regulatory capabilities:

Plan and Regulation	Yes	No	Date of last update	How does this capability support hazard mitigation?
Master Plan	X		2024	
Capital Improvement Plan	X			Updates in individual departments
Local Emergency Operations Plan/Continuity of Operations Plan	X		2021	Increases the ability to take proactive actions to reduce the potential damage caused by natural disasters, including the resources, expertise, and planning processes necessary to implement mitigation strategies.
Floodplain Development Ordinance	X		2024	Increases the ability to protect residents and property from natural disaster
Floodplain Management Plan	X		2022	Increases the ability to protect residents and property from natural disaster
Stormwater Management Ordinance	X			Increases the ability to protect residents and property from natural disaster
Stormwater Management Plan	X		2024	Increases the ability to protect residents and property from natural disaster
Watershed Management Plan		X		
Sheltering Plan		X		Increases the ability to protect residents during disaster events
Evacuation Plan	X			*Via County Plan
Substantial Damage/Improved Structures Response		X		
Repetitive Loss Plan		X		
Disaster Debris Management Plan	X			Increases the ability to protect residents and property resulting from natural disaster
Tracking elevation certificates and/or Letter of Map Change	X			Increases the ability to protect residents and property from natural disaster
Post-Disaster Recovery Plan		X		
Current/recent redevelopment plans or studies		X		
Community Wildfire Protection Plan		X		
Climate Adaptation Plan		X		
Other Plans that discusses hazard mitigation		X		
Other ordinance and regulation that mitigate the impacts of natural hazards		X		

Administrative and Technical Capabilities

West Long Branch Borough has the following Administrative and Technical capabilities:

Position	Yes	No	Explanation
Floodplain Administrator	X		Construction official
Grant Writer	X		Consultant
Staff trained to support mitigation	X		Police
Existing mutual aid or technical assistance agreements to support hazard mitigation projects	X		Adjacent Municipalities
Non-governmental organizations/other partners that work with the municipality on mitigation projects		X	
Organizations that work with socially vulnerable or underserved populations		X	

Education and Outreach Capabilities

West Long Branch Borough has the following Education and Outreach capabilities:

Education & Outreach Capability	Yes	No	Explanation
Communicate natural and human-based hazards to the public	X		Website, social media, "One", calls, emails, texts
StormReady	X		
Firewise USA		X	
Severe Weather Awareness Week	X		
Community Rating System (CRS)		X	

Financial Capabilities

Within the last five years, West Long Branch Borough has used the following financial capabilities to implement hazard mitigation activities:

Financial Capability	Yes	No	Explanation
FEMA BRIC		X	
FEMA FMA		X	
FEMA Public Assistance		X	
FEMA HMGP		X	
Non-FEMA Federal Funding Programs		X	
Other FEMA resources		X	
NJ Infrastructure Bank		X	
Other state municipal assistance or grant programs		X	
Evaluation process on the prioritization of risk reduction projects against other local activities		X	
Other ongoing efforts to build additional financial capabilities		X	

Additional Capability Assessment Information:

- **Sustainable Jersey Participation Status:** Bronze

MITIGATION STRATEGY

Overview and Progress Since Last Plan Update

Since the last plan update, our mitigation strategy has prioritized updating communication efforts and methods to keep residents informed and prepared for all potentially hazardous events. Over the next five years, we will focus on investing time and resources for additional planning capabilities and management initiatives, and the advancement of artificial intelligence alternatives along with cybersecurity measures to protect critical systems. Our approach is to continually fortify against current vulnerabilities and proactively prepare for future risks.

Completed or Removed Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
Action 53-1	Purchase DPW Equipment for Stream Restoration	Improve or acquire better equipment for DPW to remove trees and clear the stream. With additional funding, manpower and equipment, DPW would be able to develop an efficient schedule for these stream cleanings.	Flooding, Lightning, Hurricane/ Tropical Storm	N/A	N/A	N/A	N/A	N/A	Withdrawn	The County has programs for this, buying equipment for West Long Branch would not be feasible.
53-2	Target Harden Critical Facilities by Installing Surveillance Cameras and Backup Servers	Harden the Municipal Building and DPW Yard with stronger security (cameras) and possibly relocate backup servers to a more secure location.	Terrorism	N/A	N/A	N/A	N/A	N/A	Completed	Upgrades to firewall have been completed. The Borough has requisitioned security cameras for our newly renovated DPW building (over \$7,000) as well as for Borough Hall (over \$14,000.00). In addition, we have purchased an additional server doubling our capacity. The police department is already equipped with an extensive security system.

New and Ongoing Actions

Action	Name	Description	Hazards Addressed	Pri- ority	Responsible Party	Potential Funding	Cost Estimate	Time- line	Action Status	Notes
53-3	Coordinate a Drainage Remediation Project for Whale Pond Brook	Coordinate a drainage remediation project with West Long Branch, Long Branch, Monmouth County properties, and Monmouth University.	Flood, Extreme Wind, Nor'easter, Hurricane and Tropical Storm	Medium	Borough Engineer	Borough Funding	\$125k	5 years	Ongoing	No action yet. Ocean Township has been removing trees from their side of the Brook (which is where the trees are falling) which has mitigated flooding.

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Time-line	Action Status	Notes
53-4	Acquire, elevate, or relocate buildings and infrastructure in flood prone areas, with a focus on Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties	Elevation and/or Acquisition of flood prone residential structures, with a focus on those in our community that are on FEMA's Repetitive Loss List.	Flood, Wave Action, Hurricane and Tropical Storm, Storm Surge, Winter Storm	High	Mayor and Council	FEMA HMA	TBD	5 years	Ongoing	Two RL properties are not yet elevated. Borough has not been in communication with property owners.
53-5	Create an Evacuation Plan and Purchase and Install a Generator for the Peter Cooper Village Senior Center	Create an evacuation plan and upgrade generator at Peter Cooper Village Senior Center.	All Hazards	High	Borough Administration	FEMA HMA, CDBG- DR	Staff time	2 years	Ongoing	Working with Peter Cooper. Complex has multiple pods of 8 – 10 apartments each of which needs a generator. Need funding for procuring multiple generators.
53-6	Install an Emergency Communications System Specific to West Long Branch	West Long Branch needs their own response system for emergency responders to properly communicate with each other. Right now, the Borough uses the County's system.	All Hazards	Medium	County, Borough	County budget, municipal budget	\$500K	2 year	Ongoing	An Emergency Operation Center has been set up on the 2 nd floor of the Police dept. premises. Lost a couple of dispatches recently. Borough is happy to take lead from county. County staff previously mentioned capacity issues during a heavy rainfall event.
53-7	Construct Flood Reduction Measures along Turtle Mill Brook and Whale Pond Brook	Construct minor structural project (e.g., floodwalls or small berms) along Turtle Mill Brook and Whale Pond Brook to protect Repetitive Loss Properties.	Flood, Lightening, Hurricane and Tropical Storm, Storm Surge	High	County, Borough	FEMA HMA	\$2M	2 years	Ongoing	Project involves coordination with several municipalities.
53-8	Clean the Turtle Mill Brook and Design a New Drainage System for the Brook	Develop a drainage remediation project servicing Turtle Mill Floodway as well as stream cleaning.	Flood, Hurricane and Tropical Storm	High	County, Borough	Municipal budget	\$2M	5 years	Ongoing	Project involves coordination with several municipalities.

54 – SPECIAL DISTRICTS

PLANNING PARTICIPATION

Organization	Name	Title	Participation
Bayshore Regional Sewer Authority	Pete Canal	Executive Director	Attended Bayshore Risk Assessment Workshop and Regional Utility Authority Meeting
Western Monmouth Utilities Authority	Jim Carr	Chief Operating Officer	Regional Utility Authority Meeting
Western Monmouth Utilities Authority	Stephen Bagadinski	Engineering Services Director	Regional Utility Authority Meeting
Township of Middletown Sewerage Authority	Jonathan Mannarino	Collection System Superintendent	Regional Utility Authority Meeting
Two Rivers Water Reclamation Authority	Brian Rischman	Deputy Executive Director	Regional Utility Authority Meeting
Two Rivers Water Reclamation Authority	Dennis Galvin	Executive Director	Regional Utility Authority Meeting
Two Rivers Water Reclamation Authority	Lauren Lechner	Engineering Manager	Regional Utility Authority Meeting
Long Branch Sewerage Authority	Tom Roguski	Executive Director	Regional Utility Authority Meeting
South Monmouth Regional Sewerage Authority	Ryan Krause	Chief Executive Office	Regional Utility Authority Meeting
Manasquan River Regional Sewerage Authority	Matthew Voelkel	Engineering Consultant for Manasquan River Regional Sewerage Authority	Coordination Call

SPECIAL DISTRICTS PROFILE

Bayshore Regional Sewer Authority

For the protection of the environment and public health and safety, Hazlet Township, Holmdel Township, and the Borough of Union Beach created the Bayshore Regional Sewerage Authority (BRSA) under the Sewerage Authorities Law of the State of New Jersey. Officially established in 1968 by several town ordinances, in the final Parallel Ordinance, the BRSA was asked for its creation by the Monmouth County Sewerage Advisory Committee to serve the northern Bayshore area. The BRSA began operations at its treatment plant on February 6, 1974, after the completion of construction for the facility.

Bayshore Regional Sewerage Authority accomplishes its missions and values by maintaining a well operated, clean, and safe facility at 100 Oak Street in Union Beach, NJ. The facility operates well within the limits set by State and Federal permits. Improvements are aimed at lowering the cost of chemicals and energy while minimizing debt. There will not be a need to expand the facility capacity for the next 20 years. Consequently, the users of the system can look forward to an era of lower costs, cleaner environment and a focus on sustainability.

Western Monmouth Utilities Authority

Western Monmouth Utilities Authority (WMUA) provides wastewater treatment service to a significant portion of the towns of Manalapan, Marlboro, and a portion of Englishtown and Freehold Township. Formed in 1972 and jointly created by Manalapan and Marlboro, the WMUA provides service to over 25,000 customers. The WMUA and its employees strive to provide the most efficient and environmentally safe wastewater treatment available at the lowest possible cost to its ratepayers.

The WMUA has 250 miles of sewer lines and 31 pump stations. The WMUA's Pine Brook Sewage Treatment Plant is located in Manalapan Township in Monmouth County. It is a tertiary treatment facility and discharges into the Matchaponix Brook under a permit issued by the New Jersey Department of Environmental Protection.

Township of Middletown Sewerage Authority

The Township of Middletown Sewerage Authority, also known as TOMSA, held its original organization meeting on Thursday, March 31, 1966. TOMSA was formed by the Township of Middletown for the purpose of meeting the wastewater collection and treatment needs of the rapidly developing Township of Middletown. As wastewater related problems in the Township increased, and the number of small wastewater treatment plants serving individual housing subdivisions grew, the need for centralized wastewater collection and treatment became evident. The formation of TOMSA formalized the task of developing this centralized wastewater collection and treatment system. Upon its formation, TOMSA also took over operation and maintenance responsibilities for a number of the small treatment plants serving subdivisions.

During 1968, work began on the construction of a centralized Wastewater Treatment Plant, which is located in the Belford section of the Township of Middletown. The treatment plant was designed to treat 6.5 million Gallons Per Day (MGD) of Wastewater and to discharge the treated and clarified wastewater into Comptons Creek, a tributary of Raritan Bay. Treated wastewater sludge was barged to the ocean for disposal. The Wastewater Collection Systems needed to convey wastewater from the individual houses to the new treatment plant were installed at the same time. During 1970, the discharge of wastewater to the Raritan Bay ceased due to the formation of the Monmouth County Bayshore Outfall Authority, also known as MCBOA. MCBOA collects the wastewater from the TOMSA wastewater treatment plant and also from the Bayshore Regional Sewerage Authority and pumps that wastewater into the Atlantic Ocean through a 4,000-foot-long outfall pipe and diffuser.

During the early 1980's, the Township had developed to the point where an expansion of the wastewater treatment plant was necessary. In 1985, an expansion plan was implemented for this Wastewater Treatment Plant, which increased the capacity of the treatment plant from 6.5 MGD to 10.8 MGD. During 1986, TOMSA began treating the collected wastewater of Atlantic Highlands and Highlands. The wastewater of these two communities is pumped into TOMSA's collection system in the Leonardo section of the Township. The collection system of these two communities is maintained by the individual communities.

Two Rivers Water Reclamation Authority

From its inception in 1965, the northeast Monmouth County Regional Sewerage Authority became a well-known, respected name. Because its service area borders the Navesink and Shrewsbury Rivers, the Authority, in November 2001, adopted the new name Two Rivers Water Reclamation Authority (TRWRA). Though our name has changed, our commitment to serve remains the same. As a leader, TRWRA continues to refine the water reclamation process by recently upgrading and constructing a newly expanded physical plant. this expansion gives capacity to handle all future wastewater that could originate from the six member towns: Fair Haven, Little Silver, Monmouth Beach, Oceanport, Shrewsbury, West Long Branch, and six Customer Towns: Red Bank, Eatontown, Rumson, Sea Bright, Shrewsbury Township and Tinton Falls, and two military bases that depend upon the Two Rivers Water Reclamation Authority.

The treatment plant and collection system started operations in 1971. the facilities include 200 miles of sanitary sewer mains, 18 pump stations, and 9-meter chambers. There are 33 employees made up of plant, collections, maintenance, dewatering, laboratory, management and clerical staff.

Long Branch Sewerage Authority

The Long Branch Sewerage Authority is an activated sludge wastewater treatment facility with a permitted design flow of 5.4 million gallons per day of discharged treated wastewater effluent. The effluent is discharged into the Atlantic Ocean, which is designated as SC (Saline Coastal) Waters in New Jersey. Our New Jersey Permit Discharge Elimination System permit is consistently in compliance with all Federal, State, and Local regulations and guidelines.

South Monmouth Regional Sewerage Authority

In 1972 the federal Government passed the Federal Water Pollution Control Amendments; commonly known as the Clean Water Act. The CWA regulates the discharge of sanitary sewerage into rivers, lakes and the ocean. The bill was in response

to the pollution and health risks associated with the discharge of sewage into bodies of water. The Clean Water Act affected many coastal communities who owned and operated sewage treatment facilities along the Jersey shore. Several of these communities joined together to meet the newly initiated standards and created the South Monmouth Regional Sewerage Authority (SMRSA) in 1970. The SMRSA franchise area includes eight municipalities: the Boroughs of Belmar, Brielle, Lake Como, Manasquan, Sea Girt, Spring Lake, Spring Lake Heights, and the Township of Wall. SMRSA owns, operates and maintains eleven sewage pump stations and a sewage treatment plant. Ten of the pump stations pump into a common force main (trunk sewer) for conveyance to the treatment plant. The individual municipalities are responsible for their own collection systems and conveyance to the Authority's sewage pump stations.

Manasquan River Regional Sewerage Authority

The Manasquan River Regional Sewerage Authority (MRRSA) was created in May 1972 by parallel ordinances of its five member municipalities of Farmingdale Borough, Freehold Borough, Freehold Township, Howell Township and Wall Township. It serves a population of over 100,000 residences, including numerous commercial and industrial establishments in Monmouth County.

PLANNING PROCESS

The Project Team met virtually with representatives from municipal utility authorities in Monmouth County in January 2025. These representatives discussed recent hazards, such as heavy rainfall, flooding, earthquakes, droughts, COVID-19, and hurricanes. Key takeaways from the meeting include the following:

- The biggest threat to South Monmouth Regional Sewerage Authority is 2100 sea level rise projections. At this time, there are no mitigation projects the Authority wants to add to the plan but there is interest including projects that incorporate future conditions in the next plan update.
- The area around Two Rivers Water Reclamation Authority pump stations flood during heavy rain events and the treatment plant is at risk to coastal storms. The Authority installed flood barriers at the pump stations and treatment plant buildings to prevent damage and are evaluating other flood prone areas of the collection system. Sea level rise is also a concern given the location of the treatment plant on the Shrewsbury River. Power grid reliability at the treatment plant is also a concern.
- Drought conditions in 2024 lowered flows through the Western Monmouth Utilities Authority (WMUA) plant and raised infiltration and inflow (I&I) concerns. The pandemic had the biggest impact to the Authority; keeping staff healthy and the plant operational during the pandemic was a big challenge. Today, WMUA is more prepared to handle another pandemic event. Coastal storms are not a threat to the Authority.

MITIGATION STRATEGY

Special District's New Actions

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 54-1	Collection System Manhole Flood Proofing	Installation of manhole dishes under covers to eliminate infiltration into the sanitary sewer in flood prone areas.	Flood, Hurricanes, Tropical Storms	High	Two Rivers Water Reclamation Authority	FEMA, NJSP	\$120,000	Within 1 year.	New 2026	
Action 54-2	Collection System Siphon Chamber Flood Proofing	Replacement of existing siphon chamber covers with watertight versions at two locations (4 chambers total).	Flood, Storms, Hurricanes, Tropical Storms	High	Two Rivers Water Reclamation Authority	FEMA, NJSP	\$400,000	Within 1 year	New 2026	
Action 54-3	Treatment Plant Physical Security Improvements	Implementation of certain recommendations from the NJOHSP Vulnerability Assessment Report	Cyber Security and Terrorism	High	Two Rivers Water Reclamation Authority	NJSP, DHS	\$500,000	Within 1 year	New 2026	
Action 54-4	Treatment Plant Sea Level Rise Countermeasures	The treatment plant is bordered by tidal portions of the Shrewsbury River on three sides. While measures to flood proof the facility is implemented, sea level rise will require additional protection. This includes feasibility and engineering studies.	Sea Level Rise – Flood, Hurricanes, Tropical Storms	High	Two Rivers Water Reclamation Authority	FEMA, NJSP, NJIB	\$250,000,000	5-10 years	New 2026	
Action 54-5	Matawan Force Main Rehabilitation	Project to rehabilitate approx. 800 LF of the Authority's existing 20 & 24-inch prestressed concrete cylinder pipe (PCCP) force main in two (2) critical areas (Gerard Avenue in Aberdeen & Clark Street in Hazlet). Options for rehabilitation and/or replacement would likely be Cured-in-Place lining (CIPP) or utilizing a horizontal directional drill (HDD). Both areas are adjacent to or pass underneath the Garden State Parkway R.O.W., local streams and	Earthquake, Flood	High (Priority #1 for BRSA)	Bayshore Regional Sewerage Authority	HMGP, BRIC	Engineering: \$225k, Construction: \$2.5-3M	Design & Construction 2-2.5 years.	New 2026	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		stormwater catch basins. Failure to either section of the main would have major impacts to residents, the local waterways and traffic on the parkway and local roadways.								
Action 54-6	West Keansburg Force Main Replacement	Project to replace the Authority's existing 20-inch ductile iron (DIP) force main in its entirety (approx. 5,300 LF). This force main has had two small replacement projects (between 100 – 250 LF each) and we are currently working with a consultant to prepare a long-term rehab/replacement evaluation study. The force main passes underneath a large Lake, levee regulated by the USACE and NJDEP and is adjacent to JCP&L high voltage transmission lines. We are currently evaluating CIPP or HDD for the replacement and/or rehab. A failure could cause major impacts to the lake, intercoastal waterway and levee. The force main carries up to 2.5 MGD of wastewater and hauling of sewage would be required.	Earthquake, Flood	High (Priority #2 for BRSA)	Bayshore Regional Sewerage Authority	HMGP, BRIC	Engineering: \$350-400k, Construction: \$4-5M.	Design & Construction 2.5-3.5 years.	New 2026	
Action 54-7	WWTP Energy Efficiency Study & Improvements	Project to evaluate and recommend energy efficiency improvements throughout the Authority's WWTP (wastewater treatment plant). Evaluation will include a detailed review of each aspect of the treatment process, review latest technologies for efficiency improvements to blowers, pumps, motors, incinerator heat exchangers, etc., and recommend capital project improvements to implement the recommendations. This project aligns and supports the New Jersey Energy Master Plan directive to	Power Failure	High (Priority #3 for BRSA)	Bayshore Regional Sewerage Authority	Funding Source has not been identified. TBD.	Engineering: \$150k	Evaluation 1 year	New 2026	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		reduce/eliminate the carbon footprint,								
Action 54-8	Raritan Valley Pumping Station Emergency Generator & Floodproofing Project	Project is at BRSA's smallest pumping station and includes the addition of a Natural Gas Generator for emergency operations. The station currently has an aging diesel generator, is located at the bottom of a ravine in a residential area and is susceptible to flooding. The force main was recently replaced, and a bypass chamber was added for emergency pumping operations. This project would also include the dry flood proofing of the station with concrete flood walls, removable flood barriers, logs, gates, etc. Failure of the existing generator would cause back-up of the local sanitary sewer system and potential impacts to the local neighborhood, Garden State Parkway and elementary school in the surrounding area. The force main carries up to 1 MGD of wastewater and hauling of sewage would be required.	Power Failure, Flood	High (Priority #4 for BRSA)	Bayshore Regional Sewerage Authority	HMGP, BRIC	Engineering: \$100k, Construction: \$500-750k.	Design & Construction 1-1.5 years	New 2026	
Action 54-9	WWTP SCADA Upgrade & Improvements	Project to upgrade/replace the existing SCADA (Supervisory Control & Data Acquisition) system for the treatment plant and remote sites. The existing software and equipment are more than 30 years old and are in need of replacement. The system allows the Authority to monitor/control remote processes associated with the treatment plant, metering and pumping stations to make Operational Changes are necessary. The SCADA system is essential in managing and	Infrastructure failure, cyber attack	High (Priority #5 for BRSA)	Bayshore Regional Sewerage Authority	Funding source has not been identified. TBD.	Engineering: \$150k, Construction: \$800k.	Design & Construction: 2 years	New 2026	

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
		maintain all of the Authority's critical infrastructure.								
Action 54-10	Matawan Force Main Replacement	As an alternate to Priority #1 - Project to replace the Authority's existing 20 & 24-inch prestressed concrete cylinder pipe (PCCP) force main in it's entirety (approx. 10,000 LF). The goal would be to replace the force main utilizing HDD. The old main would remain in service and be used as a back-up once the new main was installed. The new main would be drilled underneath the Garden State Parkway and multiple local waterways and lakes. Any failure to the force main would cause major impacts to residents, the local waterways and traffic on the parkway and local roadways. The force main carries up to 4 MGD of wastewater and hauling of sewage would be required.	Seismic, infrastructure failure	High (Priority #6 for BRSA)	Bayshore Regional Sewerage Authority	HMGP, BRIC	Engineering: \$500-600k, Construction: \$7-10M	Design & Construction 3-4 years	New 2026	
Action 54-11	Manasquan River Regional Sewerage Authority (MRRSA) Lower Manasquan Floodwall and Flood Hardening	Perimeter Concrete Floodwall and Flood Hardening at the Lower Manasquan Pump Station. This facility is located just upstream of the Water Supply Authority's Water Treatment Plant along Manasquan River. The project will also include an internal stormwater pump station within the floodwall limits with improvements to internal drainage to prevent flooding from existing catch basins.	Flooding	High	Manasquan River Regional Sewerage Authority		\$2,000,000	2 years	New 2026	Design: May 2025 - July 2025 Bid: August 2025 - October 2025 Construction: November 2025 - June 2026

Action	Name	Description	Hazards Addressed	Priority	Responsible Party	Potential Funding	Cost Estimate	Timeline	Action Status	Notes
Action 54-12	MRRSA Lower Manasquan Pump Station Generator Replacement	Replacement of existing generator set at Lower Manasquan Pump Station, this will also include locating the genset on an elevated platform above flood limit and flood hazard elevation. This facility is located just upstream of the Water Supply Authority's Water Treatment Plant along Manasquan River.	Flooding, Flood Hardening, Natural Disasters, Loss of Utility Power	High	Manasquan River Regional Sewerage Authority		\$2M	2 years	New 2026	Design: May 2025 - July 2025 Bid: August 2025 - October 2025 Construction: November 2025 - December 2026
Action 54-13	MRRSA Upper Manasquan Pump Station Generator Replacement & Electrical Improvements	Replacement of existing backup generator in a location outside of the flood limits and flood hazard areas. The project also involves replacing the aged Automatic Transfer Switch and relocating the existing transformer out of the flood limit and flood hazard areas, with additional lightning and surge protection. The work will also relocate overhead electrical service underground.	Flooding, Flood Hardening, Natural Disasters, Loss of Utility Power	High	Manasquan River Regional Sewerage Authority		\$3,240,617	2 years	New 2026	Bid April 2025 - May 2025, Construction: June 2025 - July 2026
Action 54-14	LBSA – Willow Avenue Pump Station and Monmouth Place Pump Station Improvements – Elevate Generators and Pump Stations	Elevate pump station controls/generator and install submersible pumps, with all associated improvements, on the Willow Avenue Pump Station and Monmouth Place Pump Station. The subject pump stations are located in low points and have come close to flooding previously. These pump stations are critical infrastructure.	Flooding, Climate Change, Increased Frequency of Heavy Rainfall	High	Long Branch Sewerage Authority	Grant	\$1,700,000	2 Years	New 2026	