

# 9.9 BOROUGH OF GLEN RIDGE

This section presents the jurisdictional annex for the Borough of Glen Ridge. The annex includes a general overview of the Borough; an assessment of the Borough's risk, vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

## 9.9.1 Hazard Mitigation Planning Team

The following individuals are the Borough of Glen Ridge's identified HMP update primary and alternate points of contact and NFIP Floodplain Administrator.

Primary Point of Contact	Alternate Point of Contact			
Name / Title: Michael Rohal, Borough Administrator /	Name / Title: Michael Zichelli, Deputy Administrator / Director			
Engineer / Clerk / QPA / Emergency Management	of Planning			
Coordinator	Address: 825 Bloomfield Ave., Glen Ridge, NJ 07028			
Address: 825 Bloomfield Ave., Glen Ridge, NJ 07028	Phone Number: 973-748-8400 ext. 235			
Phone Number: 973-748-0303	Email: mpzichelli@glenridgenj.org			
Email: mjrohal@glenridgenj.org				
NFIP Floodplain Administrator				
Name / Title: Michael Rohal, Borough Administrator /	Engineer / Clerk / QPA / Emergency Management Coordinator			
Address: 825 Bloomfield Ave., Glen Ridge, NJ 07028				
Phone Number: 973-748-0303				
Email: mjrol	nal@glenridgenj.org			

## Table 9.9-1. Hazard Mitigation Planning Team

## 9.9.2 Jurisdiction Profile

In 1666, 64 Connecticut families bought land from the Lenni Lenape Tribe and named the newly acquired area New Ark. This was to reflect the ability for all to worship freely. The area was originally part of Bloomfield but when residents were unsatisfied with their representation in the local government, they formed their own community in 1895. Throughout the 19th Century, Glen Ridge transformed from rural farming area into a suburban community with the expansion of mass transportation. Today, the Borough is governed under the Borough form of New Jersey municipal government. This form of government has a six member Borough Council and a mayor.



The Borough of Glen Ridge is located in northwestern Essex County. It is situated between Montclair Township and Bloomfield Township. It is bordered to the south by East Orange, to the north by Bloomfield, to the west by Montclair and to the east by Bloomfield.

According to the U.S. Census, the 2010 population for the Borough of Glen Ridge was 7,527. The estimated 2017 population was 7,668, a 1.9 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 5.6 percent of the population is 5 years of age or younger and





10.1 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

## 9.9.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.9-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.9-1 and 9.9-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Type of Development	2014	2015	2016	2017	2018		
	Number of Building Permits for New Construction Issued Since the Previous HMP						
Single Family	0	0	0	1	1		
Multi-Family	0	0	0	0	1		
Other (commercial, mixed-use, etc.)	0	0	0	0	1		
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development and Mitigation if located in Hazard Zone		
	Recent Majo	or Development a	nd Infrastructu	re from 2015 to Pro	esent		
Claris	Residential	110 units - 1 building	277 Baldwin	No	In Progress - first qtr 2020 completion		
Medical office building	Commercial	45000 sq ft - 1 building	311 Bay Ave	No	In Progress - first qtr 2020 completion		
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years							
None							

## Table 9.9-2. Recent and Expected Future Development

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.9.4 Capability Assessment

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

- An assessment of legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Information on National Flood Insurance Program (NFIP) compliance.
- Classification under various community mitigation programs.
- The community's adaptive capacity for the impacts of climate change.





Areas that mitigation is currently integrated are summarized in this subsection. The Borough of Glen Ridge identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy.

## PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Borough of Glen Ridge.

		Authority that		Has the HMP been	integrated in the
		enforces		last 5 years:	If no - can it be a
		(Federal,			mitigation
	Do you	State,	State	If yes- how?	action? If yes,
	have this?	Regional,	Mandated	Describe in	add Mitigation
	(Yes/No)	County, Local)	/ Allowed	comments	Action #.
Codes, Ordinances, & Requiremen	ts		T		
Building Code	Yes	Local and State	Yes	Yes	-
<i>Comment:</i> State mandated on local <i>l</i> Adopted 9/3/2019. The building code Department enforces. This code incl	evel under NJAC e for the Borough udes the Flood <u>D</u>	5:23-3.14. Internation is found in Chapter I Damage Control Regula	onal Building Co 5 of the municip ations (Article 23	de – New Jersey Edition, 2 al code and the Planning & 8).	018, NJAC 5:24-3.14 & Development
Zoning Code	Yes	Local and State	Yes	No	Yes – 2020-GLEN RIDGE-001
<b>Comment:</b> Per State of NJ Municipal jurisdictions to have current zoning a master plan. The zoning code for the enforces	l Land Use Law ( and other land de Borough is foun	MLUL) L. 1975, s. 2, velopment ordinances d in Chapter 17 of the	eff Aug 1, 1976, after the plannin municipal code	40-55D-62: 49. Power to z ng board has adopted the l and the Planning & Devel	cone, requires all and use element and opment Department
Subdivisions	Yes	Local and State	Yes	Yes	-
of the municipal code, known as the shows provisions for sewage disposa and natural drainage of the land. Th	Land Use Ordina l, drainage, and j e Planning Boar	nce of Glen Ridge. Th Nood control. A sketcl d of Adjustment and B	the subarv the code requires th plat must show orough Council	that a preliminary plat be existing contours to deterr are responsible for enforci	ns found in Chapter 10 prepared and that it nine the general slope ng this code.
Stormwater Management	Yes	Local	Yes	Yes	-
<b>Comment:</b> Title 7 of the NJ Administrative Code (N.J.A.C. 7:8). The stormwater management code for the Borough is found in Chapter 13 of the municipal code and enforced by the Glen Ridge Police Department and Construction Official. The purpose of this code is to establish minimum stormwater management requirements and controls for major development. This code provides standards for structural stormwater management measures, including having the measures designed to take into account existing site conditions, including environmentally sensitive areas, wetlands, floodprone areas, slopes, depth to seasonal high water table, soil type, permeability and texture, drainage area and patterns; and the presence of carbonate rocks. It requires design and performance standards to control erosion, encourage and control infiltration and ground recharge, and control stormwater runoff quantity inpacts of major development. It requires a design engineer to achieve the table and patterns and control stormwater runoff quantity is the impresence of advance of the stormwater runoff will be to imprese for major development.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<b>Comment:</b> N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management			Yes	Yes/No	Yes/No
Comment: State mandated at local le	evel				
Shoreline Development	No	-	Yes – if coastal community	-	-
<b>Comment:</b> NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.					

 Table 9.9-3.
 Planning, Legal and Regulatory Capability





		Authority that		Has the HMP been	integrated in the
		enforces		last 5 years:	If no - can it be a
		(Federal,			mitigation
	Do you	State,	State	If yes- how?	action? If yes,
	have this?	Regional,	Mandated	Describe in	add Mitigation
	(Yes/NO)	County, Local)	/ Allowed	comments	Action #.
Site Plan Review	Yes	Local	Yes	Yes	-
review must be filed with the administ must include a statement setting the p issuance of permits or certificate of a	trative officer at provisions for sev	least two weeks before vage disposal, drainag v development excent f	e a regular meeti e, and flood con for detached one	ng of the planning board. trol. Site plan review is red or two-family dwellings	<i>A preliminary plat</i> <i>quired prior to the</i>
Environmental Protection	Yes	Local	Yes	Yes	-
<b>Comment:</b> The rules that are utilized Administrative Code. The Borough h Chapter 12.26 – Shade Tree Commis shrubs on the streets and public acce flood control. The Commission is ma Chapter 12.28 – Shade Trees	by the NJDEP a has the following sion – The Comn ss areas of the Ba hade up of five mer	nd other environmenta codes related to enviro nission regulates, plan orough. This allows fe nbers.	al agencies are c onmental protect ts, cares and cor or activities such	odified at Title 7 of the NJ ion: trols shade and ornament as travel, active and passi	Municipal al trees and woody ive recreation, and
Flood Damage Prevention	Yes	Local	No	-	-
<b>Comment:</b> Chapter 15 Article 28 of the municipal code, amended by Ordinance No. 1141 effective 1987. The Borough requires a development permit before construction or development begins within any area of special flood hazard. The Borough Engineer is identified as the floodplain administrator and implements the flood damage prevention ordinance. The ordinance requires all new construction and substantial improvements in the SFHA be anchored to prevent flotation, collapse, or lateral movement of the structure; be constructed with materials and utility equipment resistant to flood damage; lowest floor, including basement, elevated to or above the base flood elevation;					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	No	-	-	-	-
Comment:					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
<b>Comment:</b> The 2010 Master Plan Reexamination identified goals that including: promote a balanced variety of residential, commercial, recreational, public, and conservation land uses; and continue to improve community facilities and services that maintains the quality of life for residents. The plan promotes consistency between plans, including the zoning code and surrounding municipalities. It looks at several different elements: land use; housing; community facilities; parks, recreation, and open space; circulation; utility service; historic preservation; sustainability; and compatibility with other planning efforts. The sustainability element has objectives related to climate change (reducing greenhouse gas emissions and reduce dependency on fossil-fuel vehicles), preserving and enhancing water quality, minimizing change to natural systems, and control excess runoff.					
Capital Improvement Plan	Yes	Local	Allowed	Yes/No	Yes/No
<b>Comment:</b> Per NJSA 40:55D-29 the planning horizon. The Borough's Cl	governing body i P is part of their	is authorized to direct annual budget.	the planning bod	urd to prepare a CIP with a	at least a six year
Disaster Debris Management Plan	Yes	Local	No	-	-
Comment: The plan is currently und	er review by Esse	ex County			





				Has the HMP been	integrated in the	
		Authority that		last 5 years?	If yes- how?	
		enforces			If no - can it be a	
	Do vou	(Federal,	State	If yos how?	mitigation	
	DO you have this?	Regional	Mandated	II yes- IIOw? Describe in	add Mitigation	
	(Yes/No)	County. Local)	/ Allowed	comments	Action #.	
Floodplain or Watershed Plan	No	-	No	-	-	
Comment:		I		I		
Stormwater Management Plan	Yes	Local and State	Yes	Yes	-	
<b>Comment:</b> Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Borough's plan identified strategies to address stormwater related impacts. The plan addresses groundwater recharge, stormwater quantity, and stormwater duality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acre of land. One of the goals of the plan is to reduce flood damage including damage to life and property. While it was stated that it is not economically feasible to provide 100-year flood structural protection, the Borough should provide flood protection against more frequent, low magnitude storm events where possible. If a developer is given a variance to exceed the maximum allowable percent imperviousness, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater						
Stormwater Pollution Prevention	Yes	Local	Yes	Yes	-	
<b>Comment:</b> The plan was completed on January 15, 2018 by the municipal engineer. The plan states that the Borough ensures all new residential development and redevelopment projects are subject to the Residential Site Improvement Standards for stormwater management. The Borough's planning and zoning boards ensures compliance before issuing subdivision or site plan approvals. The Borough provides informational brochures on stormwater management and best management practices. The Public Works Department monitors all their roads and streets for erosion problems. Once identified, a repair schedule will be developed. The Borough has developed an annual catch basin cleaning program to maintain function and efficiency.						
Urban Water Management Plan	No	-	No	-	-	
Comment:						
Habitat Conservation Plan	No	-	No	-	-	
Comment:						
Economic Development Plan	Yes	Local	No	No	No	
<b>Comment:</b> This is part of the Boroug	h's Master Plan				r	
Shoreline Management Plan	No	-	No	-	-	
Comment:						
Community Wildfire Protection Plan	No		No	-	-	
Comment:						
Community Forest Management Plan	Yes	Local	No	Yes	-	
<b>Comment:</b> Through the Shade Tree ( woody shrubs on the streets and publ and flood control.	Commission - The lic access areas c	e Commission regulate of the Borough. This a	es, plants, cares o llows for activiti	and controls shade and orn es such as travel, active ar	namental trees and ad passive recreation,	
Transportation Plan	Yes	Local	No	No	No	
Comment: Part of the Borough's ma	Comment: Part of the Borough's master plan					
Agriculture Plan	No	-	No	-	-	
Comment:						
Climate Action Plan	No	-	No	-	-	
Comment:						
Tourism Plan	No	-	No	-	-	
Comment:						
<b>Business Development Plan</b>	No	-	No	-	-	
Comment:		•				





	Do you have this?	Authority that enforces (Federal, State, Regional,	State Mandated	Has the HMP been last 5 years? If yes- how? Describe in	integrated in the If yes- how? If no - can it be a mitigation action? If yes, add Mitigation
	(Yes/No)	County, Local)	/ Allowed	comments	Action #.
Other	No	-	-	-	-
Comment:					
<b>Response/Recovery Planning</b>					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	-	Yes	-	-
<b>Comment:</b> Per the NJ Civilian Defer Operations Plans to be reviewed eve	ise and Disaster rv 2 vears.	Control Act (App.A:9_	43.2) Counties a	and municipalities must ha	ve written Emergency
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	Yes	Local	No	-	-
Comment: Part of the Borough's EC	)P				
Continuity of Operations Plan	Yes	Local	No	-	-
Comment: Part of the Borough's EOP					
Public Health Plan	-	-	-	-	-
Comment:					
Other	-	-	-	-	-
Comment:					

## Table 9.9-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes – Building Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes – the Borough has the ability to do so
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes – however, the Borough is fully developed and there is no developable land. All remaining land has environmental restrictions (e.g. floodplain or green acres)

## ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Borough of Glen Ridge.





Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Borough of Glen Ridge Planning Board
Mitigation Planning Committee	Yes	During the five-year update of the Essex County HMP
Environmental Board / Commission	Yes	Environmental Advisory Committee
Open Space Board / Committee	No	
Economic Development Commission / Committee	No	
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Nixle, email announcements, broadcasts, social media (Facebook and Twitter), municipal website, outdoor message boards
Maintenance program to reduce risk	Yes	Catch basin cleaning, tree trimming
Mutual aid agreements	Yes	Surrounding municipalities and Essex County; continues to enhance and maintain existing agreements
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Borough Administrator
Engineers or professionals trained in building or infrastructure construction practices	Yes	Borough Engineer and consultant engineer
Planners or engineers with an understanding of natural hazards	Yes	Borough Engineer and consultant engineer
Staff with training in benefit/cost analysis	Yes	Borough Administrator and Deputy Administrator
Staff with training in green infrastructure	-	-
Staff with education/knowledge/training in low impact development		
Surveyors	Yes	Contract engineering firm
Stormwater engineer	Yes	Borough Engineer
Personnel skilled or trained in GIS applications	Yes	Contract engineering firm
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Borough Administrator
Grant writers	Yes	-
Resilience Officer	No	-
Watershed planner	-	-
Environmental specialist	-	-
Other	No	-

## Table 9.9-5. Administrative and Technical Capabilities

## FISCAL CAPABILITY

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

## Table 9.9-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes, but not eligible for infrastructure
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes – water; sewer is part of the Borough's taxes but not a separate bill; gas and electric is through PSE&G
Incur Debt through General Obligation Bonds	Yes





Financial Resource	Accessible or Eligible to Use?
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes - utility fees (connection fees) for development and affordable housing fee for developers
Clean Water Act 319 Grants (Nonpoint Source Pollution)	-
Other	No

## EDUCATION AND OUTREACH CAPABILITY

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

## Table 9.9-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications	Yes – PIO through the Police Department
office?	
Do you have personnel skilled or trained in website development?	Yes – contracted out
Do you have hazard mitigation information available on your	Yes – the Office of Emergency Management site has
website?	links to the various resources on hazards (e.g. FEMA,
If yes, briefly describe.	Essex County)
Do you use social media for hazard mitigation education and	Yes – Facebook and twitter; email broadcast system
outreach?	used for general and emergency information such as
• If yes, briefly describe.	road closures
Do you have any citizen boards or commissions that address issues	No
related to hazard mitigation?	
If yes, briefly describe.	
Do you have any other programs already in place that could be	Yes – Borough TV station, local newspaper, postings
used to communicate hazard-related information?	on sign boards
If yes, briefly describe.	
Do you have any established warning systems for hazard events?	Yes - Nixle, email announcements, broadcasts, social
If yes, briefly describe.	media (Facebook and Twitter), municipal website,
	outdoor message boards

## **COMMUNITY CLASSIFICATIONS**

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

## **Table 9.9-8. Community Classifications**

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	-	-	-
Public Protection (Fire ISO Protection Class)	-	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

### ADAPTIVE CAPACITY

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). In other





words, it describes a jurisdiction's current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the adaptive capacity for each hazard and the jurisdiction's rating.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality?
- Is the administrative supportive of integrating climate change in policies or actions?
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality?

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	N/A
Coastal Storm (Hurricane, Tropical Storm, Nor'Easter)	N/A
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological hazards (landslide, subsidence, sinkholes)	Medium
Severe Weather	High
Severe Winter Weather	High
Wildfire	Medium
Civil Disorder	Medium
Cyber Attack	High
Disease Outbreak (West Nile Virus, Eastern Equine Encephalitis, St. Louis Encephalitis, La Crosse Encephalitis, Lyme Disease, Influenza, Ebola Virus)	Medium
Economic Collapse (new)	Medium
Hazardous Substances	Medium
Utility Interruption	Medium
Terrorism	Medium
Transportation Failure (vehicular accidents, aviation accidents, railway failures and accidents, roadway and bridge failures)	Medium

## Table 9.9-9. Adaptive Capacity of Climate Change

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

## NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

## Table 9.9-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (name, department/position)	Borough Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No





Criterion	Response
What is the date that your flood damage prevention ordinance was last amended?	1987
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets minimum
When was the most recent Community Assistance Visit or Community Assistance Contact?	To date, a CAV or CAC has not been conducted for the Borough.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
<ul> <li>Are any RiskMAP projects currently underway in your jurisdiction?</li> <li>If so, state what they are.</li> </ul>	No
<ul><li>Do your flood hazard maps adequately address the flood risk within your jurisdiction?</li><li>If no, state why.</li></ul>	Yes
<ul> <li>Does your floodplain management staff need any assistance or training to support its floodplain management program?</li> <li>If so, what type of assistance/training is needed?</li> </ul>	Yes – training and assistance is always welcome; the FPA does attend trainings as available
<ul> <li>Does your jurisdiction participate in the Community Rating System (CRS)?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> </ul>	No; however, the Borough is interested in joining the CRS program
• If no, is your jurisdiction interested in joining the CRS program?	12
<ul> <li>What is the insurance in force?</li> <li>What is the premium in force?</li> </ul>	45 \$11,991,000 \$58,385
How many total loss claims have been filed in your jurisdiction?**	18
<ul><li>How many claims are still open or were closed without payment?</li><li>What were the total payments for losses?</li></ul>	5 CWOP \$38,521.46
Do you maintain a list of properties that have been damaged by flooding?	Yes - the Borough maintains records of properties that sustained damage as a result of flooding.
Do you maintain a list of property owners interested in flood mitigation?	No

\*According to FEMA statistics as of July 31, 2019

\*\*According to FEMA statistics as of April 30, 2019

## **ADDITIONAL AREAS OF EXISTING INTEGRATION**

• The Borough uses the current HMP to include hazard information into municipal codes and plans, including the master plan.

## 9.9.5 Hazard Event History Specific to the Jurisdiction

Essex County has a history of hazard events, as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 4.4 (Hazard Profiles) and includes a chronology of events that affected Essex County and its jurisdictions. The Borough of Glen Ridge's history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Essex County. Table 9.9-11 provides details regarding municipal-specific loss and damages the Borough experienced during hazard events from 2014 to 2019. Information provided in the table below is based on reference material or local sources.



	Event Type (disaster			
Date(s) of Event	declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
May 15, 2018	Thunderstorm Wind	N/A	An approaching cold front triggered numerous severe thunderstorms over northeastern New Jersey. Large trees were reported down in Caldwell. \$4,000 in property damages were reported. Large tree reported down on Maple Street in West Orange. \$4,000 in property damages were reported.	The Borough reported \$28,000 in damages from this event
March 15, 2019	Thunderstorm Wind, Hail	N/A	A cold front moved through the region triggering strong to severe thunderstorms across Northeast New Jersey. A tree down on car on Force Hill Road between East Mount Pleasant Avenue and Michele Lane. \$6,000 in property damages were reported. Hail of 07.5 inches in diameter reported in West Orange.	The Borough reported \$3,000 in damages from this event

## Table 9.9-11. Hazard Event History

Source: NOAA-NCEI 2019

## 9.9.6 Jurisdiction-Specific Vulnerabilities and Hazard Ranking

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.9-12 summarizes the Borough risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.9-12.	Summary	of Risk Ass	essment Results
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	Hazard/							Cortainty
Hazard of Concern	Evaluated	Populat	tion	Build	lings	Econor	ny (Loss)	Factor
Coastal Erosion and	Coastal Erosion	CEHA:	0	CEHA:	0	CEHA:	\$0	High
Sea Level Rise	Hazard Area	SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
	(CLIIA).	SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
	Sea Level Rise:							
	NOAA +1ft and							
Coastal Storm	100- and 500- MRP	Category 1:	0	Category 1:	0	100-year	\$691,490	High
	Hurricane Wind	Category 2:	0	Category 2:	0	Wind		Ũ
	Category 1 through	Catagory 3:	2.0	Category 3:	0	Loss:	\$3.581.584	
	Category 4 SLOSH	Category 5.	2,0	Category 5.	0	Wind	\$5,561,564	
		Category 4:	2,0	Category 4:	0	Loss:		
Drought	Drought event	Majority of the	County is	Droughts are not expected to cause direct		Losses would be limited,		Low
		surface water sources.		damage to buildings.		agricultural industry.		
Earthquake	100, 500-, 2,500-	NEHRP D&E:	197	NEHRP D&E:	58	100-year	\$0	High
	Year Mean Return					Loss:	<b>0770 516</b>	
	Period Event	Class 4	0	Liquefaction Class 4.	0	500-year	\$779,516	
		01055 1.				2,500-year	\$13,407,246	
						Loss:		
Extreme	Extreme	Over 65	773	Physical impacts	s due to extreme	Loss of busi	ness function is	Low
Temperature	(heat or cold)	Population	291	iemperatures wo	Jula de minica.	repairs (i.e.	pipes bursting)	
		Below Poverty				or utility i	nterruptions.	
	100 1500 15	Level:	100	100	20	100	¢11.00(.000	TT' 1
Flood	100- and 500-Year Mean Return Period	100-year	102	100-year	30	100-year	\$11,206,209	High
	Event	500-year	105	500-year	545	2033.		
Geological	High Landslide	Class A:	0	Class A:	0	Class A:	0	Moderate
	Susceptibility Areas	Class B:	3	Class B:	1	Class B:	\$593,925	
Severe Weather	Severe Weather	Entire population	exposed; The	Entire building sto	ck is exposed; The	Economic 1	osses could be	Low
	Event	degree of imp	act to the	degree of impact dep	ends on the scale of	similar to	those of the	
		of the inci	dent.		ident.	surge) and flooding hazards.		





	Hazard/				<b>a</b> . <b>i</b> .
Hogand of Consorm	Scenario(s)	Dopulation	Duildingo	Economy (Loco)	Certainty
Sovoro Wintor	Evaluated Severe Winter	Fopulation exposed: The	Entire building stock is exposed: The	The cost of spow and ice	Low
Weather	Weather Event	degree of impact to the	degree of impact depends on the scale of	removal and repair of roads	LOW
		population depends on the scale	the incident.	can impact local operating	
		of the incident.	of the incident.     budgets.       Wildfire:     0     Wildfire:     \$0		
Wildfire	Wildfire Fuel	Wildfire: 0	Wildfire: 0	Wildfire: \$0	Moderate
	Very High				
	Extreme)				
Civil Disorder	Civil disorder event	Population in the immediate	Buildings in the immediate vicinity will	Economic assets in the	Low
		vicinity will be impacted.	be most impacted.	immediate vicinity will be	
Cyber Attack	Cuber attack event	The degree of impact to the	Damages due to a other attack may be	most impacted.	Low
Cyber Attack		population depends on the scale	limited.	depends on the scale of the	Low
		of the incident.		incident. Loss of	
				utilities/communication	
				would have widespread	
Disease Outbreak	An outbreak of one	Entire population exposed: The	Disease outbreak would not have a direct	Impacts to food supply and	Low
	of the diseases	degree of impact to the impact on buildings. water supply; Costs		water supply; Costs of	
	evaluated	population depends on the scale		activities and programs	
		of the incident		implemented to address	
				spread.	
Economic Collapse	Recessions,	The degree of impact to the	Damages due to economic collapse may	The degree of damages	Low
	Depressions,	population depends on the scale	be limited; property owners that cannot	depends on the scale of the	
	Interruption of	of the incident.	afford to maintain the structure may	incident. Massive impacts	
	conditions		become abandoned/rundown.	businesses and tax revenue	
				are possible.	
Hazardous	Release of a	Population impacted will depend	The degree of damages to a building	The degree of damages	Low
Substances	hazardous substance	on the type of material and scale	depends on the scale of the incident.	depends on the scale of the	
	in-transit	nopulation within small radii of		incident.	
		site.			
Utility Interruption	Disruption of power	The degree of impact to the	The degree of damages to buildings	The degree of damages	Low
	or potable water	population depends on the scale	depends on the scale of the incident;	depends on the scale of the	
	sabotage natural	of the incident.	if utilities are keeping critical functions	incident.	
	hazards, or		online (i.e. sump pumps).		
	equipment failure.				





Hazard of Concern	Hazard/ Scenario(s) Evaluated	Population	Buildings	Economy (Loss)	Certainty Factor
Terrorism	Terrorist Attack in the County	The degree of impact to the population depends on the scale of the incident; Population in the immediate vicinity will be impacted.	The degree of damages to buildings depends on the scale of the incident; Buildings in the immediate vicinity will be most impacted.	The degree of damages depends on the scale of the incident.	Low
Transportation Failure	One accident on any of the following: Roadway/vehicular, Aviation, Rail	The degree of impact to the population depends on the scale of the incident; Population in the immediate vicinity will be	The degree of damages to asset depends on the scale of the incident; Assets in the immediate vicinity will be most impacted.	The degree of damages depends on the scale of the incident; Assets in the immediate vicinity will be	Low
		impacted.		most impacted.	



## **REPETITIVE FLOOD LOSSES**

The following summarizes the repetitive and severe repetitive flood losses in the Borough of Glen Ridge.

- Number of repetitive loss (RL) properties: 1
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: to be advised.

## **CRITICAL FACILITIES AND LIFELINES**

No identified critical facilities and lifelines in the community are located in the 1-percent and 0.2-percent floodplains.

### Table 9.9-13. Potential Flood Losses to Critical Facilities and Lifelines

		Exposure		Status of Mitigation
		1% Event	0.2%	
Name	Туре		Event	
None				
*Identified lifeline				

## ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Floodprone areas in the Borough include: Clark Street along a stream; some homes along Ridgewood Avenue, near Cross Street
- Majority of the floodprone areas in the Borough are open space and no structures are exposed or at risk
- The Borough has exhibited severe water quantity problems including flooding and stream bank erosion. Some of the storm sewer system in the Borough is undersized thereby causing a backwater effect and flooding during severe storms.

## HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Borough of Glen Ridge that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps have been generated only for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Glen Ridge has significant exposure; refer Figure 9.9-1 and 9.9-2. These maps also display the location of the regulatory floodplain, as well as identified critical facilities, lifelines, and RL/SRL properties within the municipality.

### HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 4 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; and community capability and changing future climate





conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Essex County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Borough of Glen Ridge. During the review of the calculated hazard ranking, the Borough adjusted the calculated rankings to incorporate the perceived adaptive capacity of the community with respect to the relevant hazard and any other changes needed. The Borough of Glen Ridge has reviewed the Essex County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard ranking, the Borough indicated the following:

• The Borough adjusted the following hazard rankings: Extreme Temperature, Flood, Cyber Attack, Economic Collapse

	Coastal Erosio and Sea Leve Rise	on El Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
	Low	Low	Medium	Low	Medium	Medium
L						
	Geological Hazards	Severe Storm	Winter Storm	Wildfire	Civil Disorder	Cyber Attack
	Low	High	High	Low	Low	Medium
	Disease Outbreak	Economic Collapse	Hazardous Substances	Utility Interruption	Terrorism	Transportatio Failure
	Low	Low	Low	High	Low	Low

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## 9.9.7 Mitigation Strategy and Prioritization

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

## PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction's progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under 'Capability Assessment' presented previously in this annex.





			Status (In Progress, No	Include in the 2020 HMP Update?	
2	015 Action Number Action Description	Responsible	Progress, Ongoing Capability, or	Check if	Enter 2020 HMP
2	015 Action Number Action Description	Party	Completed)	Yes	Action #
Glen Ridge- 1	Obtain back-up power for critical facilities in the Borough to maintain continuity of operations: Currently identified location are: 1. Glen Ridge municipal complex which consists of the Police Department, Ambulance Squad, Administrative Offices and Public Library 2. Glen Ridge would like to acquire a tow- behind generator	Engineering Department	Complete - municipal complex generator has been purchased and installed	X	2020- GLEN RIDGE- 002
Glen Ridge- 2	Tony's Brook. It is the intent and purpose of this project to make improvements to the retaining walls along Toney's Brook. This will mitigate damage to private properties.	Department of Public Works	Installed a generator at the public works yard	X	2020- GLEN RIDGE- 003
Glen Ridge- 3	Power system rehabilitation. It is the intent and purpose of this project to harden the electrical distribution system and make it more resilient. The system is currently in the design phase. Project is designated under PSEG NJ Strong Program.	PSE&G, supported by the Borough	In Progress - private properties are protected; public land still needs improvement - no assets at risk		
Glen Ridge- 4	Mountainside Hospital: Continue to provide training at Mountainside Hospital continues to ensure personnel are familiar with and have practice emergency operations procedures.	Public Safety and Merit Health	In Progress by PSE&G - borough does not have jurisdiction over this project		
Glen Ridge- 5	Rebuild Bloomfield Avenue bridge which spans the Montclair rail line	Engineering Department	In Progress		
Glen Ridge- 6	Rebuild Ridgewood Avenue bridge which spans the Boonton rail line	Engineering Department	In Progress - NJDOT has jurisdiction over this		
Glen Ridge- 7	Rebuild Ridgewood Avenue bridge which spans the Montclair rail line	Engineering Department	No progress - but this is a county action – the Borough does not have jurisdiction over this		
Glen Ridge- 8	Upgrade and harden electrical distribution system in the south end of the Borough.	Engineering Department	No progress - but this is a county action – the Borough does not have jurisdiction over this		
Glen Ridge- 9	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable.	Borough Engineering, FPA	In Progress - PSE&G responsibility; upgrading around Borough		
Glen Ridge- 10	The hazard mitigation plan will be used to guide the addition of hazard information for inclusion in the next Master Plan update.	Planning	Ongoing Capability		

Table 9.9-15.	Status of Previous HMP	Mitigation Actions
Table 7.7-15.	Status of Fit vious min	mugation Actions





			Status (In Progress, No	Include in HMP U	the 2020 pdate?
			Progress,		Enter
		Responsible	Capability, or	Check if	2020 HMP
2	015 Action Number Action Description	Party	Completed)	Yes	Action #
Glen Ridge- 11	Develop and implement an enhanced all- hazards, public outreach / education / mitigation information program on natural hazard risks and what they can do in the way of mitigation and preparedness, including flood insurance. This program will include: • Conduct outreach on hazards, • Provide/attend training on grant application preparation; • Reach out to colleges/universities for technical assistance with natural hazard mitigation activities.	Supervisor's Office	Ongoing Capability		
Glen Ridge- 12 Glen Ridge- 13	<ul> <li>Develop and implement a post-event damage assessment program, including the following elements:</li> <li>Conduct public outreach/education (see Public Education and Awareness Initiatives above) to inform property owners of the need to report property damage and obtain required permitting when making repairs.</li> <li>Develop and organize local resources to conduct post-event damage assessments, including substantial damage determinations as warranted.</li> <li>Develop an inventory (file system and/or database) of losses (incl. loss of service, property damage, economic losses, etc.) as reported to and/or identified by the Town/Village (e.g. building permit process).</li> <li>Support participation in the NFIP Community Rating System (CRS) program by attending CRS workshop(s) if offered within the county. Join the CRS program if adequate resources to support long term participation can be dedicated.</li> </ul>	Borough Engineering, FPA	Ongoing Capability Ongoing Capability		
	Visit (CAV) initiative.				
Glen Ridge- 14	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed. This is a part of the process of joining CRS (above initiative).	FPA	Ongoing Capability		
Glen Ridge- 15	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) through the Association of State Floodplain Managers (ASFPM) and New Jersey Association for Floodplain Management (NJAFM), and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).	FPA	Ongoing Capability		
Glen Ridge- 16	Enhance/expand tree maintenance program (under contract with various vendors) and coordination with utilities (e.g., PSEG).	Engineering and DPW	Ongoing Capability		





			Status (In Progress, No	Include in HMP U	the 2020 pdate?
		Responsible	Progress, Ongoing Capability, or	Check if	Enter 2020 HMP
2	015 Action Number Action Description	Party	Completed)	Yes	Action #
Glen	Create/Enhance/Maintain Mutual Aid	Borough	Complete and an		
Ridge-	agreements with neighboring communities for		Ongoing Capability		
17	continuity of operations				
Glen	The Borough will keep a list of all properties	Engineering	Complete and an		
Ridge-	that experienced damage and had to receive		Ongoing Capability		
18	grant money, and a list of all property owners				
	who are interested in mitigation.				

The Borough did not identify any other activities that were completed in addition to those in the 2015 HMP mitigation strategy.

## **PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE**

The Borough of Glen Ridge participated in a risk assessment workshop in September 2019 in which detailed information was provided about assets exposed and vulnerable to the identified hazards of concern. The Borough of Glen Ridge participated in a mitigation action workshop in October 2019 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Essex County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments; and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 *Selecting Appropriate Mitigation Measures for Floodprone Structures* (March 2007) and FEMA *Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards* (January 2013). Section 6 (Mitigation Strategy) and Appendix H (Mitigation Strategy Supplement) provide a more complete description of the Mitigation Toolbox and its resources.

Table 9.9-16 summarizes the comprehensive-range of specific mitigation initiatives the Borough of Glen Ridge would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four (4) FEMA mitigation action categories and the six (6) CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as *High*, *Medium*, or *Low*. Table 9.9-17 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update and Table 9.9-18 summarizes the actions by type across hazards of concern.





## Table 9.9-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	<u>Lead</u> and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020- GLEN RIDGE- 001	Integrate HMP into Zoning Ordinance (Chapter 17)	<ul> <li>Problem: The current zoning ordinance for the Borough does not discuss floodplains or other natural hazard impact areas.</li> <li>Solution: During the next update of the zoning ordinance, the Borough will review the current HMP and incorporate natural hazard impact areas. This could include limiting the density of development in the floodplain and requiring undeveloped floodplains be kept as open space.</li> </ul>	New and Existing	All Natural Hazards	1, 2, 5	Borough Council, Planning and Development	Municipal Budget	Promotes development and redevelopment patterns that area at less risk from known natural hazards; reduces potential for future damages associated with natural hazards	<\$5,000	Within 5 years	Medium	LPR	PR
2020- GLEN RIDGE- 002	Tow-Behind Generator	<ul> <li>Problem: Many facilities identified as essential in the Borough do not have backup power. These facilities can be used as shelters and warming/cooling centers.</li> <li>Solution: A permanent generator at each facility is not necessary. The Borough will purchase a tow-behind generator to use at facilities without power.</li> </ul>	Existing	All	1, 2, 6	Borough Engineer, Emergency Management	FEMA PDM and HMGP, Municipal Budget	Increases continuity of operations, provides shelter for residents	\$50,000	2 years	High	SIP	РР
2020- GLEN RIDGE- 003	Generator for Borough Facility	<ul> <li>Problem: The Borough's park annex, recreation center, and borough hall do not have backup power. During power outages, these buildings can provide essential services to the community and residents.</li> <li>Solution: Purchase and install a generator to power these three facilities during a power outage. They will provide continuity of operations and services to the community.</li> </ul>	Existing	All	1, 2, 6	Borough Engineer, Emergency Management	FEMA PDM and HMGP, Municipal Budget	Increases continuity of operations, provides essential services to the community	\$100,000	2 years	High	SIP	РР
2020- GLEN RIDGE- 004	Midland Avenue Stormwater System	Problem: Flooding during major storm         events have resulted in damages in the         area of Midland Avenue and Carteret         Street/Madison Avenue.         Solution: Improvement and extension of         the stormwater system on Midland Ave.	Existing	Flood, Severe Weather, Coastal Storm	1, 2	<u>NFIP</u> <u>Floodplain</u> <u>Administrator,</u> <u>Engineer</u>	Municipal Budget	Minimizes flood damage to homes and residents.	\$50,000 - \$70,000	1 year	High	SIP	РР
2020- GLEN	Toney's Brook	<b>Problem</b> : Retaining walls along the brook are eroding. The brook is a conduit for	Existing	Flood, Severe	1, 2	<u>NFIP</u> <u>Floodplain</u>	FEMA FMA and	Eliminates flood damage to	\$50,000	3 years	High	SIP	PP



Mitigat Initiative Initiati Number Name RIDGE- Infrastru 005 e Repa	n e Description of the Problem and Solution Ir stormwater runoff through center of the Borough.	New or Existing Assets?	Hazard(s) to be Mitigated Weather, Coastal	Goals Met	Lead and Support Agencies Administrator, Engineer	Potential Funding Sources HMGP, Municipal	Estimated businesses and homes	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
	Solution: Create a maintenance program of retaining walls to bolster structural integrity as well as maintenance program to ensure area under the bridge at 710 Bloomfield Avenue is clear of debris.		Storm, Geological Hazards			Budget						
2020- Mitiga GLEN floodpro RIDGE- propertie 006 the Boro	Problem: Frequent flooding events have resulted in damages in the Midland Avenue area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.         Solution: Conduct outreach to 5 flood- prone property owners, including RL/SRL property owners and provide information on mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Midland Avenue area that experience frequent flooding (high risk areas).	Existing	Flood, Severe Weather, Coastal Storm	1, 2, 3	<u>NFIP</u> <u>Floodplain</u> <u>Administrator</u>	Municipal Budget for outreach, FEMA FMA and HMGP for mitigation measures	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	<\$10,000 for outreach; \$1 million for mitigation	3 years	Medium	SIP, EAP	PP , PI

#### Acronyms and Abbreviations: CAV Community Assistance Visit

- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

#### Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

#### Timeline:

The time required for completion of the project upon implementation

#### <u>Cost:</u>

The estimated cost for implementation.

#### <u>Benefits:</u>

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

#### Mitigation Category:

- Local Plans and Regulations (LPR) These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.





- Natural Systems Protection (NSP) These are actions that minimize damage and losses and preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

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

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-GLEN RIDGE-001	Integrate HMP into Zoning Ordinance (Chapter 17)	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2020-GLEN RIDGE-002	Tow-Behind Generator	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-GLEN RIDGE-003	Generator for Borough Facility	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-GLEN RIDGE-004	Midland Avenue Stormwater System	1	1	1	1	1	1	1	1	0	1	1	1	0	0	11	High
2020-GLEN RIDGE-005	Toney's Brook Infrastructure Repair	1	1	1	1	1	1	1	1	0	1	1	1	0	0	11	High
2020-GLEN RIDGE-006	Mitigate floodprone properties in the Borough	1	1	1	1	0	0	0	0	1	1	1	1	0	0	8	Medium

### Table 9.9-17. Summary of Prioritization of Actions

Notes: Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions.

Low (0-4), Medium (5-8), High (9-14)





			Public Education	Natural				Community
		Property	and	Resource	Emergency	Structural	Climate	Capacity
Hazard	Prevention	Protection	Awareness	Protection	Services	Projects	Resilient	Building
Coastal Erosion	-001	-002, -003				-002, -003		
and Sea Level Rise								
Coastal Storm		-002, -003, -				-002, -003,		
		004, -005, -				-004, -005,		
		006				-006		
Drought		-002, -003				-002, -003		
Earthquake		-002, -003				-002, -003		
Extreme		-002, -003				-002, -003		
Temperature								
Flood		-002, -003, -				-002, -003,		
		004, -005, -				-004, -005,		
~		006				-006		
Geological		-002, -003, -				-002, -003,		
hazards		005				-005		
Severe weather		-002, -003, -				-002, -003,		
		004, -005, -				-004, -005,		
Savara Winter		000				-000		
Weather		-002, -003				-002, -003		
Wildfire		-002 -003				-002 -003		
Civil Disorder		-002,-003				-002,-003		
Cyber Attack		-002, -003				-002, -003		
Disease		-002, -003				-002, -003		
Outbreak		,				,		
Economic		-002, -003				-002, -003		
Collapse		,						
Hazardous		-002, -003				-002, -003		
Substances								
Utility		-002, -003				-002, -003		
Interruption								
Terrorism		-002, -003				-002, -003		
Transportation		-002, -003				-002, -003		
Failure								

Table 9.9-18.	Analysis of Mitigation	Actions by Hazard and	Category
---------------	------------------------	-----------------------	----------

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

## 9.9.8 Staff and Local Stakeholder Involvement in Annex Development

The Borough of Glen Ridge followed the planning process described in Section 2 (Planning Process). This annex was developed over the course of several months with input from many jurisdiction representatives. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization. In addition, several municipal representatives were asked to review and contribute to the draft annex as documented on the annex sign-off sheets in Appendix B (Participation Documentation). Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

### Table 9.9-19.Contributors to the Annex

Entity	Title	Method of Participation
Sean Quinn	Police Captain	Reviewed annex, attended plan participant meetings, provided impact data,
		contributed to the mitigation strategy
Michael Rohal	Borough Administrator /	Primary POC, reviewed annex, attended plan participant meetings, provided
	Engineer / Clerk / QPA	impact data, contributed to the mitigation strategy





Entity	Title	Method of Participation
	/ Emergency	
	Management	
	Coordinator	
Michael Zichelli	Deputy Administrator /	Alternate POC, reviewed annex, attended plan participant meetings, provided
	Director of Planning	impact data, contributed to the mitigation strategy





Figure 9.9-1. Borough of Glen Ridge Hazard Area Extent and Location Map













	Ac	tion W	orksheet					
Project Name:	Tow-Behind Generato	or						
Project Number:	2020-GLEN RIDGE-00	)2						
Risk / Vulnerability								
Hazard(s) of Concern:	All							
Description of the Problem:	Many facilities identif facilities can be used a	ïed as e as shelt	essential in t ers and war	the Borough do not ming/cooling cente	have backup power. These ers.			
Action or Project Intended for Implementation								
Description of the Solution:	<b>he</b> A permanent generator at each facility is not necessary. The Borough will purchase a tow-behind generator to use at facilities without power.							
Is this project related to a ( Lifeline?	Critical Facility or	Yes		No 🗆				
Level of Protection:	N/A		Estimateo (losses av	d Benefits /oided):	Increases continuity of operations, provides shelter for residents			
Useful Life:	5		Goals Me	t:	1, 2, 6			
Estimated Cost:	\$50,000		Mitigatio	n Action Type:	SIP			
	Plan f	for Imp	lementatio	on				
Prioritization:	High		Desired T Impleme	Timeframe for ntation:	Within 6 months of receiving funds			
	2 years				FEMA PDM and HMGP, Municipal Budget			
for Project Implementation:	2 years		Potential Sources:	Funding	FEMA PDM and HMGP, Municipal Budget			
for Project Implementation: Responsible Organization:	2 years Borough Engineer, Emergency Manageme	ent	Potential Sources: Local Pla Mechanis in Impler	Funding nning sms to be Used nentation if any:	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation			
Estimated Time Required for Project Implementation: Responsible Organization:	2 years Borough Engineer, Emergency Manageme Three Alternatives	ent Consid	Potential Sources: Local Pla Mechanis in Impler ered (inclu	Funding nning sms to be Used nentation if any: iding No Action)	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation			
Estimated Time Required for Project Implementation: Responsible Organization:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action	ent Consid	Potential Sources: Local Pla Mechanis in Impler ered (inclu Esti	Funding nning sms to be Used nentation if any: iding No Action) mated Cost	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation			
Alternatives:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action No Action Install solar panels at facility	ent Consid	Potential Sources: Local Plat Mechanis in Impler ered (inclu Esti	Funding nning sms to be Used nentation if any: iding No Action) mated Cost \$0 1 million+	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation Evaluation Current problem continues Weather dependent; not good for long-term power outages			
Alternatives:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action No Action Install solar panels at facility Install wind turbine each facility	ent Consid t each	Potential Sources: Local Pla Mechanis in Impler ered (inclu Esti \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	Funding nning sms to be Used nentation if any: iding No Action) mated Cost \$0 1 million+ 1 million+	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation Evaluation Current problem continues Weather dependent; not good for long-term power outages each facility would need a turbine; weather dependent; not suitable for long-term outages			
Alternatives:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action No Action Install solar panels at facility Install wind turbine each facility Progress Rep	ent Consid t each ts at ort (fo	Potential Sources: Local Plan Mechanis in Impler ered (inclu Esti \$ \$ \$ \$	Funding nning sms to be Used nentation if any: ding No Action) mated Cost \$0 1 million+ 1 million+	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation Evaluation Current problem continues Weather dependent; not good for long-term power outages each facility would need a turbine; weather dependent; not suitable for long-term outages			
Estimated Time Required for Project Implementation: Responsible Organization: Alternatives:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action No Action Install solar panels at facility Install wind turbine each facility Progress Rep	ent Consid : each :s at ort (fo	Potential Sources: Local Pla Mechanis in Implen ered (inclu Esti \$ \$ \$ \$ \$	Funding nning tms to be Used nentation if any: iding No Action) mated Cost \$0 1 million+ 1 million+	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation Evaluation Current problem continues Weather dependent; not good for long-term power outages each facility would need a turbine; weather dependent; not suitable for long-term outages			
Estimated Time Required for Project Implementation: Responsible Organization: Alternatives: Date of Status Report: Report of Progress:	2 years Borough Engineer, Emergency Manageme Three Alternatives Action No Action Install solar panels at facility Install wind turbine each facility Progress Rep	ent Consid : each :s at ort (fo	Potential Sources: Local Pla Mechanis in Implen ered (inclu Esti \$ \$ \$ \$ \$	Funding nning isms to be Used nentation if any: iding No Action) mated Cost \$0 1 million+ 1 million+	FEMA PDM and HMGP, Municipal Budget Hazard Mitigation Evaluation Current problem continues Weather dependent; not good for long-term power outages each facility would need a turbine; weather dependent; not suitable for long-term outages			





Action Worksheet										
Project Name:	Tow-Behind Generator	Tow-Behind Generator								
Project Number:	2020-GLEN RIDGE-002									
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate								
Life Safety	1									
Property Protection	1	Allow buildings to function during power outages								
Cost-Effectiveness	1	Project is cost effective; benefits outweigh the costs								
Technical	1									
Political	1									
Legal	1									
Fiscal	0	Need funding to complete project								
Environmental	0									
Social	0									
Administrative	1									
Multi-Hazard	1	All								
Timeline	1	2 years								
Agency Champion	1									
Other Community Objectives	0									
Total	10									
Priority (High/Med/Low)	High									





	A	ction W	orkshee	t	
Project Name:	Generator for Borough Facility				
Project Number:	2020-GLEN RIDGE-003				
	Ris	sk / Vul	nerabili	t <b>y</b>	
Hazard(s) of Concern:	All				
Description of the Problem:	The Borough's park annex, recreation center, and borough hall do not have backup power. During power outages, these buildings can provide essential services to the community and residents.				
	Action or Projec	t Inten	ded for Iı	nplementation	
Description of the Solution:	Purchase and install a generator to power these three facilities during a power outage. They will provide continuity of operations and services to the community.				
Is this project related to a ( Lifeline?	Critical Facility or	Yes	$\boxtimes$	No 🗌	
Level of Protection:	N/A		Estimat (losses	ted Benefits avoided):	Increases continuity of operations, provides essential services to the community
Useful Life:	30		Goals M	let:	1, 2, 6
Estimated Cost:	\$100,000		Mitigat	ion Action Type:	SIP
	Plan	for Imp	lementa	tion	
Prioritization:	High		Desireo Implen	l Timeframe for ientation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	2 years		Potenti Source	al Funding s:	FEMA PDM and HMGP, Municipal Budget
Responsible Organization:	Borough Engineer, Emergency Managem	nent	Local P Mechar in Impl	lanning nisms to be Used ementation if any:	Hazard Mitigation
	Three Alternatives	Consid	ered (inc	cluding No Action)	
	Action	_	E	stimated Cost	Evaluation
	No Action			\$0	Current problem continues
Alternatives:	Install solar panels			\$500,000	weather dependent; not good for long-term power outages
	Install wind turbines			\$500,000	weather dependent; facility property would need open space for turbine
	Progress Rep	port (fo	r plan ma	aintenance)	
Date of Status Report:					
Report of Progress:					
Update Evaluation of the					





Action Worksheet			
Project Name:	Generator for Borough Facility		
Project Number:	2020-GLEN RIDGE-003		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate	
Life Safety	1	Provide essential services to residents during power outages	
Property Protection	1	Keep essential facilities running during power outages	
Cost-Effectiveness	1	Project is cost effective; benefits outweigh the costs	
Technical	1		
Political	1		
Legal	1		
Fiscal	0	Need funding to complete project	
Environmental	0		
Social	0		
Administrative	1		
Multi-Hazard	1	All	
Timeline	1	2 years	
Agency Champion	1		
Other Community Objectives	0		
Total	10		
Priority (High/Med/Low)	High		





Action Worksheet				
Project Name:	Toney's Brook Infrastructure Repair			
Project Number:	2020-GLEN RIDGE-005			
	Risk / Vul	nerability		
Hazard(s) of Concern:	Flood, Severe Weather, Coast	al Storm, Geological Hazards		
Description of the Problem:	Retaining walls along the brook are eroding. The brook is a conduit for stormwater runoff through center of the Borough.			
	Action or Project Intend	ded for Implementation		
Description of the Solution:	Create a maintenance program of retaining walls to bolster structural integrity as well as maintenance program to ensure area under the bridge at 710 Bloomfield Avenue is clear of debris.			
Is this project related to a Critical Facility or Lifeline? Yes No				
Level of Protection:	1% annual chance flood event	Estimated Benefits (losses avoided):	Eliminates flood damage to businesses and homes	
Useful Life:	20	Goals Met:	1, 2	
Estimated Cost:	\$50,000	Mitigation Action Type:	SIP	
Plan for Implementation				
Prioritization:	High	Desired Timeframe for Implementation:	12-18 months	
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	FEMA FMA and HMGP, Municipal Budget	
Responsible Organization:	NFIP Floodplain Administrator, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation	
Three Alternatives Considered (including No Action)				
	Action	Estimated Cost	Evaluation	
	No Action	\$0	Current problem continues	
Alternatives:	Replace all retaining walls	\$50,000+	Long-term project; costly	
	area of the Borough	\$1 million	costly; not necessary	
Progress Report (for plan maintenance)				
Date of Status Report:				
Report of Progress:				
Update Evaluation of the Problem and/or Solution:				





Action Worksheet			
Project Name:	Toney's Brook Infrastructure Repair		
Project Number:	2020-GLEN RIDGE-005		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate	
Life Safety	1	Reduce risk of flooding to residents in area	
Property Protection	1	Reduce risk of flooding to area	
Cost-Effectiveness	1	Project is cost effective; benefits outweigh the costs	
Technical	1	Technically feasible project	
Political	1		
Legal	1	Borough has legal authority to conduct project	
Fiscal	0	Requires funding	
Environmental	1		
Social	1		
Administrative	-1		
Multi-Hazard	1	Flood, Severe Weather, Coastal Storm, Geological Hazards	
Timeline	0	3 years	
Agency Champion	1	Floodplain Administrator	
Other Community Objectives	1		
Total	10		
Priority (High/Med/Low)	High		





Action Worksheet				
Project Name:	Mitigate floodprone properties in the Borough			
Project Number:	2020-GLEN RIDGE-006			
	Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather, Coast	Flood, Severe Weather, Coastal Storm		
Description of the Problem:	Frequent flooding events hav area is residential, and these by paid NFIP claims.	Frequent flooding events have resulted in damages in the Midland Avenue area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.		
	Action or Project Inten	ded for Implementation		
Description of the Solution:	Conduct outreach to 5 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the Midland Avenue area that experience frequent flooding (high risk areas).			
Is this project related to a ( Lifeline?	Critical Facility or Yes	No 🛛		
Level of Protection:	1% annual chance flood event	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	
Useful Life:	depends on mitigation option	Goals Met:	1, 2, 3	
Estimated Cost:	<\$10,000 for outreach; \$1 million for mitigation	Mitigation Action Type:	SIP, EAP	
Plan for Implementation				
Prioritization:	Medium	Desired Timeframe for Implementation:	12 months	
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	Municipal Budget for outreach, FEMA FMA and HMGP for mitigation measures	
Responsible Organization:	NFIP Floodplain Administrator	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation	
Three Alternatives Considered (including No Action)				
	Action	Estimated Cost	Evaluation	
Alternatives:	Install flood walls around the properties	50000	Long-term project; not cost effective since these properties are not frequently flooded	
	Elevate roadways	\$1 million	costly; not necessary	
	Progress Report (fo	r plan maintenance)		
Date of Status Report:				
Report of Progress:				
Update Evaluation of the Problem and/or Solution:				





Action Worksheet			
Project Name:	Mitigate floodprone properties in the Borough		
Project Number:	2020-GLEN RIDGE-006		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate	
Life Safety	1	Protect residents from flood damages	
Property Protection	1	Protect structures from flood damages	
Cost-Effectiveness	1	Project is cost effective; benefits outweigh the costs	
Technical	1	Technically feasible project	
Political	0		
Legal	0		
Fiscal	0	Requires funding to conduct mitigation	
Environmental	0		
Social	0		
Administrative	1		
Multi-Hazard	1	Flood, Severe Weather, Coastal Storm	
Timeline	1	3 years	
Agency Champion	0		
Other Community Objectives	0		
Total	7		
Priority (High/Med/Low)	Medium		