



## 9.19 BOROUGH OF ROSELAND

This section presents the jurisdictional annex for the Borough of Roseland. The annex includes a general overview of the Borough; an assessment of the Borough of Roseland'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 hazards.

### 9.19.1 Hazard Mitigation Planning Team

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

*Table 9.19-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name / Title: Gary Schall / Superintendent DPW Address: Roseland Borough Hall, 19 Harrison Ave., Roseland NJ 07068 Phone Number: 973-403-6049 Email: gschall@roselandnj.org	Name / Title: Tom Jacobsen / Construction Official Address: Roseland Borough Hall, 19 Harrison Ave., Roseland NJ 07068 Phone Number: 973-403-6048 Email: construction@roselandnj.org
NFIP Floodplain Administrator	
Name / Title: Joseph A. Pomante, PE, CFM / Borough Engineer, Boswell Engineering Consulting Address: Roseland Borough Hall, 140 Eagle Rock Ave., Roseland NJ 07068 Phone Number: 973-226-6565 Email: engineerofficial@roseland.org	

### 9.19.2 Jurisdiction Profile

According to the U.S. Census Bureau, the Borough has a total land area of 3.56 square miles, of which 3.539 square miles is land and 0.021 square miles is water. The Borough of Roseland is in the center of the western edge of Essex County and is bordered to the north by the Township of Essex Fells, to the east by the Township of West Orange, to the south by the Township of Livingston, and to the west by Morris County municipality of East Hanover.

Roseland became independent of Livingston in 1908 with the assistance of Bill Teed. With the increasing size of Roseland's population, the people needed more resources than Livingston was willing to provide. The development of Roseland is attributed to the impact of the Becker Farm with the nearly 1,200 acres it once occupied. This area is now home to many large corporate office complexes and Residential Condominium Complexes (Borough of Roseland, 2014). Roseland Borough operates using a Borough form of government with a Mayor, Council, and Administrator (Borough of Roseland, 2014).

According to the U.S. Census, the 2010 population for the Borough of Roseland was 5,819. The estimated 2017 population was 5,907, a 1.5 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 3.9 percent of the population is 5 years of age or younger and 24.6 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.



### 9.19.3 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 9.19-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.19-1 and Figure 9.19-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

**Table 9.19-2. Recent and Expected Future Development**

Type of Development	2015	2015	2017	2018	2019
<b>Number of Building Permits for New Construction Issued Since the Previous HMP</b>					
Single Family	7	2	1	1	
Multi-Family	26				
Other (commercial, mixed-use, etc.)	2		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
<b>Recent Major Development and Infrastructure from 2015 to Present</b>					
Avalon Bay at Roseland	136 Apartments Townhouse Style	136 Apartment-Townhome-style in 26 buildings / 2 other buildings on site for other use.	55 Locust Avenue Blk 32/Lot 13	None	Completed
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
6 Becker Farm Rd	299 Apartments 4 stories high	299 Apartments /Pool/Dog Park	6 Becker Farm Rd Blk 30/Lot 2	None	Not Started
85 Livingston Avenue	120 Room Hotel/Rest/130 Apartments	Hotel Apartments Restaurant	85 Livingston Ave Blk 30.1/Lot 14	None	Not Started
146 Harrison Avenue Multi-Family	211 Rental Townhouse Apartments	Residential 211 housing units	146 Harrison Ave Blk 21 / Lot 22.04	None	Not Started
146 Multi-Family	65 Apartments Age Restricted	65 Rental Units Apartments	146 Harrison Ave Block 12 / Lot 22.04	None	Not Started
117 Harrison Avenue Multi-Family and Town Homes Rental	138 Town homes as rentals	138 Residential Town Homes for rent	117 Harrison Ave Blk 21/Lot 22.01 Blk 21/ Lot 22	None	Not Started

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

### 9.19.4 Capability Assessment

The Borough of Roseland 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.

### PLANNING, LEGAL AND REGULATORY CAPABILITY

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

**Table 9.19-3. Planning, Legal and Regulatory Capability**

	Do you have this? (Yes/No)	Is this applicable Countywide or for a specific jurisdiction? If jurisdiction specify which one	Local Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes-how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements							
Building Code	Yes	Borough of Roseland	Construction	State inspects where local inspectors cannot.	Yes	Yes	No
Comment: Chapter X Building and Housing. 1973 and updated regularly. Elevator Inspection is completed by State.							
Zoning Code	Yes	Borough of Roseland	Zoning	No	Yes	No	No
Comment: Chapter XXX Land Development. adopted October 23, 1990 by Ordinance No. 27-1990. Subsequent ordinance amendments are noted where applicable. Ordinance No. 13-2000, adopted July 11, 2000 has not been codified herein and was reenacted by Ordinance No. 6-2001, adopted February 27, 2001.							
Subdivisions	Yes	Borough of Roseland	Zoning	No	Yes	No	No
Comment: Chapter XXX Land Development. adopted October 23, 1990 by Ordinance No. 27-1990. Subsequent ordinance amendments are noted where applicable. Ordinance No. 13-2000, adopted July 11, 2000 has not been codified herein and was reenacted by Ordinance No. 6-2001, adopted February 27, 2001. Adopted June 1, 2006.							
Stormwater Management	Yes	Borough of Roseland	Engineering	NJDEP	Yes	No	No
Comment: Chapter XVII Water and Sewer, Article VI Storm Sewer System							
Post-Disaster Recovery	No	-	-	-	No	-	-
Comment: No Official Local Ordinance.							
Real Estate Disclosure	No	-	-	-	No	-	-
Comment: All information is subject to OPRA but will not show everything regarding the Real Property, only that requiring permits. Water and Sewer information might also be available on some properties.							



	Do you have this? (Yes/No)	Is this applicable Countywide or for a specific jurisdiction? If jurisdiction specify which one	Local Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes-how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Growth Management	Yes	Borough of Roseland	Planning Board, Master Plan Committee	No	Yes	No	No
<i>Comment: Element of the Master Plan.</i>							
Site Plan Review	Yes	Borough of Roseland, Essex County	Zoning, Planning Board	Technical Review Committee	Yes	No	No
<i>Comment: Chapter XXX Land Development. adopted October 23, 1990 by Ordinance No. 27-1990. Subsequent ordinance amendments are noted where applicable. Ordinance No. 13-2000, adopted July 11, 2000 has not been codified herein and was reenacted by Ordinance No. 6-2001, adopted February 27, 2001. Due to be amended again in 2020.</i>							
Environmental Protection	No	-	-	-	No	-	-
<i>Comment: Limited to the State Requirements only, no local ordinance.</i>							
Flood Damage Prevention	Yes	Borough of Roseland	Engineering/ Public Works	FEMA	Yes	Yes	No
<i>Comment: Chapter XXII Flood Damage Prevention. Ord. No. 20-2001. Roseland has recognized the need for proper floodplain management, and the community adopted a resolution on April 15, 1975. This resolution established land use and control measures to reduce all new construction or substantial improvements, including prefabricated and mobile homes. Any new construction or substantial improvements are to be made reasonably safe from flooding and to be located so as to minimize flood damage (FEMA FIS 2014).</i>							
Emergency Management	No	-	-	-	No	-	-
<i>Comment:</i>							
Climate Change	No	-	-	-	No	-	-
<i>Comment:</i>							
Disaster Recovery Ordinance	No	-	-	-	No	-	-
<i>Comment:</i>							
Disaster Reconstruction Ordinance	No	-	-	-	No	-	-
<i>Comment:</i>							
Other	No	-	-	-	No	-	-
<i>Comment:</i>							
<b>Planning Documents</b>							
Comprehensive / Master Plan	Yes	Borough of Roseland	Planning Board	No	Yes	No	Yes
<i>Comment: Borough of Roseland Master Plan and Updates 1982-2011 <a href="https://www.roselandnj.org/boards_and_committees/planning_board/borough_of_roseland_master_plan.php">https://www.roselandnj.org/boards_and_committees/planning_board/borough_of_roseland_master_plan.php</a>. Integration in 2020-ROSELAND-007.</i>							
Capital Improvement Plan	Yes	Borough of Roseland	Administration	No	No	No	No
<i>Comment: Updated annually.</i>							
Disaster Debris Management Plan	Yes	-	-	-	No	-	-
<i>Comment: Handled by Public Works using the temporary disposal site</i>							
Floodplain or Watershed Plan	No	-	-	-	No	-	-
<i>Comment: All guidelines for Passaic River Basin are observed</i>							



	Do you have this? (Yes/No)	Is this applicable Countywide or for a specific jurisdiction? If jurisdiction specify which one	Local Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes-how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Stormwater Management Plan	Yes	Borough of Roseland	DPW, Engineering	State	Yes	No	No
<i>Comment: Stormwater Management Plan fax 04-26-2007 is available at <a href="https://www.roselandnj.org/departments/public_works/stormwater_management.php">https://www.roselandnj.org/departments/public_works/stormwater_management.php</a>.</i>							
Stormwater Pollution Prevention Plan	Yes	Borough of Roseland	DPW, Engineering	State	Yes	No	No
<i>Comment: Stormwater Pollution Prevention Plan 1-26-2005 available at <a href="https://www.roselandnj.org/departments/public_works/stormwater_management.php">https://www.roselandnj.org/departments/public_works/stormwater_management.php</a>.</i>							
Urban Water Management Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Habitat Conservation Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Economic Development Plan	Yes	-	-	-	No	-	-
<i>Comment: Redevelopment Plan has been initiated and is a fluid plan</i>							
Shoreline Management Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Community Wildfire Protection Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Forest Management Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Transportation Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Agriculture Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Climate Action Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Tourism Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Business Development Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Other	No	-	-	-	No	-	-
<i>Comment:</i>							
<b>Response/Recovery Planning</b>							
Comprehensive Emergency Management Plan	Yes	Borough of Roseland, Essex County	OEM	Essex County, State	Yes	Yes	No
<i>Comment: Emergency Operations Plan 2017. Plan updated every five years.</i>							
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	No	-	-



	Do you have this? (Yes/No)	Is this applicable Countywide or for a specific jurisdiction? If jurisdiction specify which one	Local Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:							
Post-Disaster Recovery Plan	No	-	-	-	No	-	-
Comment:							
Continuity of Operations Plan	No	-	-	-	No	-	-
Comment:							
Public Health Plan	Yes	Local	Health Department	No	No	No	No
Comment:							
Other	No	-	-	-	No	-	-
Comment:							

Table 9.19-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes Planning Board
Does your jurisdiction have the ability to track permits by hazard area?	Yes
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 Open Space Plan includes list

## ADMINISTRATIVE AND TECHNICAL CAPABILITY

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

Table 9.19-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Environmental Commission
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	SwiftReach
Maintenance program to reduce risk	Yes	Culvert cleaning performed prior to and after event.



Staff/Personnel Resource	Available?	Department/Agency/Position
Mutual aid agreements	No	Fire and First Aid Only-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	DPW, Engineering, Consultants
Engineers or professionals trained in building or infrastructure construction practices	Yes	Consulting Engineer, Construction Official
Planners or engineers with an understanding of natural hazards	Yes	Borough & Board Engineer Consultant
Staff with training in benefit/cost analysis	No	-
Staff with training in green infrastructure	No	-
Staff with education/knowledge/training in low impact development	Yes	Consulting Engineer
Surveyors	Yes	Consulting Engineer
Stormwater Engineer	Yes	Consulting Engineer
Personnel skilled or trained in GIS applications	Yes	Consulting Engineer
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	OEM Coordinator
Watershed Planner	No	-
Environmental Specialist	Yes	Consulting Engineer
Grant writers	Yes	Consulting Engineer
Resilience Officer	No	-
Other: 3 personnel trained in conducting damage assessments.	Yes	Construction Official

### FISCAL CAPABILITY

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

**Table 9.19-6. Fiscal Capabilities**

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes through specific assessment
User Fees for Water, Sewer, Gas or Electric Service	Yes (Sewer \$400/year/user, water billed per usage)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	When Permitted to do so
Clean Water Act 319 Grants (Nonpoint Source Pollution)	No
Other	No

### EDUCATION AND OUTREACH CAPABILITY

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





Table 9.19-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes Essex county Only
• If yes, briefly describe.	The Essex County All Hazard Mitigation Up Date Plan
Do you use social media for hazard mitigation education and outreach?	Yes
• If yes, briefly describe.	Police officer maintains Facebook, SwiftReach, and website.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No

### COMMUNITY CLASSIFICATIONS

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

Table 9.19-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	3	Unknown
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.

Currently, the municipality does not have access to resources to determine the possible impacts of climate change upon the municipality, the administration is not supportive of integrating climate change in policies or actions, and climate change is not being integrated into policies/plans or actions (projects/monitoring) within the municipality. Table 9.19-9 summarizes the adaptive capacity for climate change and the jurisdiction’s rating.

Table 9.19-9. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Low
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Geological Hazards	Low
Severe Storm	Medium
Winter Storm	Medium
Wildfire	Low
Civil Disorder	Low
Cyber Attack	Low
Disease Outbreak	Low
Economic Collapse	Low
Hazardous Substances	Low
Utility Interruption	Medium
Terrorism	Low
Transportation Failure	Low

**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 9.19-10. National Flood Insurance Program Compliance**

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (department/position)	Borough Engineer Section 22-9.1 of the Local Code identifies the Construction Code Official as the floodplain manager. Responsibilities of the floodplain administrator include permit reviews for new development. The Borough is looking to update ordinance.
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	2001, 2007, proposed 2019
Does your floodplain management program meet or exceed minimum requirements?	Meets
<ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	-
When was the most recent Community Assistance Visit or Community Assistance Contact?	CAC 05/01/2018
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
<ul style="list-style-type: none"> <li>If so, state what they are.</li> </ul>	-
Are any RiskMAP projects currently underway in your jurisdiction?	Yes
<ul style="list-style-type: none"> <li>If so, state what they are.</li> </ul>	Updating for LOMAs
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
<ul style="list-style-type: none"> <li>If no, state why.</li> </ul>	-
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes



Criterion	Response
<ul style="list-style-type: none"><li>If so, what type of assistance/training is needed?</li></ul>	Superintendent's office would like additional training.
Does your jurisdiction participate in the Community Rating System (CRS)?	No
<ul style="list-style-type: none"><li>If yes, is your jurisdiction interested in improving its CRS Classification?</li></ul>	N/A
<ul style="list-style-type: none"><li>If no, is your jurisdiction interested in joining the CRS program?</li></ul>	No
How many flood insurance policies are in force in your jurisdiction?	24
What is the insurance in force?	7,400,700
What is the premium in force?	24,113
How many total loss claims have been filed in your jurisdiction?	19
How many claims are still open or were closed without payment?	4
<input type="checkbox"/> What were the total payments for losses?	\$180,672
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation?	No

\*Policies and Claims from <https://bsa.nfipstat.fema.gov/reports/1011.htm> and <https://bsa.nfipstat.fema.gov/reports/1040.htm> as of 09/30/2018.

### ADDITIONAL AREAS OF EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Borough of Roseland made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the HMP and strategy:

- The 2017 EOP integrates the following elements of the HMP:
  - Basic Plan
  - Alerting, Warning and Communications
  - Damage Assessment
  - Emergency Medical
  - Emergency Operations Center
  - Emergency Public Information
  - Evacuation
  - Fire and Rescue
  - Hazardous Materials
  - Law Enforcement
  - Public Health
  - Public Works
  - Radiological Protection
  - Resource Management
  - Shelter, Reception and Care
  - Social Services

### 9.19.5 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 4.3 (Hazard Profiles) and includes a chronology of events that affected Essex County and its jurisdictions. The Borough of Roseland'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 9.19-11 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.

**Table 9.19-11. Hazard Event History**

Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm, Blizzard DR-4264	Yes	Low pressure moving across the deep South on Thursday, January 21 and Friday, January 22 intensified and moved off the Mid Atlantic coast on Saturday, January 23, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. At Newark Airport, the storm total snowfall was 24.5 inches, where winds gusted to 39 mph.	The Borough did not report any losses for this event.
March 14, 2017	Winter Storm	No	Rapidly deepening low pressure tracked up the eastern seaboard on Tuesday March 14 bringing blizzard conditions to Western Passaic county. Heavy snow and sleet along with strong winds occurred across the rest of Northeast New Jersey. The storm cancelled numerous flights at Newark airport with some mass transit services suspended. Large trees fell onto homes in Bergen county and approximately 4,500 power outages resulted from the strong winds and heavy snow. Trained spotters and the public reported 8 to 13 inches of snow and sleet.	The Borough did not report any losses for this event.
January 4, 2018	Winter Storm	No	The development of the blizzard/winter storm began along the southeast coast on Wednesday January 3, 2018. An amplifying upper level trough spawned the development of low pressure off the coast of Florida. The low pressure rapidly intensified on Wednesday night through Thursday January 4, 2018 as it moved north-northeast along the coast. The FAA Contract Observer at nearby Newark-Liberty Airport reported 8.4 inches of snowfall. Winds also gusted to 44 MPH at 4:38 PM at the airport.	The Borough did not report any losses for this event.
March 7, 2018	Winter Storm	No	A strong low-pressure system developed along the Middle Atlantic coast during the morning of Wednesday, March 7, 2018. The low tracked along the coast through the early morning hours on Thursday, March 8, 2018. The storm brought heavy wet snow, strong gusty winds, and even some thundersnow across northeast New Jersey. Snowfall rates ranged from 1 to 3 inches per hour at times in the heaviest snow bands. Trained spotters and the public reported 1 to 2 feet of snow. 23.0 inches was reported in North Caldwell and 19.7 inches in Roseland. The heavy wet snow and strong winds also brought down trees and some power lines.	The Borough did not report any losses for this event.



Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
November 15, 2018	Winter Storm	No	A wave of low pressure developed along the Middle Atlantic coast during Thursday November 15, 2018. The low was associated with a closed upper level trough across the Midwest. As the trough translated eastward into Friday November 16, 2018, the low pressure moved up the northeast coast. The moderate to heavy wet snowfall significantly impacted the evening rush hour with 1-2 inch per hour snowfall rates. Hundreds of trees, tree limbs, and branches were brought down by the weight of the snow, which caused many power outages. Numerous accidents were reported, and many motorists were stranded on roads until the early morning hours the next day. The FAA contract observer at nearby Newark Airport reported 6.4 inches of snow.	The Borough did not report any losses for this event.
January 30, 2019	Strong Wind	No	Strong winds occurred behind low pressure and cold front. The ASOS at Caldwell Airport measured a 30 mph sustained wind at 504 pm. \$10K in property damages were reported.	The Borough did not report any losses for this event.

### 9.19.6 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 9.19-12 summarizes the risk assessment results used to inform the Borough of Roseland 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.

### REPETITIVE FLOOD LOSSES

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

- Number of repetitive loss (RL) properties: 2
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: Unknown

*RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL\_Indicator = V).*



Table 9.19-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	0	CEHA:	0	CEHA:	\$0	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	0	Category 1:	0	100-year Wind Loss:	\$826,293	High
		Category 2:	0	Category 2:	0			
	Category 1 through Category 4 SLOSH	Category 3:	0	Category 3:	0	500-year Wind Loss:	\$5,555,768	
		Category 4:	0	Category 4:	0			
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500- Year Mean Return Period Event	NEHRP D&E:	916	NEHRP D&E:	278	100-year Loss:	\$0	High
		Liquefaction Class 4:	3	Liquefaction Class 4:	1	500-year Loss:	\$1,626,070	
						2,500-year Loss:	\$26,072,734	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,456	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	219					
Flood	100- and 500-Year Mean Return Period Event	100-year	132	100-year	40	100-year Loss:	\$31,474,456	High
		500-year	277	500-year	545			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	13	Class B:	4	Class B:	\$2,150,840	



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	3	Wildfire:	1	Wildfire:	\$6,477,522	Moderate
Civil Disorder	Civil disorder event	Population in the immediate vicinity will be impacted.		Buildings in the immediate vicinity will be most impacted.		Economic assets in the immediate vicinity will be most impacted.		Low
Cyber Attack	Cyber-attack event	The degree of impact to the population depends on the scale of the incident.		Damages due to a cyber attack may be limited.		The degree of damages depends on the scale of the incident. Loss of utilities/communication would have widespread economic impacts.		Low
Disease Outbreak	One of the following: West Nile Virus, Eastern Equine Encephalitis, St. Louis Encephalitis, La Crosse Encephalitis, Lyme Disease, Influenza, Ebola Virus	Entire population exposed; The degree of impact to the population depends on the scale of the incident		Disease outbreak would not have a direct impact on buildings.		Impacts to food supply and water supply; Costs of activities and programs implemented to address outbreaks and prevent spread.		Low
Economic Collapse	Recessions, Depressions, Interruption of normal economic conditions	The degree of impact to the population depends on the scale of the incident.		Damages due to economic collapse may be limited; property owners that cannot afford to maintain the structure may become abandoned/run-down.		The degree of damages depends on the scale of the incident. Massive impacts due to loss of jobs, businesses, and tax revenue are possible.		Low



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population	Buildings	Economy (Loss)	Certainty Factor
<b>Hazardous Substances</b>	Port Newark is in Essex County (3 <sup>rd</sup> largest port in the U.S.)  Major highways/rail  Pipelines  10 NPL Sites in County	Population impacted will depend on the type of material and scale of the incident. May include population within small radii of site.	The degree of damages to a building depends on the scale of the incident.	The degree of damages depends on the scale of the incident.	Low
<b>Utility Interruption</b>	Disruption of power caused by accident, sabotage, natural hazards, or equipment failure.	The degree of impact to the population depends on the scale of the incident.	The degree of damages to buildings depends on the scale of the incident; Physical impacts to structures may occur if utilities are keeping critical functions online (i.e. sump pumps).	The degree of damages depends on the scale of the incident.	Low
<b>Terrorism</b>	Terrorist Attack	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
<b>Transportation Failure</b>	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 impacted.	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 most impacted.	Low





## CRITICAL FACILITIES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplains and the status of mitigation at each location. If a new mitigation action is identified, the mitigation action ID is listed; refer to Table 9.19-16 for additional details regarding the project.

**Table 9.19-13. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
ADP, Inc	Commercial	-	-	-
Essex County Environmental Center	County Building	X	X	Do not have the jurisdiction to mitigate. County-owned.
Roseland Pump Station*	Potable Pump Station	X	X	2020-ROSELAND-012
Well 11 (Roseland)	Potable Well	X	X	2020-ROSELAND-012

\*Identified lifeline

## ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following additional vulnerabilities within their community:

According to the preliminary 2014 FEMA Flood Insurance Study (FIS), Flooding within the Borough of Roseland occurs as a consequence of heavy rains usually resulting from localized thunderstorms and hurricanes during the summer and fall months. Due to the low permeability of certain soils, the high degree of development and less than adequate storm sewers in the borough, some areas are subject to frequent flooding and ponding of surface water. A damaging storm occurred on August 2, 1973, creating considerable overbank flooding along Passaic River, Foulerton's Brook, North Branch Foulerton's Brook, and Canoe Brook. This flood on Passaic River had an estimated return period of 83 years. Flooding associated with this storm caused traffic interruptions, property damage, siltation of streambeds, and erosion of embankments. Hurricane Irene on August 29-30, 2011, caused flooding on Passaic River and was estimated to have a 16-year return period (FEMA FIS 2014).

Problem flooding locations in Roseland identified at various times include area along Foulerton's Brook at Locust, Second, Third, and Fourth Avenues, all of which have experienced flooding during severe rainstorms. There are other areas along North Branch Foulerton's Brook at Gates, Mitchell, and Godfrey Avenues, Plymouth Place, Freeman Street, and Condit Court where overbank erosion occurred during the August 1973 storm (FEMA FIS 2014).

Roseland Borough experiences flooding that affect commercial, residential and Borough-owned properties. Properties previously damaged during flood and wind events have been identified in the East, Central, and West ends of the Borough. Undersized culverts and the inability for floodwaters to pass through the areas contribute to flood issues. Properties located along the South Branch of the Foulerton Brook in the West End have experienced repetitive flood losses.

Other areas of flooding in the Borough include:



- The east end of the Borough has experienced repeated flooding in localized areas affecting both residential and borough-owned properties. These areas are identified flood areas (Zone X and AE) by the NFIP FIRM maps. Several losses re-occurred to multiple dwellings in this area related to major storms and associated flooding.
- The central area of the Borough has also experienced repeated flooding of several residential properties along the Zone X and Zone AE class areas as indicated by the NFIP FIRM maps. Several losses reported in this area as both flooding and wind damage due to storm events on a re-occurring basis.
- The west end of the Borough has repeated flooding occurring along particular sections of the brook corridor, identified as the South Branch of Foulerton Brook, and depicted within the Zone AE and Zone X on the NFIP maps. Several homes in this lower elevation of the Borough and positioned along the Brook have experienced reoccurring flooding from major storm events over the past years. Certain homes have reoccurring flooding due to an undersized channel that causes flooding of neighboring properties.
- Undersized culvert on Birch Drive in the Borough and flooding is promoted during heavy storm events. This area has been subject to repeat flooding of certain properties during various storm events due to this undersized culvert.
- Flooding along Woodland Road and Steel Court affects businesses in the Borough and various residential properties in the neighboring town of West Caldwell. This is predominately due to a run of undersized pipe.

#### **HAZARD AREA EXTENT AND LOCATION**

Hazard area extent and location maps were generated for the Borough of Roseland 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 Roseland has significant exposure; refer to Figure 9.19-1 and 9.19-2. 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 natural hazards for the Borough of Roseland. 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 Roseland 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, as reported in Table 9.19-14. During the review of the draft calculated hazard ranking, the Borough indicated the following:



- The Borough changed the hazard ranking for cyber attack from low to medium.
- The Borough changed the hazard ranking for economic collapse from medium to low.
- The Borough changed the hazard ranking for hazardous substances from low to medium.

Table 9.19-14. Borough of Roseland Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Medium	Medium	Medium	Low

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	Transportation Failure
Low	Low	Medium	High	Low	Low

### 9.19.7 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.

Table 9.19-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
Roseland-1 Obtain backup power to ensure continuity of operations of transportation/infrastructure. The following has been identified at this time: Roseland traffic signal generators.	Borough OEM	In progress	Yes	2020-ROSELAND-001
Roseland-2 Roseland critical facilities fuel storage tanks upgrade.	Borough OEM	Discontinue. FEMA will not support.	No	-
Roseland-3 Eagle Rock Avenue Bridge Replacement Project over Passaic River.	Borough	Complete	No	-



2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
Roseland-4 Address the severe flooding conditions in the area of Woodland Road and Steel Court which effects both Roseland and West Caldwell properties; installation of a second pipe for a distance of 150 feet	Borough OEM	In progress	Yes	2020-ROSELAND-002
Roseland-5 Second Avenue Flooding Relief Project.	Borough	Discontinue. DEP will not support	No	-
Roseland-6 Regional stream corridor study through the lower elevations of the South Branch of Foulteron Brook encompassing three county-owned culverts at road crossings.	Borough OEM	No progress	Yes	2020-ROSELAND-003
Roseland-7 Obtain backup power to ensure continuity of operations at critical facilities. The following have been identified at this time: Emergency back-up power for the OEM building (140 Eagle Rock Avenue).	Borough OEM	No progress	Yes	2020-ROSELAND-004
Roseland-8 The Borough will consider hazard mitigation projects identified in this HMP when constructing upcoming operating and capital improvement budgets.	Borough	No progress	Yes	2020-ROSELAND-005

In addition to the above progress, the Borough of Roseland identified the following mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy:

- The Borough of Roseland received a Hazard Mitigation Grant in July 2014 for \$15,500 to upgrade 4 major intersections in the Borough of Roseland. The money was used to upgrade the traffic signals to battery backup and, if necessary, generator capable to operate the traffic signal. Included in the upgrade was equipment for the control box, a generator for each intersection, and equipment to secure the generator to the control box. After completion of the project, the OEM office has continued the project for one intersection per year to ultimately accomplish all intersection using funds left over at the end of each year. At present, 6 intersections have been completed and 6 require upgrades estimated at \$6,000 per intersection.

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

The Borough of Roseland 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 Roseland 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 9.19-16 summarizes the comprehensive-range of specific mitigation initiatives the Borough of Roseland 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 4 FEMA mitigation action categories and the 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 9.19-17 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update and Table 9.19-18 summarizes the actions by type across hazards of concern.



Table 9.19-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-ROSELAN D-001	Provide portable generator for traffic signals.	Traffic signals lose power during storms.	Obtain backup power to ensure continuity of operations of transportation/infrastructure.	Existing	Utility Interruption	1.2, 6.1, 6.2	<u>Borough OEM</u>	HMGP, PDM, Municipal Budget	High	Medium	Short	High	SIP	PR, ES
2020-ROSELAN D-002	Steel Court Flooding Project	Severe flooding conditions in the area of Woodland Road and Steel Court which effects both Roseland and West Caldwell properties	Address flooding near Woodland Road and Steel Court. Install second pipe for a distance of 150 feet to address flooding.	Existing	Flood, Severe Storm, Severe Winter Storm	1.2	<u>Borough Engineering</u>	HMGP, PDM, Municipal Budget	High	High	Medium	High	SIP	PR, PP, SP
2020-ROSELAN D-003	Study regional stream corridor of South Branch of Foulteron Brook.	Lower elevations of the South Branch of Foulteron Brook are subject to flooding.	Regional stream corridor study through the lower elevations of the South Branch of Foulteron Brook encompassing three county-owned culverts at road crossings.	Existing	Flood, Severe Storm, Severe Winter Storm	1.2, 6.1	<u>Borough Engineering</u>	Municipal Budget	High	Medium	Medium	High	SIP	PR, PP, SP
2020-ROSELAN D-004	Provide permanent backup generator for OEM building.	The OEM building (140 Eagle Rock Avenue) loses power during storms.	Obtain backup power to ensure continuity of operations at	Existing	Utility Interruption	1.2, 6.1, 6.2	<u>Borough OEM</u>	HMGP, PDM, Municipal Budget	High	Medium	Short	High	SIP	PR, ES



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			critical facilities.											
2020-ROSELAN D-005	Investigate adding line item to budget for Hazard Mitigation.	Operating and capital improvement budgets do not have a line item specific to hazard mitigation.	The Borough will consider hazard mitigation projects identified in this HMP when constructing upcoming operating and capital improvement budgets.	Existing	All	1.3, 4.2	<u>Borough Administration</u>	Municipal Budget	Medium	Low	Short	Medium	LPR	PR
2020-ROSELAN D-006	Update FPA Ordinance for duties of Borough Engineer.	Chapter 22-9.2 of the Local Code identifies the Construction Code Official as the floodplain manager. Responsibilities of the floodplain administrator include permit reviews for new development.	Borough will update FDPO to designate the engineer, who is also a CFM, as the FPA.	New	Flood	1.3, 4.2	<u>Borough Administration,</u> <u>Borough Engineering</u>	Municipal Budget	Medium	Low	Short	Medium	LPR	PR
2020-ROSELAN D-007	Master Plan and HMP Integration	Master Plan does not integrate Essex County HMP	Include discussion of Essex County HMP in next update.	New	All	4.1, 5.4	<u>Planning Board</u>	Municipal Budget	Medium	Low	Long	Medium	LPR	PP, PI
2020-ROSELAN D-008	Sustainable Jersey Participation	The Borough does not currently participate in	It is recommended that the Borough evaluate	New	All	3.1, 4.2	<u>Borough Administration,</u>	Municipal Budget	Medium	Low	Long	Medium	LPR	PR, PI





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Sustainable Jersey.	certification under the program. ( <a href="http://www.sustainablejersey.com/">http://www.sustainablejersey.com/</a> ).											
2020-ROSELAN D-009	Remove school from 2017 EOP evacuation staging area	The Borough lists the following staging areas for evacuation in 2017 EOP: Noecker School, First Aid Squad Building, Borough Hall Complex.	The First Aid Squad has backup power, but the school does not. School should be removed as primary evacuation staging site from EOP.	New	All	1.3, 4.3	<u>Borough OEM</u>	Municipal Budget	Medium	Low	Short	Medium	LPR	PR, ES
2020-ROSELAN D-010	Mitigate flood-prone properties, including RL/SRL Canoe Brook floodplain properties	Frequent flooding events resulted in damages to the Canoe Brook floodplain properties. This area is residential, and these properties are repeatedly flooded.	Conduct outreach to flood prone property owners, including RL/SRL property owners and provide information about mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a	New	Flood, Severe Storm, Severe Winter Storm	1.2, 2.2	<u>Borough Engineering</u>	HMGP, PDM grants, local costs to homeowners	High	Medium	Medium	High	SIP	PR, PP, SP



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes that experience flooding.											
2020-ROSELAN D-011	Birch Dr. / Thackery Dr. Drainage Project	Storm drain and culverts have limited capacity causing flooding of homes in local areas.	Add capacity and create discharge bypass to direct the additional stormwater downstream past the culverts that are limiting flow due to lack of capacity.	New	Flood, Severe Storm, Severe Winter Storm	1.2, 2.2	<u>Borough Engineering</u>	HMGP, PDM, Municipal Budget	High	Medium	Long	Medium	SIP	PR, PP, SP
2020-ROSELAN D-012	Determine pump plan	Roseland Pump Station (Potable pump station) and Well 11 (Potable Well) are located in the floodplain.	Borough will investigate options for securing the two critical pumps.	New	Flood, Severe Storm	1.2, 2.1, 6.1	<u>Borough Engineering</u>	Municipal Budget	Medium	High	Medium	Medium	SIP	PR, PP
2020-ROSELAN D-013	Essex County Environmental Center	Essex County Environmental Center is in the floodplain.	Borough will reach out to the county to discuss mitigation strategies and BMPs for facilities in the floodplain.	New	Flood, Severe Storm, Severe Winter Storm	1.2, 2.2	<u>Borough Engineering</u>	Municipal Budget	Medium	Low	Medium	Medium	EAP	PR



Notes:

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.

Cost:

The estimated cost for implementation.

Benefits:

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, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- *Public Information (PI)* - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. 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.



Table 9.19-17. Summary of Prioritization of Actions

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-ROSELAND-001	Provide portable generator for traffic signals.	1	1	1	1	0	1	1	0	0	1	0	1	1	1	10	High
2020-ROSELAND-002	Steel Court Flooding Project	1	1	1	1	1	0	1	0	1	0	1	1	1	1	11	High
2020-ROSELAND-003	Study regional stream corridor of South Branch of Foulteron Brook.	1	1	1	1	0	1	0	1	1	1	1	0	0	1	10	High
2020-ROSELAND-004	Provide permanent backup generator for OEM building.	1	1	1	1	0	1	1	0	0	1	1	1	1	1	11	High
2020-ROSELAND-005	Investigate adding line item to budget for Hazard Mitigation.	1	1	1	1	0	1	1	0	0	0	1	0	0	0	7	Medium
2020-ROSELAND-006	Update FPA Ordinance for duties of Borough Engineer.	1	1	1	1	0	1	1	0	0	0	1	0	1	0	8	Medium
2020-ROSELAND-007	Master Plan and HMP Integration	1	1	1	1	0	1	1	0	0	0	1	0	0	0	7	Medium
2020-ROSELAND-008	Sustainable Jersey Participation	1	1	1	1	0	1	1	0	0	0	1	0	0	1	8	Medium
2020-ROSELAND-009	Remove school from 2017 EOP evacuation staging area	0	1	1	1	0	1	1	0	0	0	1	0	0	0	6	Medium
2020-ROSELAND-010	Mitigate flood-prone properties, including RL/SRL Canoe Brook floodplain properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-ROSELAND-011	Birch Dr. / Thackery Dr. Drainage Project	1	1	0	1	0	0	1	1	1	0	1	0	1	0	8	Medium
2020-ROSELAND-012	Determine pump plan	1	1	1	1	0	1	1	0	0	0	1	0	0	1	8	Medium



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-ROSELAND-013	Essex County Environmental Center	0	1	1	0	0	1	1	1	1	0	1	0	0	0	7	Medium

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



Table 9.19-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion / Sea Level Rise	-	-	-	-	-	-	-	-
Coastal Storm	-	-	-	-	X	X	-	-
Drought	-	-	-	-	-	-	-	-
Earthquake	-	-	-	-	-	-	-	-
Extreme Temperature	-	-	-	-	-	-	-	-
Flood	X	X	X	X	X	X	X	X
Geological hazards	-	-	-	-	-	-	-	-
Severe Weather	-	X	X	X	X	X	X	X
Severe Winter Weather	-	X	X	X	X	X	X	X
Wildfire	-	-	-	-	-	-	-	-
Civil Disorder	-	-	-	-	-	-	-	-
Cyber Attack	-	-	-	-	-	-	-	-
Disease Outbreak	-	-	-	-	-	-	-	-
Economic Collapse (new)	-	-	-	-	-	-	-	-
Hazardous Substances	-	-	-	-	-	-	-	-
Utility Interruption	-	X	-	X	X	-	-	X
Terrorism	-	-	-	-	-	-	-	-
Transportation Failure	-	-	-	-	X	X	-	-

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

### 9.19.8 Staff and Local Stakeholder Involvement in Annex Development

The Borough of Roseland 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. The following table summarizes who participated and in what capacity. 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 9.19-19. Contributors to the Annex

Entity	Title	Method of Participation
Gary Schall	Superintendent DPW	Primary POC
John Matheis	OEM Coordinator	Annex meeting





Figure 9.19-1. Borough of Roseland Hazard Area Extent and Location Map

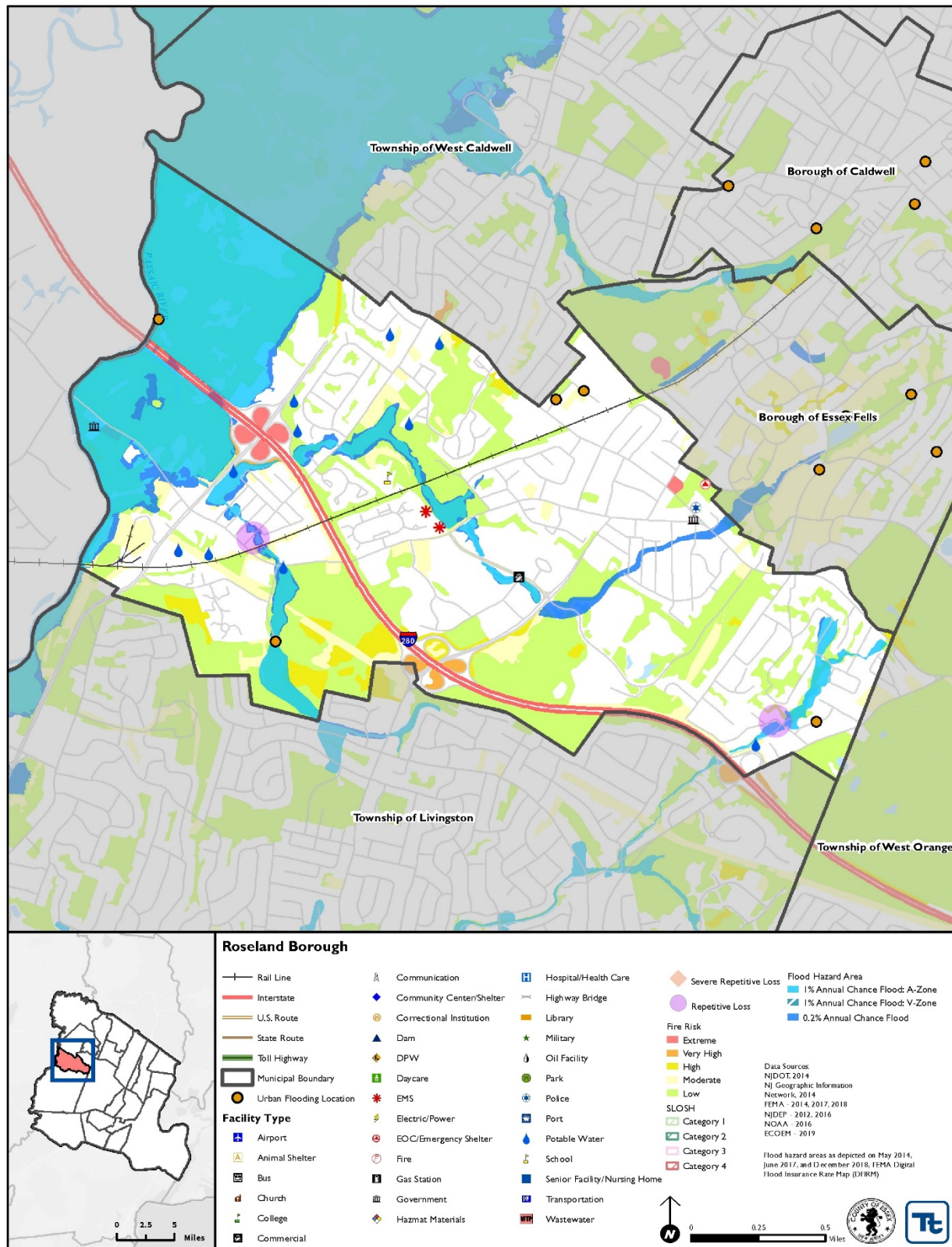
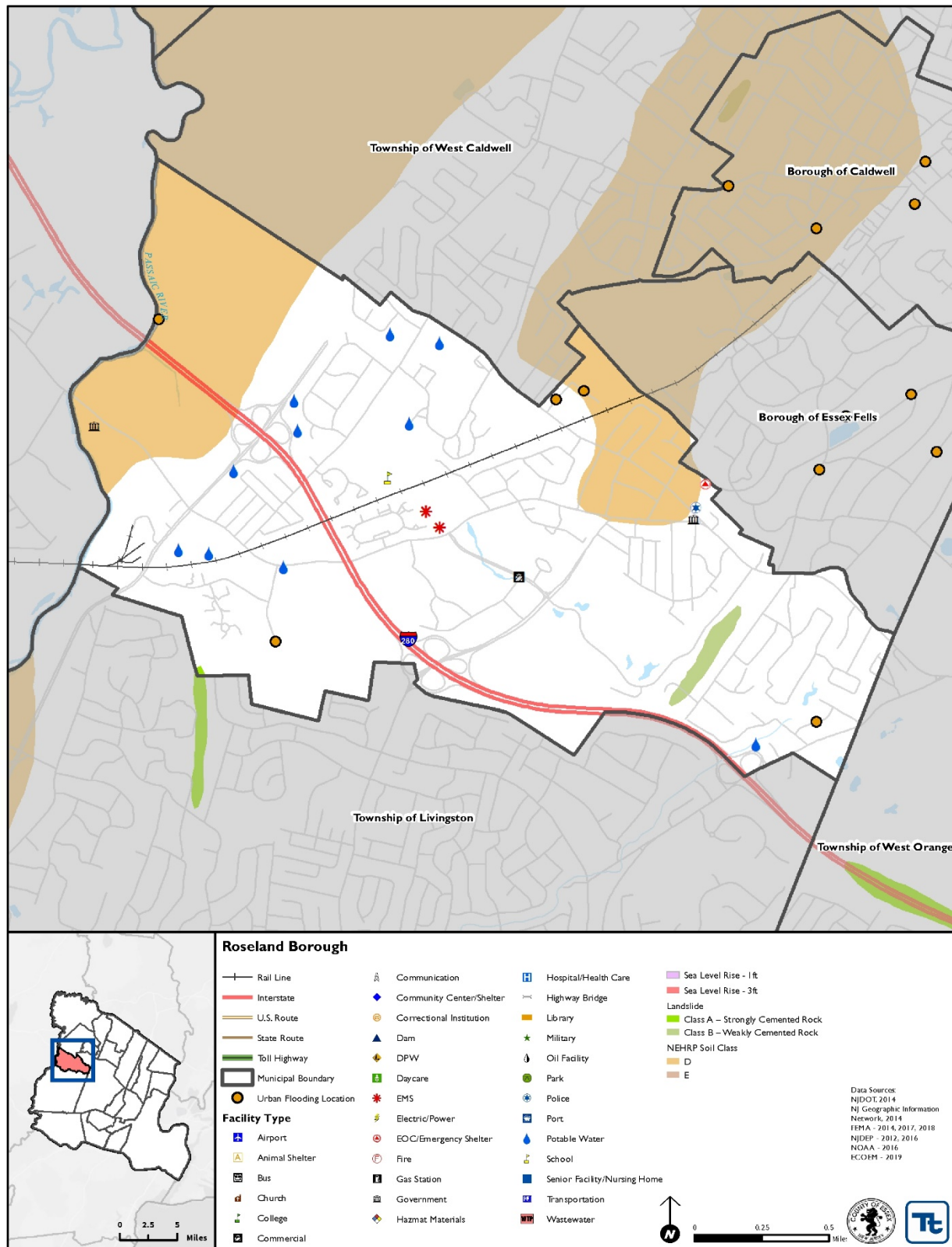






Figure 9.19-2. Borough of Roseland Hazard Area Extent and Location Map 2





Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet			
Project Name:	Steel Court Flooding Project		
Project Number:	2020-ROSELAND-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Flooding with property damage to both residential and commercial properties and affects both Roseland and West Caldwell properties. The volume of flow and debris result in a blocked single pipe.		
Action or Project Intended for Implementation			
Description of the Solution:	Install a larger trash rack in advance of the inlet pipe at the headwork to intercept debris that blocks the pipe.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year storm	Estimated Benefits (losses avoided):	9 residential and 3 major business structures
Useful Life:	40 years	Goals Met:	
Estimated Cost:	\$30,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	2 years
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMGP, PDM grants, capital budget
Responsible Organization:	DPW, Engineering	Local Planning Mechanisms to be Used in Implementation if any:	n/a
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Buy Impacted properties	Too expensive	Too expensive
	Build 2 <sup>nd</sup> 150' outlet pipe	\$1M	Trash rack is more cost effective
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet		
Project Name:	Steel Court Flooding Project	
Project Number:	2020-ROSELAND-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	Effects residents in neighboring towns.
Legal	0	
Fiscal	1	Capital budget request
Environmental	0	
Social	1	Joint community issue.
Administrative	0	
Multi-Hazard	1	Effects different towns.
Timeline	1	Within 2 years of awarded funding.
Agency Champion	1	DPW, OEM
Other Community Objectives	1	Eliminate or minimize flooding to Steel Court.
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet			
<b>Project Name:</b>	Provide permanent backup generator for OEM building.		
<b>Project Number:</b>	2020-ROSELAND-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Interruption		
<b>Description of the Problem:</b>	The OEM building (140 Eagle Rock Avenue) loses power during storms.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Obtain backup power to ensure continuity of operations at critical facilities.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	100-year storm	<b>Estimated Benefits (losses avoided):</b>	No loss of power
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1.2, 6.1, 6.2
<b>Estimated Cost:</b>	\$85,000-\$95,000	<b>Mitigation Action Type:</b>	SIP
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1-2 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP, PDM grants, capital budget
<b>Responsible Organization:</b>	OEM, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	n/a
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Install Solar	Too expensive	Too expensive
	Obtain generator	High	More cost effective than solar
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet		
Project Name:	Provide permanent backup generator for OEM building.	
Project Number:	2020-ROSELAND-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	OEM office is lead agency for all disasters and must be operational in all circumstances.
Property Protection	1	OEM will remain operational.
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	Generator can be installed at the site.
Fiscal	1	Costly
Environmental	0	
Social	0	Joint community issue.
Administrative	1	Will need to work with engineering.
Multi-Hazard	0	
Timeline	1	Less than 5 years.
Agency Champion	1	DPW, OEM
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet			
<b>Project Name:</b>	Canoe Brook Flooding		
<b>Project Number:</b>	2020-ROSELAND-010		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, severe storm		
<b>Description of the Problem:</b>	Frequent flooding events resulted in damages to the Canoe Brook flood plain properties. This area is residential, and these properties have been repeatedly flooded, as documented by the NFIP claims.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Mitigate flood-prone properties, including RL/SRL properties. Conduct outreach to flood prone property owners, including RL/SRL property owners and provide information about mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes that experience flooding.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	100-year storm	<b>Estimated Benefits (losses avoided):</b>	Eliminate flood damage to structures
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	
<b>Estimated Cost:</b>	\$3 M	<b>Mitigation Action Type:</b>	SIP
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	HMGP, PDM grants, local costs to homeowners
<b>Responsible Organization:</b>	NFIP FPA, Engineering	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	\$500,000	When area floods, entire area is impacted, and elevating homes is part of problem.
	Elevate roads	\$500,000	Elevated roads would not protect the structures from flood damages.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet		
Project Name:	Canoe Brook Flooding	
Project Number:	2020-ROSELAND-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Residents are moved from flood-prone areas.
Property Protection	1	Properties are moved from flood-prone areas.
Cost-Effectiveness	1	Cost effective better than reactionary.
Technical	1	Technically-feasible project.
Political	1	
Legal	1	Town has legal authority for project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Residents might move from town.
Administrative	0	
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	1	NFIP FPA, supported by residents
Other Community Objectives	1	Eliminate or minimize flooding to Steel Court.
Total	10	
Priority (High/Med/Low)	High	





Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet			
<b>Project Name:</b>	Birch Dr. / Thackery Dr. Drainage Project		
<b>Project Number:</b>	2020-ROSELAND-011		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, severe storm		
<b>Description of the Problem:</b>	Storm drain and culverts have limited capacity causing flooding of homes in local areas.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Add capacity and create discharge bypass to direct the additional stormwater downstream past the culverts that are limiting flow due to lack of capacity		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	100-year storm	<b>Estimated Benefits (losses avoided):</b>	Eliminate flood damage to structures
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1.2, 2.2
<b>Estimated Cost:</b>	\$480,000	<b>Mitigation Action Type:</b>	SIP
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	5 years
<b>Estimated Time Required for Project Implementation:</b>	5 years	<b>Potential Funding Sources:</b>	HMGP, PDM grants
<b>Responsible Organization:</b>	NFIP FPA, Engineering	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Master plan committed review.
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	\$500,000	When area floods, entire area is impacted, and elevating homes is part of problem.
	Elevate roads	\$500,000	Elevated roads would not protect the structures from flood damages.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Name of Jurisdiction:

Township of Roseland

Name and Title Completing Worksheet:

Gary Schall, Superintendent DPW

Action Worksheet		
Project Name:	Birch Dr. / Thackery Dr. Drainage Project	
Project Number:	2020-ROSELAND-011	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	0	
Timeline	0	
Agency Champion	1	DPW/OEM
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	