



## 9.12 TOWNSHIP OF MAPLEWOOD

This section presents the jurisdictional annex for the Township of Maplewood. The annex includes a general overview of the Township; an assessment of the Township'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.

### 9.12.1 Hazard Mitigation Planning Team

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

**Table 9.12-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name / Title: Sonia Viveiros / Business Administrator Address: Maplewood Town Hall, 574 Valley Street, Maplewood, NJ 07040 Phone Number: 973-762-8120 x 2000 Email: sviveiros@twp.maplewood.nj.us	Name / Title: Jim DeVaul / Chief of Police Address: Maplewood Police Department, 1618 Springfield Ave, Maplewood, NJ 07040 Phone Number: 973-761-7901 Email: jdevaul@twp.maplewood.nj.us
NFIP Floodplain Administrator	
Name / Title: Paul Kittner, Engineering Department Address: Maplewood Town Hall, 574 Valley St, Maplewood, NJ 07040 Phone Number: 973-762-8120 x 3300 Email: pkittner@twp.maplewood.nj.us	

### 9.12.2 Jurisdiction Profile

Township of Maplewood is located near the convergence of Interstate-78 and the Garden State Parkway. Communities bordering Maplewood include South Orange to the North, Irvington to the East, Union to the South, and Millburn to the West. The East Branch of the Rahway River runs through the middle of the Township. Total land area for the Township of Maplewood is 3.879 square miles of which 3.877 square miles are land and 0.002 square miles are water (Maplewood Township New Jersey, 2014).

The area now known as the Township of Maplewood was settled in 1675 by the Dutch, English, and French Puritans. Maplewood developed into a center for trade and light manufacturing as it was a stagecoach stop between Newark, Jersey City, and Morristown. Cider, rum, honey, and livestock were major sources of trade. In 1922, Maplewood parted from South Orange Township and became known as Maplewood (Maplewood Township New Jersey, 2014). Township of Maplewood operates using a five-member township Committee, which selects a Mayor annually (Maplewood Township New Jersey, 2014).

According to the U.S. Census, the 2010 population for the Township of Maplewood was 23,867. The estimated 2017 population was 24,706, a 3.5 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 7.6 percent of the population is 5 years of age or younger and 11.6 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.

### 9.12.3 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 9.12-2



summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.12-1 and 9.12-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

**Table 9.12-2. Recent and Expected Future Development**

Type of Development	2014	2015	2016	2017	2018
<b>Number of Building Permits for New Construction Issued Since the Previous HMP</b>					
Single Family	1,816	1,838	1,992	2,285	2,113
Multi-Family	23	12	28	16	11
Other (commercial, mixed-use, etc.)	129	150	169	106	14
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	Apartments	235	200 Boyden Avenue	N/A	Completed
Clarus	Retail and Apartments	20 Apartments + Retail	160 Maplewood Ave	N/A	Completed
Maplewood Crossing	Apartments	126	92 Burnett Ave	N/A	Completed
Elite Properties	Apartments	30	1687-1701 Springfield Ave	N/A	Completed
Carelli Apartments	Apartments	30	Tuscan/Boyden	N/A	Completed
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
None					

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

#### 9.12.4 Capability Assessment

The Township of Maplewood 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 Township of Maplewood.



Table 9.12-3. 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	State of New Jersey	Building	State	Yes	No	No
<i>Comment: Code Enforcement Laws: New Jersey Administrative Code 5:23-2.14 and 2.16 are referenced on the Construction Code Enforcement website <a href="https://www.twp.maplewood.nj.us/building-department/pages/construction-code-enforcement">https://www.twp.maplewood.nj.us/building-department/pages/construction-code-enforcement</a> and link to the Uniform Construction Code <a href="https://www.state.nj.us/dca/divisions/codes/codreg/ucc.html">https://www.state.nj.us/dca/divisions/codes/codreg/ucc.html</a>.</i>							
Zoning Code	Yes	Township of Maplewood	Zoning	No	Yes	No	No
<i>Comment: Maplewood Code Chapter 271 Zoning and Development Regulations, Adopted by the Township Committee of the Township of Maplewood 12-9-1986. Amendments noted where applicable. Purpose is to secure safety from fire, flood, panic and other natural and man-made disasters.</i>							
Subdivisions	Yes	Township of Maplewood	Zoning	No	Yes	No	No
<i>Comment: Maplewood Code Chapter 271 Zoning and Development Regulations, Adopted by the Township Committee of the Township of Maplewood 12-9-1986. Amendments noted where applicable. Residential Site Improvement Standards (State)</i>							
Stormwater Management	Yes	Township of Maplewood	Engineering	DEP	Yes	Yes/No	Yes/No
<i>Comment: Maplewood Code Chapter 238, Adopted 2006</i>							
Post-Disaster Recovery	No	-	-	-	No	-	-
<i>Comment:</i>							
Real Estate Disclosure	No	-	-	-	No	-	-
<i>Comment:</i>							
Growth Management	No	-	-	-	No	-	-
<i>Comment:</i>							
Site Plan Review	Yes	Township of Maplewood	Zoning and Building	No	Yes	Yes	No
<i>Comment: Maplewood Code Chapter 271, Adopted 2005. No zoning permit, building permit or certificate of occupancy shall be issued in any flood hazard area until all plans are compatible with the floodplain regulations of this chapter</i>							
Environmental Protection	No	-	-	-	No	-	-
<i>Comment:</i>							
Flood Damage Prevention	Yes	Township of Maplewood	Engineering	FEMA	Yes	No	No
<i>Comment: Maplewood Code Chapter 271, Attachment 1, April 7, 1987, August 15, 2005.</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	-	-



	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 #.
<b>Comment:</b>							
Other: Riparian Buffer	Yes	Township of Maplewood	Engineering	NJDEP	Yes	Yes	No
<b>Comment:</b> Riparian Buffer. Chapter 213. Integrated with the requirements of the Stormwater Management rule.							
Other: Historic Preservation	Yes	Township of Maplewood	Historic Preservation Commission	SHPO	No	Yes	No
<b>Comment:</b> Historic Preservation Ordinance of the Township of Maplewood. October 19, 2010. Chapter 271, Article VIII. Integrated with Master Plan of Township of Maplewood.							
Other: Open Space Trust Fund	Yes	Township of Maplewood	Open Space Trust Fund Advisory Committee	SHPO	No	No	No
<b>Comment:</b> Open Space Trust Fund Advisory Committee. Chapter 47. Adopted 2008. Integrated with to new development or land disturbance.							
Other: Steep Slopes	Yes	Township of Maplewood	Engineering, Consulting Planner	No	No	Yes	No
<b>Comment:</b> Steep Slopes. Chapter 237A.							
Other: Water Conservation	Yes	Township of Maplewood	Engineering	No	No	Yes	No
<b>Comment:</b> Unable to locate.							
Planning Documents							
Comprehensive / Master Plan	Yes	Township of Maplewood	Engineering, Consulting Planner	No	Yes	No	Yes
<b>Comment:</b> Adopted 2004 with reexamination 2011. Opportunity to integrate HMP into master plan update.							
Capital Improvement Plan	Yes	Township of Maplewood	Engineering	No	No	No	No
<b>Comment:</b> Updated annually							
Disaster Debris Management Plan	Yes	Township of Maplewood	DPW	No	No	Yes	Yes
<b>Comment:</b> Unable to locate.							
Floodplain or Watershed Plan	No	-	-	-	No	-	-
<b>Comment:</b>							
Stormwater Management Plan	Yes	Township of Maplewood	Engineering	NJDEP	Yes	No	No
<b>Comment:</b> The SWPPP August 2018 <a href="https://www.twp.maplewood.nj.us/sites/maplewoodnj/files/uploads/stormwater_pollution_prevention_plan_revised_august_2018.pdf">https://www.twp.maplewood.nj.us/sites/maplewoodnj/files/uploads/stormwater_pollution_prevention_plan_revised_august_2018.pdf</a> provides both the SWPPP and the Stormwater Management Plan.							
Stormwater Pollution Prevention Plan	Yes	Township of Maplewood	Engineering	NJDEP	Yes	No	No
<b>Comment:</b> SWPPP August 2018 <a href="https://www.twp.maplewood.nj.us/sites/maplewoodnj/files/uploads/stormwater_pollution_prevention_plan_revised_august_2018.pdf">https://www.twp.maplewood.nj.us/sites/maplewoodnj/files/uploads/stormwater_pollution_prevention_plan_revised_august_2018.pdf</a> .							
Urban Water Management Plan	No	-	-	-	No	-	-
<b>Comment:</b>							



	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 #.
Habitat Conservation Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Economic Development Plan	Yes	Township of Maplewood	Administration	No	No	Yes/No	Yes/No
<i>Comment: Adopted 1999</i>							
Shoreline Management Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Community Wildfire Protection Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Community Forestry 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	Yes	Township of Maplewood	Planning Board	No	No	Yes/No	Yes/No
<i>Comment: Redevelopment Plan. Adopted April 3, 2012</i>							
Other: Open Space Plan	Yes	Township of Maplewood	Open Space Trust Fund Advisory Committee	No	No	Yes/No	Yes/No
<i>Comment:</i>							
Other: Stream Corridor Management Plan	Yes	Township of Maplewood	Engineering	No	No	Yes/No	Yes/No
<i>Comment: 2006</i>							
<b>Response/Recovery Planning</b>							
Comprehensive Emergency Management Plan	Yes	Township of Maplewood	OEM	County, State	Yes	Yes/No	Yes/No
<i>Comment: Adopted 2019</i>							
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	No	-	-
<i>Comment:</i>							
Post-Disaster Recovery Plan	No	-	-	-	No	-	-
<i>Comment:</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 #.
Continuity of Operations Plan	No	-	-	-	No	-	-
<i>Comment:</i>							
Public Health Plan	No				No	-	-
<i>Comment:</i>							
Other: Emergency Response Plan	Yes	Township of Maplewood	OEM	No	No	No	No
<i>Comment: Adopted 2018</i>							

Table 9.12-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	Building Department
Does your jurisdiction have the ability to track permits by hazard area?	No
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.	No No vacant land is available

#### ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Township of Maplewood.

Table 9.12-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
<b>Administrative Capability</b>		
Mitigation Planning Committee	No	Engineering Public Works & Planning Committee
Environmental Board / Commission	Yes	Environmental Committee
Open Space Board / Committee	Yes	Open Space Trust Committee
Economic Development Commission / Committee	Yes	Economic and Entrepreneurship Development Committee
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Code Red, Nixle
Maintenance program to reduce risk	Yes	DPW
Mutual aid agreements	Yes	Fire, EMS
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering Dept, Planning and Zoning Board Engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering Dept.
Planners or engineers with an understanding of natural hazards	Yes	Engineering Dept.



Staff/Personnel Resource	Available?	Department/Agency/Position
Staff with training in benefit/cost analysis	No	Engineering Dept.
Staff with training in green infrastructure	Yes	Engineering Dept., Green Team
Staff with education/knowledge/training in low impact development	Yes	Engineering Dept., Green Team
Surveyors	No	Contractor for Engineering Dept.
Stormwater Engineer	Yes	Contractor for Engineering Dept.
Personnel skilled or trained in GIS applications	Yes	Contractor for Engineering Dept.
Scientist familiar with natural hazards in local area	Yes	Engineering Dept, Environmental Committee, Green Team
Emergency manager	Yes	Fire
Watershed Planner		Engineering Department, Contractor for Engineering Dept. NJAW
Environmental Specialist		Contractor for Engineering Dept.
Grant writers	Yes	Community Development
Resilience Officer	No	Police/Fire Departments
Other: Sustainability Manager	Yes	Green Team

### FISCAL CAPABILITY

The table below summarizes financial resources available to the Township of Maplewood.

**Table 9.12-6. 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, Assessment
User Fees for Water, Sewer, Gas or Electric Service	Yes, sewer fees, Water through NJAW, Gas PSEG
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
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	No
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 Township of Maplewood.

**Table 9.12-7. 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?	No
<ul style="list-style-type: none"> <li>Do you have hazard mitigation information available on your website?</li> </ul>	Yes
<ul style="list-style-type: none"> <li>If yes, briefly describe.</li> </ul>	Fire Department Website





Criterion	Response
<ul style="list-style-type: none"> <li>Do you use social media for hazard mitigation education and outreach?</li> </ul>	Yes
<ul style="list-style-type: none"> <li>If yes, briefly describe.</li> </ul>	Facebook, Twitter
<ul style="list-style-type: none"> <li>Do you have any citizen boards or commissions that address issues related to hazard mitigation?</li> </ul>	Yes

### COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Township of Maplewood.

**Table 9.12-8. 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	2019
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 climate change and the jurisdiction’s rating.

The municipality has access to resources to determine the possible impacts of climate change upon the municipality. The township administration is supportive of integrating climate change in policies or actions. Climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality.

**Table 9.12-9. 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	Low
Extreme Temperature	Medium
Flood ( <i>riverine / flash flood, SLR</i> )	Medium
Geological Hazards ( <i>landslides and subsidence/sinkholes</i> )	Low
Severe Storm ( <i>high wind, tornado, TSTM, and hail</i> )	High
Winter Storm ( <i>heavy snow, blizzards, and ice storms</i> )	High
Wildfire	Low
Civil Disorder	Low
Cyber Attack	Low





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Disease Outbreak	Low
Economic Collapse	Medium
Hazardous Substances	Low
Utility Interruption	High
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 9.12-10. National Flood Insurance Program Compliance**

Criterion	Response
What local department is responsible for floodplain management?	Engineering Dept.
Who is your floodplain administrator? (department/position)	Engineering Dept./Township Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2005
Does your floodplain management program meet or exceed minimum requirements?	Meets
• If exceeds, in what ways?	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	CAC: 7/31/2008, GTA: 5/6/2013
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, state what they are.	N/A
Are any RiskMAP projects currently underway in your jurisdiction?	No
• If so, state what they are.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes, FIRM Map
• If no, state why.	N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
• If so, what type of assistance/training is needed?	N/A
Does your jurisdiction participate in the Community Rating System (CRS)?	No
• If yes, is your jurisdiction interested in improving its CRS Classification?	N/A
• If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction?	128
• What is the insurance in force?	\$30,873,100
• What is the premium in force?	\$199,589
How many total loss claims have been filed in your jurisdiction?	105
• How many claims are still open or were closed without payment?	41
• What were the total payments for losses?	\$1,178,060
Do you maintain a list of properties that have been damaged by flooding?	No



Criterion	Response
Do you maintain a list of property owners interested in flood mitigation?	No, addressed as needed

Note: 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 Township of Maplewood made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the HMP and strategy:

- Installation of Emergency Generators throughout most municipal buildings.
- Installation of Emergency Generator transfer switch located at Memorial Library.
- Stabilization of retaining walls along Rahway River along Memorial Park.
- Engineering Department sends out information to homeowners in low-lying areas for installing backflow preventers to prevent sanitary sewer overflows.
- The Township of Maplewood participates in the Sustainable Jersey program and achieved Silver certification. Actions for certification on October 28, 2019 with 440 points were provided in the certification report at [http://www.sustainablejersey.com/certification/participating-communities/certification-report/?tx\\_sjcert\\_certification%5Bcertification%5D%5B\\_identity%5D=777&tx\\_sjcert\\_certification%5Baction%5D=show&tx\\_sjcert\\_certification%5Bcontroller%5D=Certification&cHash=f95ef82f88283109e1092e5f0c94e775](http://www.sustainablejersey.com/certification/participating-communities/certification-report/?tx_sjcert_certification%5Bcertification%5D%5B_identity%5D=777&tx_sjcert_certification%5Baction%5D=show&tx_sjcert_certification%5Bcontroller%5D=Certification&cHash=f95ef82f88283109e1092e5f0c94e775).
- The Township of Maplewood Hilton Branch Library installed a successful rain garden as green infrastructure.

### 9.12.5 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 Township of Maplewood'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 9.12-11 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 9.12-11. 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	<p>Low pressure moving across the deep South on January 21 and January 22 intensified and moved off the Mid Atlantic coast on January 23, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas.</p> <p>At Newark Airport, the storm total snowfall was 24.5 inches, where winds gusted to 39 mph.</p>	<p>No direct losses to the Township during this storm. The Township performed the following activities during the eligible 48-hour period:</p> <p>DPW snow related activities included plowing and clearing of all roadways under the responsibility of the jurisdiction; snow removal from roofs of public facilities and from sidewalks, parking lots, and other areas under the applicant's jurisdiction; salting and sanding of all areas where eligible snow removal has occurred.</p> <p>Maplewood PD patrolled township wide and provided necessary services to protect public health &amp; safety and prevent damage to improved public and private property.</p>



Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
				Maplewood FD employed the necessary personnel to ensure the ability to adequately respond to alarms due to the significant snowfall and lack of availability of mutual aid. Total expenditures by the Township for labor, materials and equipment for emergency protective measures were \$173,594.08, of which \$155,838 were deemed eligible expenses.
3/14/17	Winter Storm	No	Rapidly deepening low pressure tracked up the eastern seaboard on March 14, bringing 8 to 13 inches of heavy snow and sleet, along with strong winds across Northeast New Jersey.	No Losses.
1/4/18	Winter Storm	No	The low pressure rapidly intensified through January 4, as it moved north-northeast along the coast. The rapid intensification of the storm led to heavy snow, strong winds, and near-blizzard conditions across northeast New Jersey, with 8.4 inches of snow and winds gusts of 44 MPH reported at Newark Liberty Airport.	No losses.
3/7/18	Winter Storm	No	A strong low-pressure system tracked along the coast through late March 7 and early morning on March 8 bringing heavy wet snow, strong gusty winds, and thundersnow across northeast New Jersey. Snowfall rates ranged from 1 to 3 inches per hour at times, resulting in 1 to 2 feet, which brought down trees and some power lines.	During this storm the DPW removed 3,744 cubic yards of vegetative debris from roadways for disposal. Total cost for straight time, overtime, equipment and contractor disposal was \$95,382. Emergency protective measures included: The EOC set up by Police provided evacuation operations, sheltered two elderly residents in the EOC with assistance from municipal workers, provided rescues caused by trees falling on homes, and responded to fires caused by down live power lines. Police closed roads and worked with DPW to ensure emergency access routes were passable to best possible given the amount of trees and power lines down. Police and Fire and DPW responded to 35 trees down along with live power lines and numerous road closures and performed wellness checks. Fire Dept. ensured no home fires due to the live power lines entangled on properties, while the Police provided access for Utility Company to repair electrical poles and lines safely. Total cost to the Township was \$64,109.



Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
11/15/18	Winter Storm	No	A wave of low pressure developed along the Middle Atlantic coast November 15. The heavy, wet snow 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, causing many power outages. Newark Airport reported 6.4 inches of snow.	No losses.
1/30/19	Strong Wind	No	Strong winds occurred behind low pressure and cold front, with 30 mph sustained winds measured at Caldwell Airport.	No losses.
3/15/19	Thunderstorm Wind, Hail	No	A cold front moved through the region triggering strong to severe thunderstorms across northeast New Jersey.	No losses.

### 9.12.6 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 9.12-12 summarizes the risk assessment results used to inform 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.

#### REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the Township of Maplewood.

- Number of repetitive loss (RL) properties: 11
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: Unknown

Note: RL and SRL as of 03/31/2019.



Table 9.12-12. 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
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind  Category 1 through Category 4 SLOSH	Category 1:	0	Category 1:	0	100-year Wind Loss:	\$1,875,272	High
		Category 2:	0	Category 2:	0			
		Category 3:	0	Category 3:	0	500-year Wind Loss:	\$13,531,920	
		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:	0	NEHRP D&E:	0	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	\$2,343,955	
						2,500-year Loss:	\$40,300,317	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	2,867	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:	1,337					
Flood	100- and 500-Year Mean Return Period Event	100-year	242	100-year	65	100-year Loss:	\$30,653,851	High
		500-year	242	500-year	545			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	117	Class B:	33	Class B:	\$17,862,543	
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



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
<b>Severe Winter Weather</b>	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
<b>Wildfire</b>	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate
<b>Civil Disorder</b>	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
<b>Cyber Attack</b>	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
<b>Disease Outbreak</b>	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
<b>Economic Collapse</b>	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/rundown.		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 or potable water 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

Maplewood does not have any facilities located in the 1-percent and 0.2-percent floodplains.

**Table 9.12-12. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure	
		1% Event	0.2% Event
No critical facilities or lifelines located in the floodplain			

\*Identified lifeline

### ADDITIONAL IDENTIFIED VULNERABILITIES

According to the preliminary 2014 FEMA Flood Insurance Study (FIS), at the time the FIS for the Township of Maplewood was published, local flooding was due mainly to poor drainage. The storm sewer system was originally designed for 5- to 10-percent-annual-chance storms and the storm sewer could not accommodate rainfall resulting from the 1-percent-annual-chance storm (FEMA FIS 2014).

The Township of Maplewood has sustained damages from floods that have occurred in the past, with the historic floods occurring during July 1901, February 1902, October 1903, August 1927, July 1938, August 1955, September 1971, and August 2, 1973. The damaging storms occurred in Maplewood during the floods of August 2, 1973, and July 1938. The historic flooding occurred during the storm of October 1903; however, because of the absence of development in the community, damages were not as great as those caused by the August 2, 1973 flood (FEMA FIS 2014).

Additionally, the municipality has identified the following hazard problems and/or problem areas:

- Structures located along the stream corridors are subjected to flooding during large storm events.
- Elevate and floodproof Skate House in Memorial Park.
- Clean out and stabilization of Lightning Brook.
- Clean out and stabilization of Crooked Brook.

### HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Township of Maplewood 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 Township of Maplewood has significant exposure; Figure 9.12-1 and Figure 9.12-2. 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 4.3 (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 Township of Maplewood. During the review of the calculated hazard ranking, the Township 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 Township of Maplewood 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 9.12-14. During the review of the hazard ranking, the Township indicated the following:

- The Township changed the hazard ranking for flood from low to medium.

**Table 9.12-13. Township of Maplewood Hazard Ranking Input**

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

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Civil Disorder	Cyber Attack
Low	High	High	Low	Low	Low

Disease Outbreak	Economic Collapse	Hazardous Substances	Utility Interruption	Terrorism	Transportation Failure
Low	Medium	Low	High	Low	Low

### 9.12.7 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 9.12-14. 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 #
Maplewood-1 Obtain backup power for critical facilities to ensure continuity of operations. Locations identified at the time of this HMP update: 1. Maplewood Community Center 2. Maplewood Main Library 3. Maplewood Municipal Building 4. Town Hall	Township OEM	Complete	No	Generators acquired



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 #
5.Community Center 6.Mobile generator for various sites				
Maplewood-2 Repair the Board of Education parking lot damage due to hurricane rains	South Orange and Maplewood School District (SOMSD)	No progress	Yes, TAP grant denied	2020 MAPLEWOOD-001
Maplewood-3 Public building improvements as needed. No specific projects at this time.	Township Engineering	In progress	Fire Station, Memorial Library, Civic House and Skate House Bldgs.	2020 MAPLEWOOD-002
Maplewood-4 Increase drainage capacity of the drainage culvert on Mountain, Maple and Berkley St. to mitigate flooding	Township Engineering	Complete, spent around \$800k	No	-
Maplewood-5 Stream bank improvements to stabilize the banks of Lightning Brook	Township Engineering	No progress	Yes, will cost \$3-\$5M	2020 MAPLEWOOD-003
Maplewood-6 Streambank stabilization of the East Branch of the Rahway River	South Orange and Maplewood School District	No progress	Continue. Complete for park. Private properties are not stabilized. USACE \$10-15M	2020 MAPLEWOOD-004
Maplewood-7 Drainage upgrades in the Orchard Study Area to reduce flooding	Township Engineering	No progress	Yes	2020 MAPLEWOOD-006
Maplewood-8 Drainage upgrades to Wyoming/Jefferson	Township Engineering, FPA	No progress	No	-
Maplewood-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. Assess and prioritize non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as repetitive loss, such as acquisition/relocation, or elevation depending on feasibility. The parameters for feasibility for this initiative would be: funding, benefits versus costs and willing participation of property owners. Implement as funding becomes available.  Although the Township has a limited number of at-risk homes and no specific properties identified at this time, the Township is willing to assist any property owner that seeks help to reduce future damages.	Supervisor's Office	No progress	No, not a priority	-
Maplewood-10 Develop and implement an enhanced all-hazards, public	Township Engineering, FPA	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 #
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 <ul style="list-style-type: none"><li>• Providing information on the Township Website to inform residents about development in flood plains and wetlands. Informing residents about FEMA and how to find information there.</li><li>• Provide information to residents on the Township web site about Emergency Management.</li><li>• Provide emergency notifications to residents through the Code Red system</li></ul>				
Maplewood-11 Develop and implement a post-event damage assessment program, including the following elements: <ul style="list-style-type: none"><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 Township (e.g. building permit process).</li></ul>	FPA	Complete	No, town has mechanism to address	
Maplewood-12 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. See following related Community Assistance Visit (CAV) initiative.	FPA	No progress	No, not a priority	-
Maplewood-13 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	No progress	No, not a priority	-
Maplewood-14 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	FPA	In progress	Yes	2020 MAPLEWOOD-007



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 #
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).				
Maplewood-15 Enhance/expand tree maintenance program and coordination with utilities (e.g., PSEG).	Township Engineering	Complete	No, town and PSEG have increased coordination	-
Maplewood-16 Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	Township	Complete	No, EMS and Fire mutual aid agreements are in place.	-

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

- The Township of Maplewood did not identify mitigation actions that were completed but not identified in the previous HMP.

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

The Township of Maplewood 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 Township of Maplewood 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 9.12-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of Maplewood 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 9.12-17 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update and Table 9.12-18 summarizes the actions by type across hazards of concern..



Table 9.12-15. 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-MAPLE WOOD-001	Emergency Generator OEM Building	Design and Install Backup Generator in OEM Building	Design and construct backup generator for OEM Bldg.	New	Utility Interruption	1.2, 2.1, 6.1	<u>Township Engineering</u>	HMGP Grant	High	\$110,000	Short	High	SIP	PP
2020 MAPLE WOOD-002	Stabilize streambank and floodproof structures along Rahway River	Investigate options, including inventorying structures and inspecting structures and infrastructure	Elevate Civic House, Skate House, Memorial Library, Country Club, and residential houses.	Existing	Flood	1.2, 2.2, 2.3	<u>Township Engineering</u>	HMGP Grant	High	\$500,000	Medium	High	SIP	SP
2020 MAPLE WOOD-003	Stabilize streambank and floodproof structures along Lighting Brook	Properties flood along Lighting Brook and the river is overgrown with vegetation, walls are crumbling	Increase floodproofing of structures and reconstruct walls containing river. Properties include residential houses and limited commercial properties.	Existing	Flood	1.2, 2.2	<u>Township Engineering</u>	HMGP / FMA Grant	High	\$5M	Medium	High	SIP	SP
2020 MAPLE WOOD-004	Fire Headquarters upgrade	Fire Headquarters requires an upgrade and additional space.	Preliminary Plans and needs assessment were completed. \$3M required funding.	New	Flood	1.2, 2.2	<u>Township Fire Department</u>	HMGP / FMA Grant	High	\$3M	Long	High	SIP	PP
2020 MAPLE	Orchard Study Area	The Orchard Study Area	Investigate options for	New	Flood	1.2, 2.2	<u>Township Engineering</u>	HMGP / FMA Grant	High	High	Long	High	SIP	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
WOOD-005		experiences flooding.	drainage improvements, including inventorying structures and inspect structures and infrastructure .											
2020 MAPLE WOOD-006	Crooked Brook	The Crooked Brook experiences flooding.	Investigate options for drainage improvements, including inventorying structures and inspect structures and infrastructure .	New	Flood	1.2, 2.2	<u>Township Engineering</u>	HMGP / FMA Grant	High	High	Long	High	SIP	SP
2020 MAPLE WOOD-007	Floodplain Administrator (FPA) become a Certified Floodplain Manager (CFM).	The FPA is currently not a CFM through the Association of State Floodplain Managers (ASFPM) and New Jersey Association for Floodplain Management (NJAFM).	The FPA will become a CFM.	New	Flood	1.3, 3.3	<u>Township Engineering</u>	Municipal budget	High	Low	Short	Medium	LPR	PR
2020 MAPLE WOOD-008	Storm services planning	Limited DPW resources during events	Investigate options for consistent resources, including developing contracts	New	Winter storm	1.3, 6.1, 6.2	<u>Township Administration</u>	Municipal budget	High	Low	Short	High	SIP	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
			with outside vendors for winter storm services and securing new trucks and snow plows.											
2020 MAPLE WOOD-009	Repair the Board of Education parking lot damage due to hurricane rains	TAP grant was denied.	Apply for grant funding or cost sharing agreement with BOE.	Existing	Flood	1.2, 2.2	<u>Township Administration</u>	BOE Cost sharing	High	High	Long	High	SIP	SP
2020 MAPLE WOOD-010	Sanitary Sewer Improvements	Sanitary sewer lines are partially collapsed, silted up, and cracked leading to I&I into the pipes and leaking of sewage from the pipes.	Assess condition of the sanitary sewer, especially on Maplewood Avenue and at Boyden Avenue. Partial studies have been completed, but the entire town needs to be assessed and prioritized. \$1M for assessment and mapping.	New	Flood	1.2, 2.2	<u>Township Engineering</u>	HMGP / FMA Grant	High	High	Long	High	SIP	SP
2020 MAPLE WOOD-011	Stormwater Conveyance Improvement	Stormwater lines are partially collapsed, silted up, and cracked leading to I&I into the pipes	Map MS4 and develop a plan for addressing maintenance and stormwater flooding.	New	Flood	1.2, 2.2	<u>Township Engineering</u>	HMGP / FMA Grant	High	High	Long	High	SIP	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
		and leaking of sewage from the pipes.												
2020 MAPLE WOOD- 012	Dunnell Road Drainage	Dunnell Road where Fire Headquarters need to egress, floods during extreme events, although not in the flood zone.	Investigate options for reducing flooding on the road to allow for emergency management equipment.	New	Flood	1.2, 6.1, 6.2	Township Engineering	HMGP / FMA Grant	High	High	Long	High	SIP	SP, ES

## 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 9.12-16. 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 Maplewood 001	Emergency Generator OEM Building	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2020 Maplewood 002	Stabilize streambank and floodproof structures along Rahway River.	1	1	1	1	1	1	0	1	1	1	0	1	0	1	11	High
2020 Maplewood 003	Stabilize streambank and floodproof structures along Lighting Brook	1	1	1	1	1	1	0	1	1	1	0	1	0	1	11	High
2020 Maplewood 004	Fire Headquarters upgrade	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020 Maplewood 005	Orchard Study Area	1	1	1	1	1	1	0	1	1	1	0	1	1	0	11	High
2020 Maplewood 006	Crooked Brook	1	1	1	1	1	1	0	1	1	1	0	1	1	0	11	High
2020 Maplewood 007	Floodplain Administrator (FPA) become a Certified Floodplain Manager (CFM).	1	1	1	1	1	1	0	1	1	0	1	1	1	0	11	High
2020 Maplewood 008	Storm services planning	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2020 Maplewood 009	Repair the Board of Education parking lot damage due to hurricane rains	1	1	1	1	0	1	0	1	1	1	1	1	0	0	10	High
2020 Maplewood 010	Sanitary Sewer Improvements	1	1	1	1	1	1	0	1	1	1	0	1	1	0	11	High
2020 Maplewood 011	Stormwater Conveyance Improvement	1	1	1	1	1	1	0	1	1	1	0	1	1	0	11	High
2020 Maplewood 012	Dunnell Road Drainage	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

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



Table 9.12-17. 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 and Sea Level Rise	-	-	-	-	-	-	-	-
Coastal Storm	-	x		x	x	x	x	x
Drought	-	-	-	-	-	-	-	-
Earthquake	-	-	-	-	-	-	-	x
Extreme Temperature	-	-	-	-	-	-	-	x
Flood	x	x	-	x	x	x	x	x
Geological hazards	x	x	-	x	-	-	-	-
Severe Weather	x	x	-	x	x	x	x	x
Severe Winter Weather	x	x	-	x	x	x	x	x
Wildfire	-	-	-	-	-	-	-	x
Civil Disorder	-	-	-	-	-	-	-	x
Cyber Attack	-	-	-	-	-	-	-	-
Disease Outbreak	-	-	-	-	-	-	-	-
Economic Collapse	-	-	-	-	-	-	-	-
Hazardous Substances	x	x	-	-	x	-	-	x
Utility Interruption	x	x	-	-	x	x	x	x
Terrorism	-	-	-	-	-	-	-	x
Transportation Failure	-	-	-	-	x	-	-	x

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

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

The Township of Maplewood 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 9.12-18. Contributors to the Annex

Entity	Title	Method of Participation
Sonia Alves-Viveiros	Business Administrator	Primary POC, attended 1 <sup>st</sup> and 2 <sup>nd</sup> meeting, reviewed plan
Jim DeVaul	Police Chief	Secondary POC, Attended 1 <sup>st</sup> meeting, reviewed plan
Michael Dingelstedt	Fire Chief	Attended 1 <sup>st</sup> and 2 <sup>nd</sup> meeting, reviewed plan
Paul J. Kittner Jr	Township Engineer	Attended 1 <sup>st</sup> and 2 <sup>nd</sup> meeting, reviewed plan
Len Mendola	Construction Official	Attended 1 <sup>st</sup> and 2 <sup>nd</sup> meeting, reviewed plan



Entity	Title	Method of Participation
Husam Zeidan	Asst. Township Engineer	Attended 2 <sup>nd</sup> meeting.
Calvin Bell	Public Works Director	Attended 2 <sup>nd</sup> meeting.

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Figure 9.12-1. Township of Maplewood Hazard Area Extent and Location Map

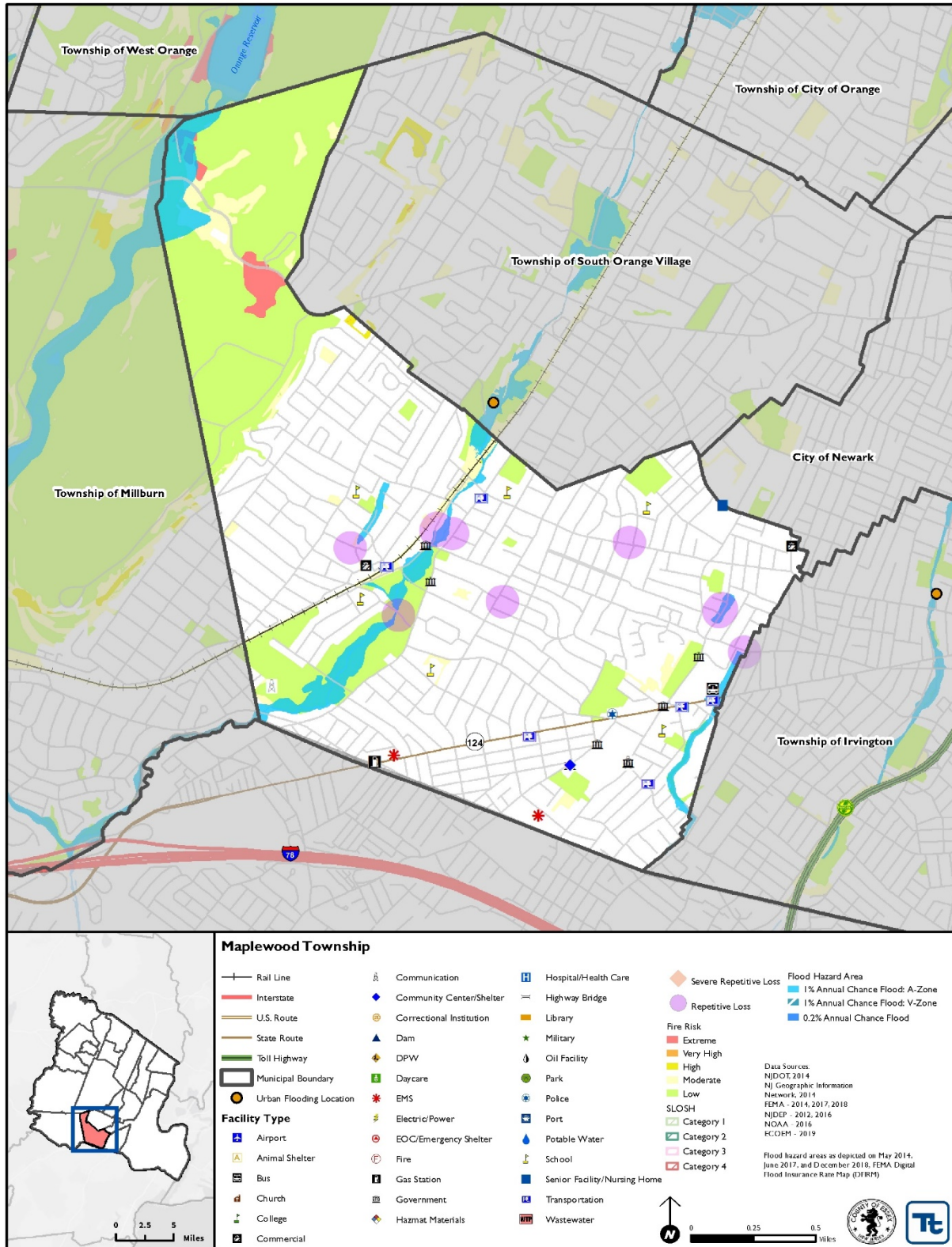
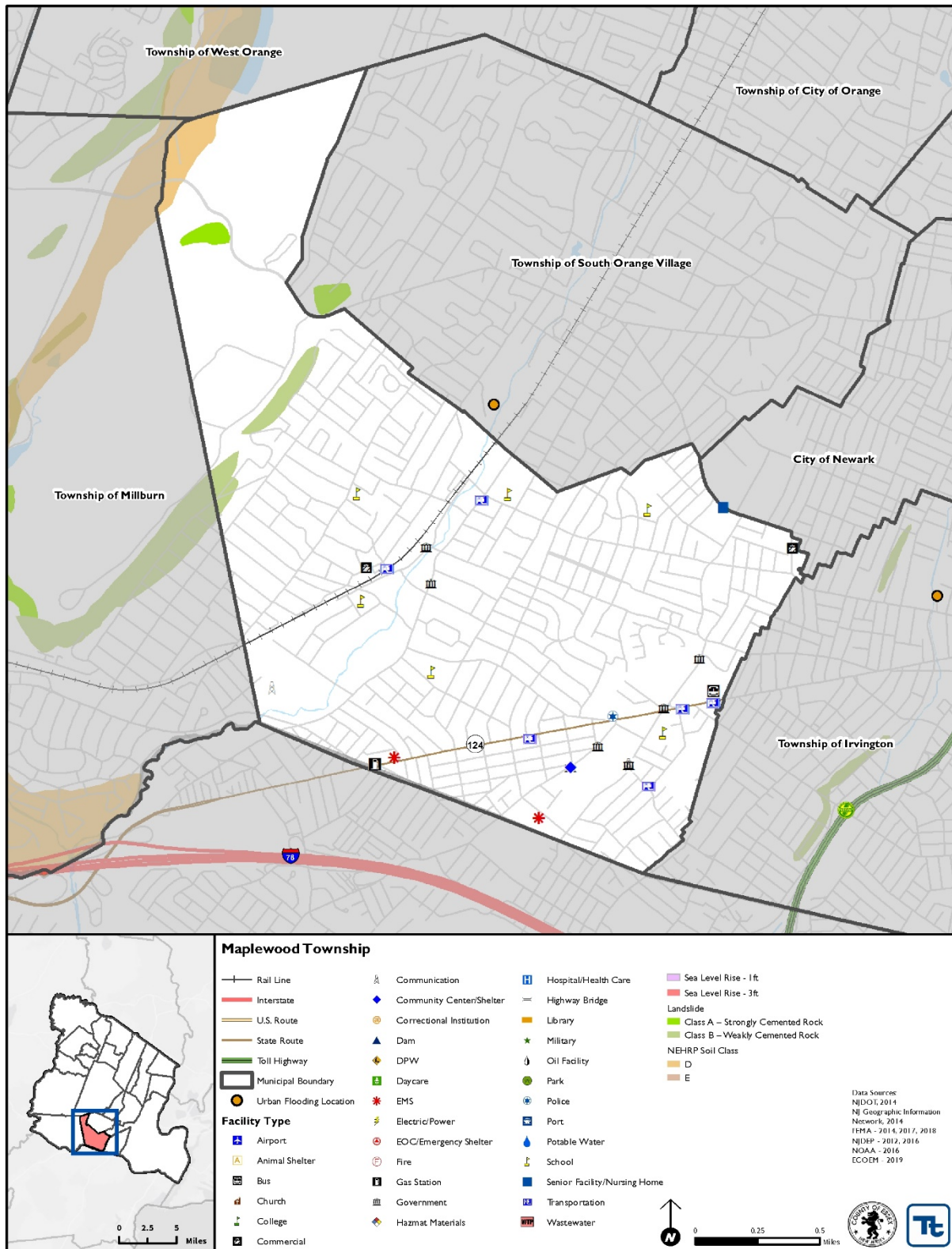






Figure 9.12-2. Township of Maplewood Hazard Area Extent and Location Map 2







Name of Jurisdiction:

Township of Maplewood

Name and Title Completing Worksheet:

Paul Kittner, Jr. / Township Engineer

Action Worksheet			
Project Name:	Sanitary Sewer Infrastructure Resiliency		
Project Number:	2020-MAPLEWOOD-010		
Risk / Vulnerability			
Hazard(s) of Concern:	Flooding		
Description of the Problem:	Aging infrastructure is susceptible to ground water intrusion and infiltration/inflow from greater rainfall. Siltation is reducing the capacity of the system.		
Action or Project Intended for Implementation			
Description of the Solution:	Phase 1: Evaluate approximately 54 miles of sanitary sewer mains. Phase 2: Perform repairs of all deficiencies.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	n/a	Estimated Benefits (losses avoided):	Loss of power
Useful Life:	50+ years	Goals Met:	1.2, 2.1
Estimated Cost:	Phase 1: \$1m Phase 2: 10-15m	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Short
Estimated Time Required for Project Implementation:	Medium	Potential Funding Sources:	HMGP, PDM grant, NJ EIT
Responsible Organization:	Township Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Township bond
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install new sewer	\$20-50m	Cost prohibitive
	Update existing sewer	\$10-15m	Perform phases 1 and 2.
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 Maplewood

Name and Title Completing Worksheet:

Paul Kittner / Township Engineer

Action Worksheet		
Project Name:	Sanitary Sewer Infrastructure Resiliency	
Project Number:	2020-MAPLEWOOD-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Sewer backups can affect health and groundwater quality
Property Protection	1	Prevent backups and flooding
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	Repairing infrastructure reduces lawsuits.
Fiscal	0	
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction:

Township of Maplewood

Name and Title Completing Worksheet:

Paul Kittner / Township Engineer

Action Worksheet			
Project Name:	Repair the Board of Education parking lot damage due to hurricane rains		
Project Number:	2020 MAPLEWOOD-009		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The BOE parking lot between Jefferson Ave and West Parker Road is damaged from stream bank erosion from previous storm events. Access to parking lot is compromised.		
Action or Project Intended for Implementation			
Description of the Solution:	Stabilize streambank using NJDEP-approved method. Secure permits. Develop plans and evaluate bid award.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	High	Estimated Benefits (losses avoided):	Reduced damage, roads are not closed or flooded
Useful Life:	25+ years	Goals Met:	1.2, 2.2, 2.3
Estimated Cost:	\$1M	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Short
Estimated Time Required for Project Implementation:	Long	Potential Funding Sources:	HMGP, PDM grants, BOE Funding
Responsible Organization:	Township 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
	Bank stabilization	High	Have shovel-ready project
	Buy out properties	High	Not feasible
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 Maplewood

Name and Title Completing Worksheet:

Paul Kittner / Township Engineer

Action Worksheet		
Project Name:	Stabilize streambank and floodproof structures along Rahway River	
Project Number:	2020 MAPLEWOOD-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	NJ Transit RR is near area of erosion
Property Protection	1	Will reduce flooding and erosion
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	
Environmental	1	
Social	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	Want to provide bike path and walking path to connect train stations.
Total	9	
Priority (High/Med/Low)	High	