



## 9.6 CITY OF EAST ORANGE

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

### 9.6.2 Hazard Mitigation Planning Team

The following individuals are the City of East Orange’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

*Table 9.6-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name / Title: Solomon Steplight, OEM Coordinator Address: 44 City Hall Plaza, East Orange NJ, 07018 Phone Number: 973-266-5310 Email: Solomon.Steplight@eastorange-nj.gov	Name / Title: R. David Williams, Deputy OEM Coordinator Address: 402 Springdale Ave. East Orange NJ, 07018 Phone Number: 973-266-5507 Email: David.Williams@eastorange-nj.gov
NFIP Floodplain Administrator	
Name / Title: Christopher Coke, Director of Public Works Address: 44 City Hall Plaza, East Orange NJ, 07018 Phone Number: 973-266-5330 Email: Christopher.Coke@eastorange-nj.gov	

### 9.6.3 Jurisdiction Profile

The City of East Orange separated from Orange in 1863 (City of East Orange, 2014). The East Orange Public Library system once included three of the thirty-six Carnegie-funded libraries in New Jersey. Parts of East Orange fall into an Urban Enterprise Zone where purchases made at specific merchants are taxed at 3.5 percent instead of the statewide 7 percent. According to the U.S. Census Bureau, the City has a total land area of 3.924 square miles, of which 3.924 square miles is land and 0 square miles is water.

According to the U.S. Census, the 2010 population for the City of East Orange was 64,270. The estimated 2017 population was 65,151, which is a 1.4 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 6.4 percent of the City population is five years of age or younger, and 12.7 percent is 65 years of age or older. 24 percent of the population is estimated to be below the poverty line. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

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

### 9.6.4 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 9.6-2 summarizes recent and expected future development trends including major residential/commercial



development and major infrastructure development. Refer to Figure 9.6-1 at the end of this annex which illustrates the geographically-delineated hazard areas and the location of potential new development, where available.

**Table 9.6-2. 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	0	4	2		0
Multi-Family	0	1	5	3	3
Other (commercial, mixed-use, etc.)	0	5	3	3	3
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>					
None identified					
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
None anticipated					

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

## 9.6.5 Capability Assessment

The City of East Orange performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan 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 City of East Orange.

**Table 9.6-3. Planning, Legal and Regulatory Capability**

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? 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	Local and State	Yes	-	-
Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Administered by the East Orange Building Department					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<b>Zoning Code</b>	Yes	Local and State	Yes	-	-
<i><b>Comment:</b> Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 50, Updated 2013. Administered by the Planning Department.</i>					
<b>Subdivisions</b>	Yes	Local and State	Yes	-	-
<i><b>Comment:</b> State mandated - P.L.1975, c.291 (C.40:55D-47): 40:55D-37. Grant of power; referral of proposed ordinance; county planning board approval . Dictated by the Municipal Land Use Law. NJ Statute 40:27-6.2 The board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section. Chapter 50, Updated 2013. Administered by the Planning Department.</i>					
<b>Stormwater Management</b>	Yes	Local	Yes	-	-
<i><b>Comment:</b> Title 7 of the NJ Administrative Code (N.J.A.C. 7:8). Ordinance #15, adopted NJ DEP rules. Administered by the Department of Public Works.</i>					
<b>Post-Disaster Recovery</b>	No	-	-	-	-
<i><b>Comment:</b></i>					
<b>Real Estate Disclosure</b>	Yes	State – Division of Consumer Affairs	Yes	-	-
<i><b>Comment:</b> N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
<b>Growth Management</b>	No	-	Yes	-	-
<i><b>Comment:</b> State mandated at local level</i>					
<b>Shoreline Development</b>	No	-	Yes – if coastal community	-	-
<i><b>Comment:</b> NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
<b>Site Plan Review</b>	Yes	Local	Yes	-	-
<i><b>Comment:</b> Chapter 50. Administered by the Planning Department.</i>					
<b>Environmental Protection</b>	No	-	Yes	-	-
<i><b>Comment:</b> The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code.</i>					
<b>Flood Damage Prevention</b>	Yes	Local	No	-	-
<i><b>Comment:</b> Chapter 150 Floodplain Management adopted 1988. Administered by the City Construction Official.</i>					
<b>Wellhead Protection</b>	No	-	-	-	-
<i><b>Comment:</b> Regulatory requirements related to wells are managed through NJDEP</i>					
<b>Emergency Management</b>	No	-	-	-	-
<i><b>Comment:</b></i>					
<b>Climate Change</b>	No	-	-	-	-
<i><b>Comment:</b></i>					
<b>Disaster Recovery Ordinance</b>	No	-	-	-	-
<i><b>Comment:</b></i>					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<b>Disaster Reconstruction Ordinance</b>	No	-	-	-	-
<b>Comment:</b>					
<b>Other</b>	No	-	-	-	-
<b>Comment:</b>					
<b>Planning Documents</b>					
<b>Comprehensive / Master Plan</b>	Yes	Local	Yes	Yes	-
<b>Comment:</b> East Orange Master Plan, 2018. The Master Plan contains Elements on Demographics, Land Use, Economic Development, Circulation, Housing, Community Facilities, Sustainability, Recycling, Historic Preservation, and a Parks Master Plan. Information is included on storm resiliency, smart growth, and environmental sustainability in the Land Use Element. Transportation failure is discussed in the Circulation element. The Sustainability element discusses the differences between sustainability and resiliency and covers green stormwater infrastructure.					
<b>Capital Improvement Plan</b>	No	-	Allowed	-	-
<b>Comment:</b> Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon.					
<b>Disaster Debris Management Plan</b>	Yes	Local	No	-	-
<b>Comment: Debris Management Plan</b>					
<b>Floodplain or Watershed Plan</b>	No	-	No	-	-
<b>Comment:</b>					
<b>Stormwater Management Plan</b>	No	Local and State	Yes	-	-
<b>Comment:</b> Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Local and State	Yes	-	-
<b>Comment:</b>					
<b>Urban Water Management Plan</b>	No	-	No	-	-
<b>Comment:</b>					
<b>Habitat Conservation Plan</b>	No	-	No	-	-
<b>Comment:</b>					
<b>Economic Development Plan</b>	Yes	Local	No	Yes	-
<b>Comment:</b> Economic Development element of Master Plan. 2018.					
<b>Shoreline Management Plan</b>	No	-	No	-	-
<b>Comment:</b>					
<b>Community Wildfire Protection Plan</b>	No	-	No	-	-
<b>Comment:</b>					
<b>Community Forest Management Plan</b>	No	-	No	-	-
<b>Comment:</b>					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<b>Transportation Plan</b>	Yes	Local	No	Yes	-
<i>Comment: Circulation element of Master Plan. 2018.</i>					
<b>Agriculture Plan</b>	No	-	No	-	-
<i>Comment:</i>					
<b>Climate Action Plan</b>	Yes	Local	No	Yes	-
<i>Comment: Sustainability element of Master Plan. 2018.</i>					
<b>Tourism Plan</b>	No	-	No	-	-
<i>Comment:</i>					
<b>Business Development Plan</b>	Yes	-	No	Yes	-
<i>Comment: Economic Development element of Master Plan. 2018.</i>					
<b>Other</b>	No	-	No	-	-
<i>Comment:</i>					
<b>Response/Recovery Planning</b>					
<b>Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)</b>	Yes	Local	Yes	-	-
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9 43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. Comprehensive Emergency Management Plan 2013 Administered by Emergency Management.</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	Yes	-	-	-	-
<i>Comment:</i>					
<b>Post-Disaster Recovery Plan</b>	No	-	No	-	-
<i>Comment:</i>					
<b>Continuity of Operations Plan</b>	Yes	Local	No	-	-
<i>Comment: Within CEMP.</i>					
<b>Public Health Plan</b>	Yes	Local	No	-	-
<i>Comment: Administered by Health and Human Services</i>					
<b>Other</b>	No	-	No	-	-
<i>Comment:</i>					

**Table 9.6-4. Development and Permitting Capability**

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



Criterion	Response
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. The City maintains City owned property list by lot size, structure, and zone.

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**ADMINISTRATIVE AND TECHNICAL CAPABILITY**

The table below summarizes potential staff and personnel resources available to the City of East Orange.

**Table 9.6-5. Administrative and Technical Capabilities**

Staff/Personnel Resource	Available?	Department/Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	Yes	LEPC
Environmental Board / Commission	No	-
Open Space Board / Committee	Yes	Recreation & Cultural Affairs, Municipal Recreation and Open Space Advisory Board
Economic Development Commission / Committee	Yes	Economic Development Division of Department of Policy, Planning and Development
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse 911, social media
Maintenance program to reduce risk	Yes	Public Works - Shade Tree
Mutual aid agreements	Yes	Fire Department
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works
Planners or engineers with an understanding of natural hazards	Yes	Public Works
Staff with training in benefit/cost analysis	Yes	City Administrator
Surveyors	Yes	Public Works
Personnel skilled or trained in GIS applications	Yes	Public Works
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Emergency Management
Grant writers	Yes	Planning Department
Resilience Officer	No	-
Other	No	-

**FISCAL CAPABILITY**

The table below summarizes financial resources available to the City of East Orange.

**Table 9.6-6. Fiscal Capabilities**

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes - Planning Department
Capital Improvements Project Funding	Yes - Finance Department
Authority to Levy Taxes for Specific Purposes	Yes - City Council
User Fees for Water, Sewer, Gas or Electric Service	Yes - Water Department
Incur Debt through General Obligation Bonds	Yes - City Council & Water Department
Incur Debt through Special Tax Bonds	Yes - Parking Department, Housing, and Water Commission
Incur Debt through Private Activity Bonds	Yes - City Council & Water Department
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No





Financial Resource	Accessible or Eligible to Use?
Other	No

### EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the City of East Orange.

**Table 9.6-7. 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? • If yes, briefly describe.	Yes
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, Facebook, Twitter, and Instagram
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes, LEPC
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	No
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes: Reverse 911, Social Media

### COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the City of East Orange.

**Table 9.6-8. 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	Class 2	May 2017
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 referred to while discussing climate change adaptation; however, it also provides 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.

**Table 9.6-9. Adaptive Capacity of Climate Change**

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





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Extreme Temperature	Low
Flood	Low
Geological Hazards	Low
Severe Weather	Medium
Winter Storm	Medium
Wildfire	Low
Civil Disorder	Low
Cyber Attack	Low
Disease Outbreak	Medium
Economic Collapse	Low
Hazardous Substances	Medium
Utility Interruption	Low
Terrorism	Medium
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 9.6-10. National Flood Insurance Program Compliance**

Criterion	Response
What local department is responsible for floodplain management?	Property Maintenance
Who is your floodplain administrator? (name, department/position)	Christopher Coke, Director/DPW
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	1988
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	10/31/2019
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<input type="checkbox"/> If so, what type of assistance/training is needed?	-
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No, not interested
How many flood insurance policies are in force in your jurisdiction?*	57 policies in force
• What is the insurance in force? • What is the premium in force?	
How many total loss claims have been filed in your jurisdiction?*	57 claims; \$295,880 in total payments
• How many claims are still open or were closed without payment? • What were the total payments for losses?	
Do you maintain a list of properties that have been damaged by flooding?	Yes



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

\*According to FEMA statistics as of 3.31.2019

#### ADDITIONAL AREAS OF EXISTING INTEGRATION

- **Property Maintenance:** The mission of the Department of Property Maintenance is to promote the appreciation, preservation and revitalization of East Orange's properties, communities and landscapes. To achieve its mission, the Department's team of hands-on professionals will provide prompt, courteous customer service focused on providing solutions to property maintenance concerns about residential, commercial, vacant, and abandoned properties.
- **Office of Emergency Management:** The mission of the East Orange Office of Emergency Management is to provide effective and professional assistance to other city departments, the East Orange School District, Hospitals and private sector by aiding them in their planning and preparation for emergencies and by responding to incidents, consistent with the policies of the City of East Orange, Essex County Office of Emergency Management and the New Jersey State Police Office of Emergency Management. The East Orange Office of Emergency Management (OEM) coordinates the plans and operations of the various components of the emergency operations plan:
  - Community Emergency Response Team (CERT) volunteers
  - Emergency medical service
  - Emergency warning system
  - Fire
  - Police
  - Public health
  - Public information
  - Public works
  - And many other groups who assist during emergencies
- **Office of Public Information:** The City of East Orange's Office of Public Information:
  - Fosters positive relationships with local and national media and provides timely, proactive and responsive information to media inquiries
  - Manages marketing and branding for all major citywide initiatives
  - Writes and copy edits external communications from the Mayor's Office
  - Actively promotes city projects, programs and initiatives using traditional and social media

#### 9.6.6 Hazard Event History Specific to the Jurisdiction

Essex County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Essex County and its jurisdictions. The City of East Orange'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 9.6-11 provides details regarding municipal-specific loss and damages the City experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.



Table 9.6-11. 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 21st and Friday January 22nd intensified and moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. At Newark Airport, the storm total snowfall was 24.5 inches, where winds gusted to 39 mph. Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. The storm resulted in scattered debris and damages and multiple power outages reported. By mid-afternoon all major roadways were cleared of snow and debris.

Notes:

### 9.6.7 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. The following summarizes the hazards of greatest concern and risk to the City of East Orange. Table 9.6-12 summarizes the risk assessment results and information used to inform the hazard ranking.

#### REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the City of East Orange.

- Number of repetitive loss (RL) properties: 3
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: Unknown

Note: The number of SRL properties excludes RL properties.

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



Table 9.6-12. 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:	\$4,641,046	High
		Category 2:	0	Category 2:	0			
	Category 1 through Category 4 SLOSH	Category 3:	0	Category 3:	0	500-year Wind Loss:	\$36,595,336	
		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:	1,469	NEHRP D&E:	282	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	\$4,678,812	
						2,500-year Loss:	\$77,459,497	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	8,254	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:	12,422					
Flood	100- and 500-Year Mean Return Period Event	100-year	349	100-year	50	100-year Loss:	\$66,066,174	High
		500-year	349	500-year	545			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	



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:	0	Wildfire:	0	Wildfire:	\$0	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



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population	Buildings	Economy (Loss)	Certainty Factor
<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/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
<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 AND LIFELINES

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

**Table 9.6-13. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
No critical facilities located in floodplain					

Source:

Note:

\*Identified lifeline

### ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- The water pumping station in East Orange needs a backup generator and is an area prone to Utility Interruptions.
- The City has limited pumps, mobile generators, and fixed generators.
- The City has a limited number of trained personnel and inadequate equipment.
- Police pistol range is in flood prone area and has suffered repeated losses
- The City needs a water tender/tanker to supply water during an emergency.
- The Johnnie L. Cochran Jr. Academy Elementary School is located in a NEHRP soils D&E zone.
- There are three NFIP repetitive loss properties located in East Orange.

### HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of East Orange 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 considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the City of East Orange has significant exposure.

### 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, along with its potential impacts on people, property, and the economy as well as 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 Hudson 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 City of East Orange. The City of East Orange has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.





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

- The City changed the calculated hazard ranking of flood from low to high.
- The City changed the calculated hazard ranking of cyber attack from low to high.
- The City changed the calculated hazard ranking of transportation failure from low to high.

**Table 9.6-14. City of East Orange Hazard Ranking Input**

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

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

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

### 9.6.8 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their 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 may also be found under 'Capability Assessment' presented previously in this annex.

**Table 9.6-15. 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 #
East Orange -1: "Obtain sources of backup power for critical facilities to ensure continuity of operations. The following are currently identified: 1. East Orange Fire Station 2 generator 2. East Orange Fire Station 3 generator	East Orange OEM	In Progress	X	2020-East Orange-006



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 #
3. East Orange Fire Station 5 generator 4. East Orange City garage generator"				
East Orange-2: Reconstruction of Second River channel walls; design phase funded for replacement channel structure, construction unfunded	Department of Public Works	No Progress (funding shortage of \$1.5million)	X	East Orange-007
East Orange-3: Continue to have dialog with NJ Transit to address parking capacity, address flooding of train station viaducts and underpasses	Engineering	No Progress	X	2020-East Orange-008
East Orange-4: Evaluate Stormwater capacity City wide and develop mitigation actions to address flooding in areas of: (list areas) 2008 Roadway infrastructure action revised	Engineering	Ongoing		
East Orange-5: Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what they can do in the way of mitigation and preparedness, including flood insurance. This program will include: •Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. •Including natural hazard risk and risk reduction information through social media channels and email blast systems. •Posting of flyers and other readily available NFIP informational materials at City Hall or distributing at regular civic meetings. •Preparation, distribution and analysis of public surveys. •Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. •Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts.	City Supervisor's Office	Ongoing		
East Orange-6: Develop and implement a post-event damage assessment program, including the following elements: •Conduct public outreach/education (see Public Education and Awareness Initiatives above) to inform property owners of the need to report property	East Orange OEM	Completed		



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 #
damage and obtain required permitting when making repairs. • Develop and organize local resources to conduct post-event damage assessments, including substantial damage determinations as warranted. • Develop an inventory (file system and/or database) of losses (incl. loss of service, property damage, economic losses, etc.) as reported to and/or identified by the City (e.g. building permit process).				
East Orange-7: Enhance/expand tree maintenance program (under contract with current vendor) and coordination with PSEG utility.	Engineering	Completed		
East Orange-8: Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	East Orange	Completed/ Maintained		

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

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

The City of East Orange participated in a risk assessment workshop in September 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The City of East Orange was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson 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). Refer to Section 6 and Appendix H (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.6-16 summarizes the comprehensive-range of specific mitigation initiatives the City of East Orange would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six 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 your actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.6-17 provides a summary of the prioritization of all proposed mitigation initiatives and Table 9.6-18 summarizes the actions by type across hazards of concern.

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Table 9.6-16. 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-East Orange-001	Backup generator for water pumping station	Water pumping station lacks backup power	The city will purchase and install a backup generator for the water pumping station	Existing	Utility Interruption	6	Public Works	Municipal budget, HMGP	Water supply maintained	\$75,000	Within 5 years	High	SIP	PP
2020-East Orange-002	Develop plan to acquire emergency equipment	The city has limited pumps, mobile generators, and needs a water tender/tanker.	The city will develop a plan to identify how many standby pumps and generators are needed to service high priority areas and fund the purchase of equipment. The city will also purchase a water tender/tanker.	N/A	Utility Interruption, Flood, Severe Storm, Severe Winter Storm, Wildfire	5	OEM, Public Works	Municipal budget, HMGP, Assistance to Fire Fighters Grant Program	Staff have appropriate equipment for emergencies.	TBD by results of planning period	Within 5 years	High	SIP	ES
2020-East Orange-003	Feasibility assessment for police pistol range	The police pistol range is located in a flood prone area and has suffered	The city will conduct a feasibility assessment to determine the best mitigation	Existing	Flood	2	FPA, Police Department	Municipal budget, PDM, HMGP	Future damages avoided	TBD by selected action	Within 5 years	High	SIP	PP



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
		repeated losses.	action (floodproof, elevate, relocate) to protect the range and implement the identified action.											
2020-East Orange-004	Outreach to Johnnie L. Cochran Jr. Academy Elementary School.	The Johnnie L. Cochran Jr. Academy Elementary School is located in a NEHRP soils D&E zone.	The city will contact the school facility manager to alert them of the school's location in the D&E zone and discuss possible mitigation actions.	Existing	Earthquake, Geological Hazard	1, 2, 3	City of East Orange	Municipal budget	Facility manager made aware of risk and educated.	\$100	Within 1 year	High	EAP	PI
2020-East Orange-005	Mitigate flood-prone properties, including RL properties	There are three NFIP repetitive loss properties located in East Orange.	The city will conduct outreach to 15 flood-prone property owners including RL properties and help identify funding for mitigation.	Existing	Flood	2	FPA	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1.5 Million	3 years	High	SIP	PP



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-East Orange-006	Obtain sources of backup power for critical facilities to ensure continuity of operations	The following are currently identified as lacking backup power sources: 1. East Orange Fire Station 2 2. East Orange Fire Station 3 3. East Orange Fire Station 5 4. East Orange City garage	The city will obtain sources of backup power for critical facilities to ensure continuity of operations. The following are currently identified: 1. East Orange Fire Station 2 generator 2. East Orange Fire Station 3 generator 3. East Orange Fire Station 5 generator 4. East Orange City garage generator	Existing	Utility Interruption	6	East Orange OEM	HMGP, municipal budget	Critical services maintained	\$120,000	5 years	High	SIP	ES
2020-East Orange-007	Reconstruction of Second River channel walls	Second River channel walls are degraded. The design phase is already	Reconstruction of Second River channel walls; design phase funded for replacement	Existing	Flood	1, 2	Department of Public Works	HMGP, FMA	Channel wall failure reduced. Flood risk reduced.	\$1.5 million	5 years	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
		funded for replacement channel structure.	channel structure.											
2020-East Orange-008	Work with NJ Transit to address flooding	Train station viaducts and underpasses are prone to flooding	Continue to have dialog with NJ Transit to address parking capacity, address flooding of train station viaducts and underpasses	Existing	Flood	1, 2, 6	Engineering	NJ Transit	Flood risk to NJ Transit facilities reduced	\$500 for staff time	5 years	High	SIP	PP

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. Such 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. These 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. Such 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 9.6-17. 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-East Orange-001	Backup generator for water pumping station	1	0	1	1	1	1	0	1	1	1	0	0	1	1	10	High
2020-East Orange-002	Develop plan to acquire emergency equipment	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2020-East Orange-003	Feasibility assessment for police pistol range	0	1	1	1	1	1	0	1	1	1	0	0	1	1	10	High
2020-East Orange-004	Outreach to Johnnie L. Cochran Jr. Academy Elementary School.	1	1	1	0	1	0	1	1	1	1	1	1	0	1	11	High
2020-East Orange-005	Mitigate flood-prone properties, including RL properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-East Orange-006	Obtain sources of backup power for critical facilities to ensure continuity of operations	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	High



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-East Orange-007	Reconstruction of Second River channel walls	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2020-East Orange-008	Work with NJ Transit to address flooding	0	1	1	1	1	0	1	1	1	1	0	0	1	1	12	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).



Table 9.6-18. 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 and Sea Level Rise								
Coastal Storm								
Drought								
Earthquake			2020-East Orange-004					
Extreme Temperature								
Flood		2020-East Orange-003, 2020-East Orange-005, 2020-East Orange-008			2020-East Orange-002	2020-East Orange-007		2020-East Orange-008
Geological Hazards			2020-East Orange-004					
Severe Weather					2020-East Orange-002			
Winter Storm					2020-East Orange-002			
Wildfire					2020-East Orange-002			
Civil Disorder								
Cyber Attack								
Disease Outbreak								
Economic Collapse								
Hazardous Substances								
Utility Interruption		2020-East Orange-001			2020-East Orange-002, 2020-East Orange-006			
Terrorism								
Transportation Failure								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

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

The City of East Orange followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. 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 9.6-19. Contributors to the Annex**

Entity	Title	Method of Participation
Solomon Steplight	OEM Coordinator	Primary point of contact
David Williams	Deputy OEM Coordinator	Reviewed annex, provided impact data, contributed to the mitigation strategy.
Natasha Ortiz	Grants Management Assistant, Division of Grants, Office of the City Administrator	Reviewed annex, provided impact data, contributed to the mitigation strategy, reviewed the draft and provided comments.

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Figure 9.6-1. City of East Orange Hazard Area Extent and Location Map

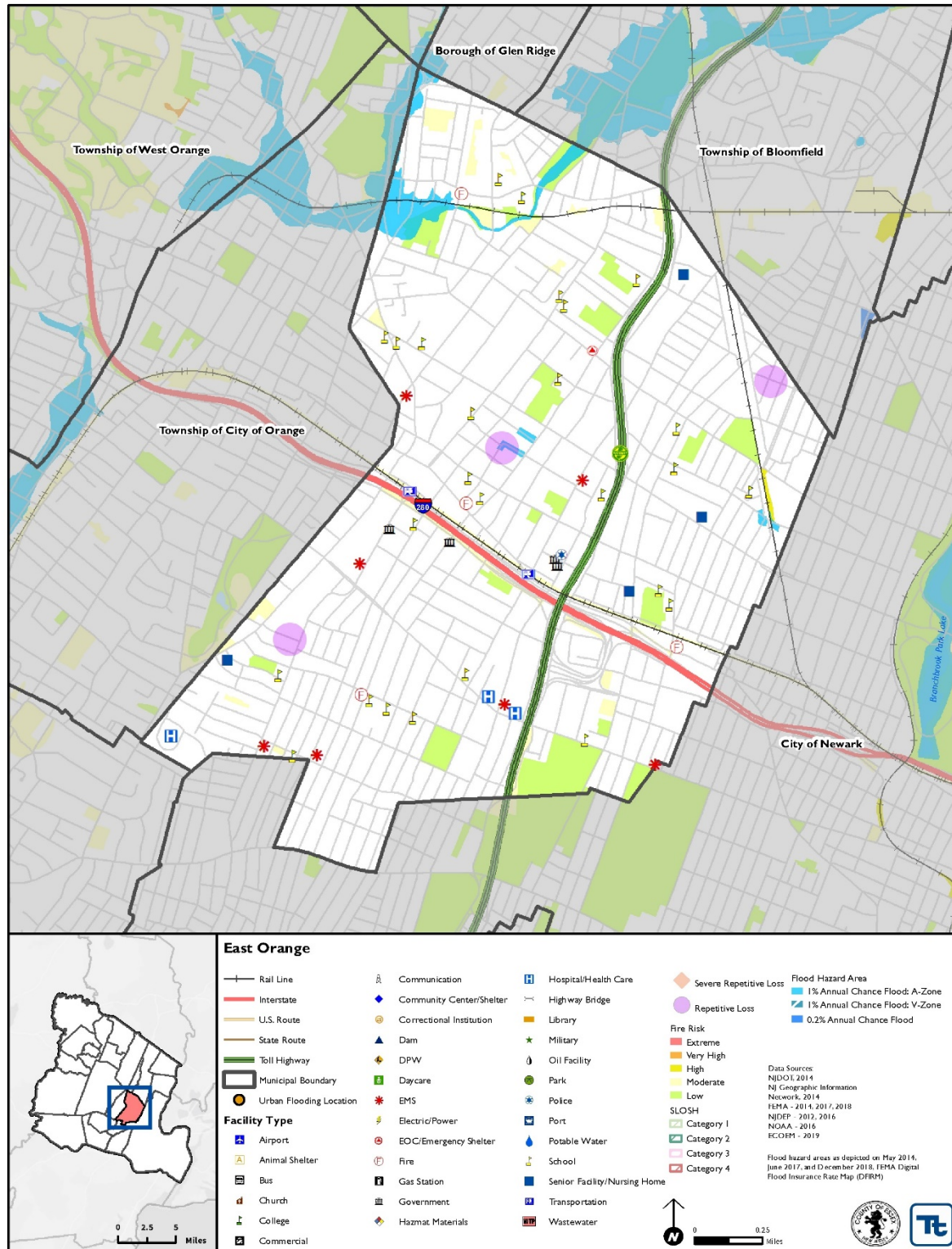
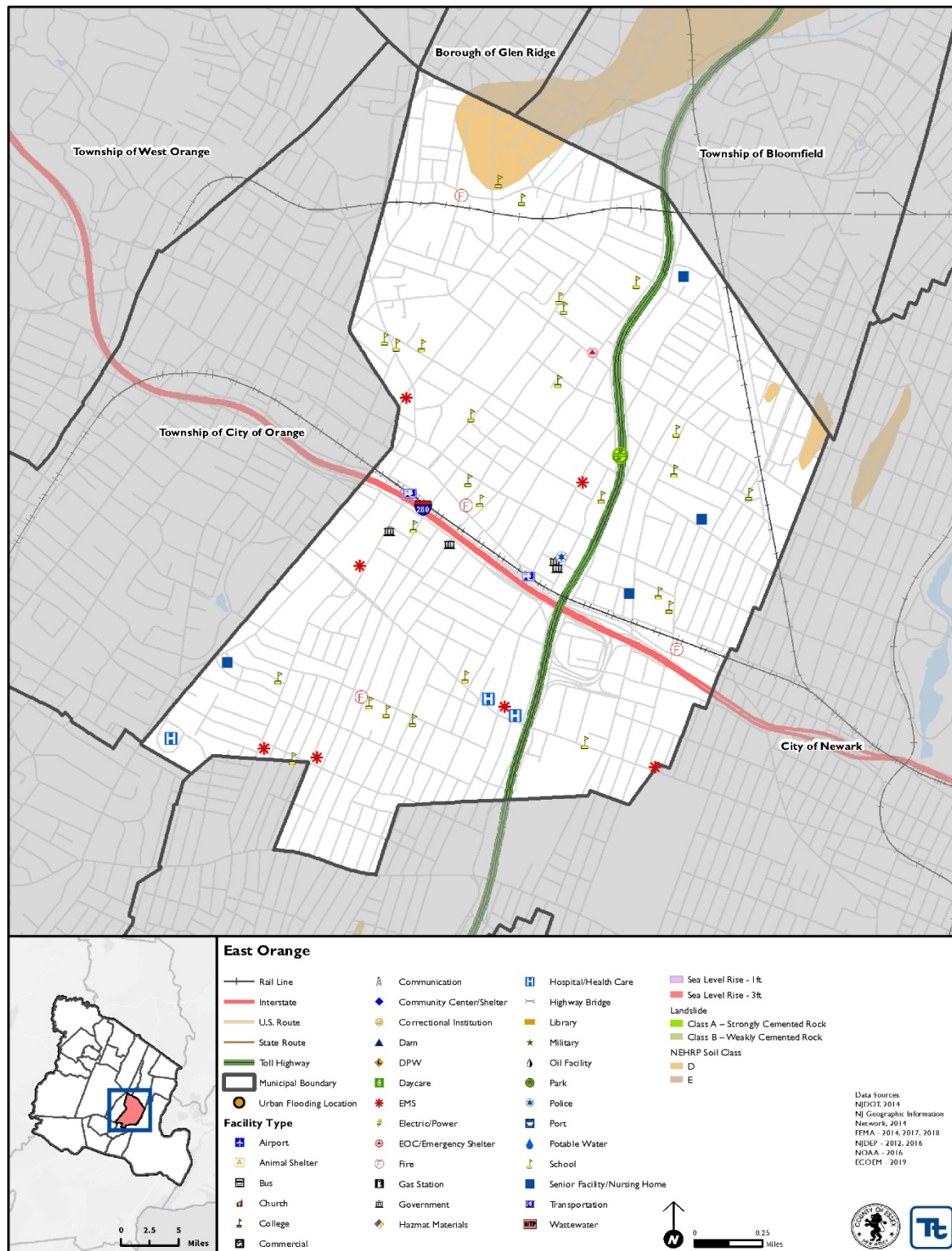






Figure 9.6-2. City of East Orange Hazard Area Extent and Location Map 2







Action Worksheet			
Project Name:	Feasibility assessment for police pistol range		
Project Number:	2020-East Orange-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The police pistol range is located in a flood prone area and has suffered repeated losses.		
Action or Project Intended for Implementation			
Description of the Solution:	The city will conduct a feasibility assessment to determine the best mitigation action (floodproof, elevate, relocate) to protect the range and implement the identified action.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	1-percent storm plus one foot	Estimated Benefits (losses avoided):	Future damages to facility avoided
Useful Life:	50 years	Goals Met:	2
Estimated Cost:	TBD by feasibility assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	Municipal budget, PDM, HMGP
Responsible Organization:	FPA, Police Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Close pistol range	N/A	Pistol range needs to remain open
	Purchase deployable floodwall	\$15,000	Requires deployment
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Feasibility assessment for police pistol range	
Project Number:	2020-East Orange-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects pistol range from flood range
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The city has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	3 years
Agency Champion	1	FPA, Police Department
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Mitigate flood-prone properties, including RL properties		
<b>Project Number:</b>	2020-East Orange-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages in the <u>low lying areas below bridges effectively separating the city in addition to Soverel Park which is traversed by the Second River</u> . This area is residential, and these areas have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 15 flood-prone property owners, including RL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas along the Second River that experience frequent flooding (high risk areas).		
<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>	1% annual chance flood event + freeboard <i>(in accordance with flood ordinance)</i>	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	2
<b>Estimated Cost:</b>	\$1.5 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
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
	Elevate homes	\$500,000	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$500,000	Elevated roadways would not protect the homes 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>			



Action Worksheet		
<b>Project Name:</b>	Mitigate flood-prone properties, including RL properties	
<b>Project Number:</b>	2020-East Orange-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Families moved out of high-risk flood areas.
Property Protection	1	Properties removed from high-risk flood areas.
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The city has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Project would protect or remove families from areas of impact along the Second River
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Obtain sources of backup power for critical facilities to ensure continuity of operations		
<b>Project Number:</b>	2020-East Orange-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	The following critical facilities are currently identified as lacking backup power sources: 1. East Orange Fire Station 2 2. East Orange Fire Station 3 3. East Orange Fire Station 5 4. East Orange City garage Critical facilities need to maintain power in order to ensure continuity of critical services.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The city will obtain generators and necessary electrical components for the following critical facilities to ensure continuity of operations: 1. East Orange Fire Station 2 generator 2. East Orange Fire Station 3 generator 3. East Orange Fire Station 5 generator 4. East Orange City garage generator		
<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>	Power losses prevented	<b>Estimated Benefits (losses avoided):</b>	Critical services maintained.
<b>Useful Life:</b>	15 years	<b>Goals Met:</b>	6
<b>Estimated Cost:</b>	\$120,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, municipal budget
<b>Responsible Organization:</b>	East Orange OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
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 panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
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>			



Action Worksheet		
<b>Project Name:</b>	Obtain sources of backup power for critical facilities to ensure continuity of operations	
<b>Project Number:</b>	2020-East Orange-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services.
Property Protection	1	Project will protect critical facilities from power loss.
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	The city has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Utility failure
Timeline	0	Within 5 years
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Reconstruction of Second River channel walls		
Project Number:	2020-East Orange-007		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Second River channel walls are degraded. The design phase is already funded for replacement channel structure.		
Action or Project Intended for Implementation			
Description of the Solution:	The city will complete reconstruction of the Second River channel walls.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	Channel walls protected from failure	Estimated Benefits (losses avoided):	Channel wall failure and increased flooding risk reduced.
Useful Life:	50 years	Goals Met:	1, 2
Estimated Cost:	\$1.5 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	HMGP, FMA
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Buyout properties in area likely to be flooded by failure of channel walls	\$2 million	Property owners unlikely to be interested in buyout.
	Remove channel walls to natural wetlands.	\$500,000	Wetlands unlikely to be able to handle capacity of channel.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Reconstruction of Second River channel walls	
Project Number:	2020-East Orange-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Project will protect channel walls from collapse
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	Department of Public Works
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	