



9.18 CITY OF ORANGE TOWNSHIP

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

9.18.2 Hazard Mitigation Planning Team

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

Table 9.18-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Raymond Wingfield, Assistant Director DPW/OEM Coordinator Address: Phone Number: 862-250-3140 Email: rwingfield@orangenj.gov	Name / Title: Elvin Padilla Jr., Fire Captain/OEM Deputy Coordinator Address: Phone Number: 973-747-9332 Email: epadillajr@orangenj.gov
NFIP Floodplain Administrator	
Name / Title: Pamela Jilla, Remington & Vernick Engineers Address: Phone Number: 732-286-9220 Email: pamela.jilla@rve.com	

9.18.3 Jurisdiction Profile

According to the U.S. Census Bureau, the city has a total land area of 2.2.01 square miles, of which 2.199 square miles is land and 0.002 square miles is water. The city is bordered to the west by West Orange, to the east by East Orange, and to the south by South Orange. The East Branch of the Rahway runs through Orange.

Originally known as the "Newark Mountains", the City of Orange Township officially renamed in 1780 and became incorporated in 1860. Orange was once known as the hat manufacturing capital of the world. The location attracts small to medium sized businesses who find it affordable to operate and easy access to desirable markets (Welcome to the City of Orange Township, 2014).

According to the U.S. Census, the 2010 population for the City of Orange Township was 30,134. The estimated 2017 population was 30,731, which is a 2 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 7.9 percent of the City population is five years of age or younger, and 13.5 percent is 65 years of age or older. 5.3 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 Orange Township operates with a directly elected Mayor, four- member City Council, and three at-large representatives (Welcome to the City of Orange Township, 2014).

9.18.4 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 9.2-2



summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.18-1 and Figure 9.18-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.18-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family					
Multi-Family					
Other (commercial, mixed-use, etc.)					
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
Recent Major Development and Infrastructure from 2015 to Present					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					

* Only location-specific hazard zones or vulnerabilities identified.

9.18.5 Capability Assessment

The City of Orange Township 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 Orange Township.

Table 9.18-3. 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					



	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 #.
Building Code	Yes	Local and State	Yes	No	No
Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 74 Construction Codes, Uniform. Administered by the Construction Office.					
Zoning Code	Yes	Local and State	Yes	No	No
Comment: 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 210 Development Regulations. Administered by the Construction Office.					
Subdivisions	Yes	Local and State	Yes	No	No
Comment: 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 210 Development Regulations. Administered by the Construction Office.					
Stormwater Management	Yes	Local	Yes	No	No
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8). Chapter 115 Illicit Connections to Municipal Storm Sewer System Prohibited; Chapter 175 Sewers; Chapter 210 Development Regulations. Administered by DPW.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	No	No
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	No	-	Yes	No	No
Comment: State mandated at local level					
Shoreline Development	No	-	Yes – if coastal community	-	-
Comment: 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.					
Site Plan Review	Yes	Local	Yes	No	No
Comment: Administered by the Construction Office.					
Environmental Protection	Yes	Local	Yes	-	-
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 46 Air Pollution; Chapter 181 Soil Removal.					
Flood Damage Prevention	Yes	Local	No	No	No
Comment: Chapter 95 Flood Damage Prevention, 2007.					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	Yes	Local	No	-	-
Comment: Chapter 18 Fire Department.					
Climate Change	No	-	-	-	-
Comment:					



	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 #.
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	Yes	Local	-	-	-
Comment: Water Conservation Ordinance Number 12-2014.					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	No
Comment: City of Orange Township Master Plan, November 2018. Administered by the Planning Department. Includes elements for land use, housing, economic development, circulation, community facilities, sustainability, and historic preservation. The Plan also notes the relationship to other plans.					
Capital Improvement Plan	Yes	Local	Allowed	No	No
Comment: 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.					
Disaster Debris Management Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Floodplain or Watershed Plan	Yes	Local	No	No	No
Comment: Watershed Management Plan					
Stormwater Management Plan	Yes	Local and State	Yes	Yes/No	Yes/No
Comment: 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).					
Stormwater Pollution Prevention Plan	Yes/No	Local and State	Yes	Yes/No	Yes/No
Comment:					
Urban Water Management Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Habitat Conservation Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Economic Development Plan	Yes	Local	No	Yes	No
Comment: Economic Development element in City of Orange Township Master Plan 2018.					
Shoreline Management Plan	No	-	No	-	-
Comment:					
Community Wildfire Protection Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Community Forest Management Plan	Yes/No		No	Yes/No	Yes/No
Comment:					



	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 #.
Transportation Plan	Yes	Local	No	Yes	No
Comment: Circulation element in the City of Orange Township Master Plan 2018.					
Agriculture Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Climate Action Plan	Yes	Local	No	Yes	No
Comment: Sustainability element in the City of Orange Township Master Plan 2018.					
Tourism Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Business Development Plan	Yes/No		No	Yes/No	Yes/No
Comment:					
Other	Yes/No		Yes/No	Yes/No	Yes/No
Comment:					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes/No	Local	Yes	Yes/No	Yes/No
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.					
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes/No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	Yes/No	Local	No	Yes/No	Yes/No
Comment:					
Continuity of Operations Plan	Yes/No	Local	No	Yes/No	Yes/No
Comment:					
Public Health Plan	Yes/No		Yes/No	Yes/No	Yes/No
Comment:					
Other	Yes/No		Yes/No	Yes/No	Yes/No
Comment:					



Table 9.2-4. Development and Permitting Capability

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

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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

Table 9.18-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	-	
Environmental Board / Commission	Yes	Environmental Commission
Open Space Board / Committee	-	
Economic Development Commission / Committee	Yes	Department of Economic Development
Warning Systems / Services (reverse 911, outdoor warning signals)	-	
Maintenance program to reduce risk	Yes	Public Works
Mutual aid agreements	Yes	Fire Department
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Engineers or professionals trained in building or infrastructure construction practices	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Planners or engineers with an understanding of natural hazards	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Staff with training in benefit/cost analysis	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Surveyors	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Personnel skilled or trained in GIS applications	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ



Staff/Personnel Resource	Available?	Department/Agency/Position
Scientist familiar with natural hazards in local area	No	Insert appropriate information
Emergency manager	Yes	Ray Wingfield, OEM Coordinator, City of Orange
Grant writers	Yes	Richard G. Arago, P.E., Executive Vice President, Remington, Vernick + Arango Engineers, Secaucus, NJ
Resilience Officer	Yes/No	Insert appropriate information
Other	Yes/No	Insert appropriate information

FISCAL CAPABILITY

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

Table 9.18-6. 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
User Fees for Water, Sewer, Gas or Electric Service	Yes
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/No
Development Impact Fees for Homebuyers or Developers	No
Other	Yes/No (if yes, specify)

EDUCATION AND OUTREACH CAPABILITY

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

Table 9.18-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	-
Do you have personnel skilled or trained in website development?	-
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	-
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes: Facebook, Youtube, Twitter
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	-
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	-
Do you have any established warning systems for hazard events? • If yes, briefly describe.	-

**COMMUNITY CLASSIFICATIONS**

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

Table 9.18-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	Bronze	12/19/2017

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 9.18-9. 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	High
Flood	Low
Geological Hazards	Low
Severe Weather	High
Winter Storm	High
Wildfire	High
Civil Disorder	Medium
Cyber Attack	Low
Disease Outbreak	Low
Economic Collapse	Medium
Hazardous Substances	Low
Utility Interruption	High
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 9.18-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (name, department/position)	Pamela Hilla, Remmington & Vernick
Are any certified floodplain managers on staff in your jurisdiction?	-
What is the date that your flood damage prevention ordinance was last amended?	2007
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	-
When was the most recent Community Assistance Visit or Community Assistance Contact?	CAV: 7/20/1993; CAC: 5/15/2007
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	???
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.	-
Does your floodplain management staff need any assistance or training to support its floodplain management program?	-
<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
How many flood insurance policies are in force in your jurisdiction?*	284, \$65,594 insurance in force, \$512,438 in premiums
How many total loss claims have been filed in your jurisdiction?*	163 total loss claims, 43 claims open or closed without payment, \$963,709.02 total payments for losses
Do you maintain a list of properties that have been damaged by flooding?	-
Do you maintain a list of property owners interested in flood mitigation?	-

*According to FEMA statistics as of 03/31/2019

ADDITIONAL AREAS OF EXISTING INTEGRATION

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

- **Division of Environmental Services:** Environmental services include:
 - Hazardous Substance Response: Releases of hazardous substances into the air, waters or on land are investigated in conjunction with the Essex Regional Health Commission and according to our emergency management plan.
 - Emergency Management: The staff is available for response at all times through central dispatch at the Police Department. The Health Department participates as a member of the emergency management board for the Township, and develops and updates the annexes for which this department is responsible.
- **Department of Public Works:** The Department of Public Works' responsibilities include administering the following Divisions:



- **Street Maintenance** - The Division maintains (including snow plowing and snow removal) all municipal roads. It cleans and sweeps improved roads and is responsible for the installation and maintenance of traffic signs (street names, Stop, No Turn on Red, and No Parking signs, etc.). The Division is also responsible for road markings, including crosswalks, fire lanes and parking stalls.
- The Division maintains the upkeep of 8 city parks totaling 12 acres, as well as City-owned lots, and three in-ground swimming pools. It is responsible for the planning, care of more than trees along public streets, as well as trees, shrubs and flowers in municipal parks and on public grounds.
- The Division is in charge of preventive maintenance and repair of municipally-owned vehicles and other mechanical equipment used by the DPW, police, fire and recreation departments.
- The Division is responsible for maintaining public facilities. These include the lighting in all municipal parking lots and all athletic fields (basketball, tennis and baseball); the fire alarm systems in all municipal buildings; the water lines at the municipal buildings, ball fields and parks; all fire extinguishers; fencing; parking lot meters; all park benches; the heating, air-conditioning and plumbing systems, and meters in all municipal buildings. The division is also responsible for shoveling snow from the walks of all public buildings; setting up the Council Chambers for Council meetings, various boards and Municipal Court sessions. The division installs and removes holiday decorations and lights in the business downtown business districts for the Urban Enterprise Zone.
- **Snow Removal** – All DPW divisions participate in the salting and plowing of municipal streets and roadways during snow and ice storms.
- **Utilities** – DPW coordinates with utility providers of gas, electricity, and water to ensure that all areas of the city are receiving services, and to resolve problems that may occur due to storms and other emergencies.
- **Department of Economic Development:** The function of the Department of Planning Administration is to advise the Mayor, City Council, Planning Board, and the Zoning Board on planning issues affecting the physical development of the City. The Division prepares, maintains, and updates the City's Master Plan, and recommends changes to the City's Zoning Ordinance. The Master Plan is based on three principals - sustainable development & redevelopment; managed growth; and, a healthy community
- **Department of Planning and Development:** The purpose of the Planning and Development Department is to plan, organize, lead, control, and deliver housing and economic development services to meet the needs of the private and public sector of Orange's economy.
- **Orange Fire Department:** The Orange Fire Department responds to the building fires, smoke conditions, vehicle and brush fires, electrical and water emergencies, vehicle accidents and extrications, hazardous materials problems, medical emergencies and mutual aid calls to neighboring communities. The Fire Department is the enforcement Agency for the City's Fire Code, which is aimed at controlling potential hazards in all structures in the community.
- **Sustainable Essex Alliance:** The Sustainable Essex Alliance (SEA) is a coalition of local municipal green teams and sustainability organizations working together to create solutions for local environments and economies. By operating as a single entity, the SEA has the opportunity to not only impact more environments, but also achieve more efficient results than we could alone. This helps to create the financial incentives needed to push sustainable actions such as reducing greenhouse gas emissions, using green energy solutions, and cutting waste while simultaneously increasing awareness and education in our communities. The Alliance is currently pursuing a renewable community energy aggregation program to provide residents of Essex County with the option of 100% green energy. The Alliance has also initiated the NJ Home Performance with ENERGYSTAR™ Program and Comfort Partners Program that offer rebates and financing for energy efficiency upgrades, insulation, and helpful assessments to reduce bills and environmental impact.
- **Sustainable Jersey:** The City of Orange Township is a bronze certified community in the Sustainable Jersey program. The City earned points towards certification for green building policy, green design commercial and residential buildings, site plan green design standards, building healthier communities, sustainable land use, transit-



oriented development supportive zoning, a water conservation ordinance, green grounds and maintenance policy, and digitizing public information.

9.18.6 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 4.3) and includes a chronology of events that have affected Essex County and its jurisdictions. The City of Orange Township'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 9.18-11 provides details regarding municipal-specific loss and damages the City experienced during hazard events from 2014 to 2019. 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 9.18-11. 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.

9.18.7 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. Table 9.18-12 summarizes risk assessment results used to inform the hazard ranking for the City of Orange Township. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).



Table 9.18-12. 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 through Category 4 SLOSH	Category 1:	0	Category 1:	0	100-year Wind Loss:	\$1,988,910	High
		Category 2:	0	Category 2:	0			
		Category 3:	0	Category 3:	0	500-year Wind Loss:	\$15,294,256	
		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:	\$2,661,345	
						2,500-year Loss:	\$43,623,386	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	4,161	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:	7,381					
Flood	100- and 500-Year Mean Return Period Event	100-year	2,648	100-year	378	100-year Loss:	\$349,703,802	High
		500-year	2,648	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	
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
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
Economic Collapse	Recessions, Depressions, Interruption of normal economic conditions	The degree of impact to the population depends on the scale of the incident.		Damages due to economic collapse may be limited; property owners that cannot afford to maintain the structure may become abandoned/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
Hazardous Substances	Port Newark is in Essex County (3 rd largest port in the U.S.) Major highways/rail Pipelines 10 NPL Sites in County; Orange has 1	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
Utility Interruption	Disruption of power and 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
Terrorism	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
Transportation Failure	One accident on any of the following: Roadway/vehicular, Aviation, Rail	The degree of impact to the population depends on the scale of the incident; Population in the immediate vicinity will be 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



REPETITIVE FLOOD LOSSES

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

- Number of repetitive loss (RL) properties: 13
- Number of severe repetitive loss (SRL) properties: 1
- Number of RL/SRL properties that have been mitigated: Not available.

Note: The number of SRL properties excludes RL properties.

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

CRITICAL FACILITIES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplains and the status of mitigation at each location. If a new mitigation action is identified, the mitigation action ID is listed; refer to Table 9.18-16 for additional details regarding the project.

Table 9.18-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Orange Bus Garage	Bus	X	X	2020-Orange-004
Orange PSE&G Power Substations	Electric Substation	X	X	2020-Orange-004
ESCO Equipment Storage Facility	Government	X	X	2020-Orange-004
ESCO Equipment Storage Facility	Police	X	X	2020-Orange-004
Orange Water Pumping Station	Potable Pump Station	X	X	2020-Orange-005
Essex Campus Academy	School	X	X	2020-Orange-004
Madrasatu Bait	School	X	X	2020-Orange-004
Fuelco Gas Station-Orange	Transportation	X	X	2020-Orange-004

ADDITIONAL IDENTIFIED VULNERABILITIES

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

- Flooding during heavy rain fall leads to road closure in residential area.
- The city needs cooling and warming shelters.
- Transportation is an issue during winter storms.
- Outreach is needed for severe storms.
- Need portable generators.
- Numerous critical facilities are located in the 100-year floodplain including: Orange Bus Garage, PSE&G Power Substation at 420 Thomas Blvd, ESCO Equipment Storage Facility, Orange Water Pumping Station at Gist Place, Essex Campus Academy, Madrasatu Bait School, Fuelco Gas Station at 455 Thomas Blvd. ESCO Equipment Storage Facility has been identified as a lifeline facility.
- The City of Orange has 14 repetitive loss properties and one severe repetitive loss property.

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Orange Township 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 Orange Township has significant exposure; refer to Figures 9.18-1 and 9.18-2. 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, 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 4.3 (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 City of Orange Township. During the review of the calculated hazard ranking, the City 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 City of Orange Township 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 wildfire from low to high.
- The City changed the calculated hazard ranking of civil disorder from low to medium.
- The City changed the calculated hazard ranking of cyber attack from low to medium.
- The City changed the calculated hazard ranking of terrorism from low to medium.

Table 9.18-14. City of Orange Township Hazard Ranking Input

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

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

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



9.18.8 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 9.18-15. 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 #
Orange-1: City of Orange water well pumps	City OEM	-	X	2020-Orange-005
Orange-2: City of Orange flood easement project to address stormwater runoff	City OEM	In Progress		
Orange-3: "Obtain back-up power and install to ensure continuity of operations. The following facilities are identified at this time: 1. Orange City Hall generator 2. City of Orange Fire Department generator 3. Water pumping station #2 4. Water pumping station #3 5. Water pumping station #4 6. City Hall 7. Orange Fire Headquarters 8. Orange Fire Station #2"	City OEM	In Progress - City Hall, Fire Department, Water pumping stations, and Fire HQ received generators. Fire Station #2 still requires generator.	X	2020-Orange-001
Orange-4: Obtain flood easements. 1.Lakeside Avenue/High Street 2.Valley Area 3.Central Avenue (West Orange border) 4.Central Avenue (East Orange border)	City DPW	In Progress		
Orange-5: Further secure Orange Park wells and Gist Place wells (such as cameras, security, etc.)	United Water Company	In Progress		
Orange-6: The hazard mitigation plan will be used to guide the addition of hazard information for inclusion in the next Master Plan update.	City Planning	Ongoing	X	2020-Orange-005
Orange-7: 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	FPA	In Progress	X	2020-Orange-002



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 #
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.				

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 Orange Township 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 Orange Township 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). Refer to Section 6 and Appendix H (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.18-16 summarizes the comprehensive-range of specific mitigation initiatives the City of Orange Township 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 9.18-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update and Table 9.18-18 summarizes the actions by type across hazards of concern.



Table 9.18-15. 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-Orange-001	Generator for Fire Station #2	Fire Station #2 does not have backup power	Purchase and install generator and components for Fire Station #2	Existing	Utility Interruption	6	<u>Fire Department</u>	Assistance to Firefighters Grants, HMGP	Prevents power loss, protects critical services	\$30,000	Within 5 years	High	SIP	PP
2020-Orange-002	Mitigate flood-prone properties, including RL/SRL properties	Frequent flooding events have resulted in damages in the _____ area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims. The city has 14 repetitive loss properties and one severe repetitive loss property.	Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes	Existing	Flood, Severe Storm	2	<u>NFIP Floodplain Administrator</u> , supported by homeowners	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.	\$3 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-Orange-003	Establish Warming/Cooling Shelters	The city lacks warming and cooling shelters	The city will establish warming/cooling shelters at already established facilities.	Existing	Extreme Temperature	1, 5	<u>OEM</u>	Municipal budget	Shelters established	\$5,000	Within 5 years	High	LPR, SIP	ES
2020-Orange-004	Outreach to non-city owned critical facilities in floodplain	Numerous critical facilities in the floodplain are not owned by the city: Orange Bus Garage, PSE&G Power Substation at 420 Thomas Blvd, ESCO Equipment Storage Facility, Essex Campus Academy, Madrasatu Bait School, Fuelco Gas Station at 455 Thomas Blvd.	The FPA will conduct outreach to facility owners and discuss options for mitigation.	Existing	Flood	3, 4	<u>FPA</u>	Municipal budget	Facility owners educated on potential mitigation options	\$100 per facility.	6 months	High	EAP	PI
2020-Orange-005	Protect Orange Water Pumping Station at Gist Place	Orange Water Pumping Station at Gist Place is located in the 100-year floodplain.	The city will conduct a feasibility assessment to determine the level of exposure and mitigation options. The city will then implement the selected action.	Existing	Flood	2, 6	<u>Engineering</u>	Municipal budget, HMGP	Facility protected from future flood damages.	TBD by feasibility assessment	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 9.18-17. 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-Orange-001	Generator for Fire Station #2	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Orange-002	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-Orange-003	Establish Warming/Cooling Shelters	1	0	1	1	1	1	1	1	1	1	0	0	1	1	11	High
2020-Orange-004	Outreach to non-city owned critical facilities in floodplain	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-Orange-005	Protect Orange Water Pumping Station at Gist Place	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	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 9.18-18. 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								
Extreme Temperature					2020-Orange-003			
Flood		2020-Orange-002, 2020-Orange-005	2020-Orange-004					2020-Orange-004
Geological Hazards								
Severe Weather		2020-Orange-002						
Winter Storm								
Wildfire								
Civil Disorder								
Cyber Attack								
Disease Outbreak								
Economic Collapse								
Hazardous Substances								
Utility Interruption		2020-Orange-001						
Terrorism								
Transportation Failure								

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

9.18.9 Staff and Local Stakeholder Involvement in Annex Development

The City of Orange Township 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 9.18-19. Contributors to the Annex

Entity	Title	Method of Participation
Raymond Wingfield	Assistant Director DPW/OEM Coordinator	Primary point of contact, provided impact data
Elvin Padilla Jr	Fire Captain/OEM Deputy Coordinator	Alternate point of contact, attended Planning Partnership meetings, provided impact data
Pamela Hilla	Remmington & Vernick Engineers	

DRAFT



Figure 9.18-1. City of Orange Township Hazard Area Extent and Location Map

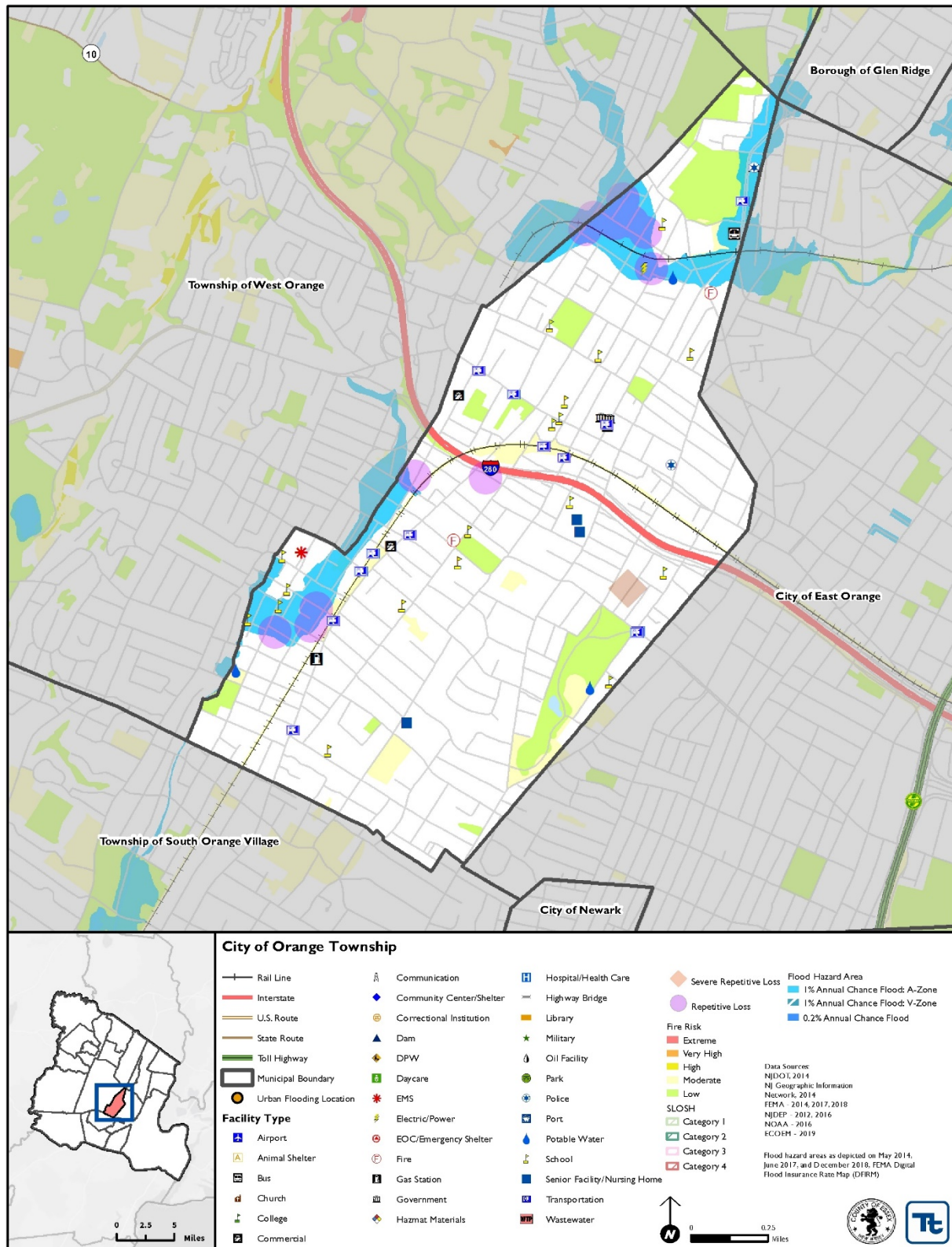
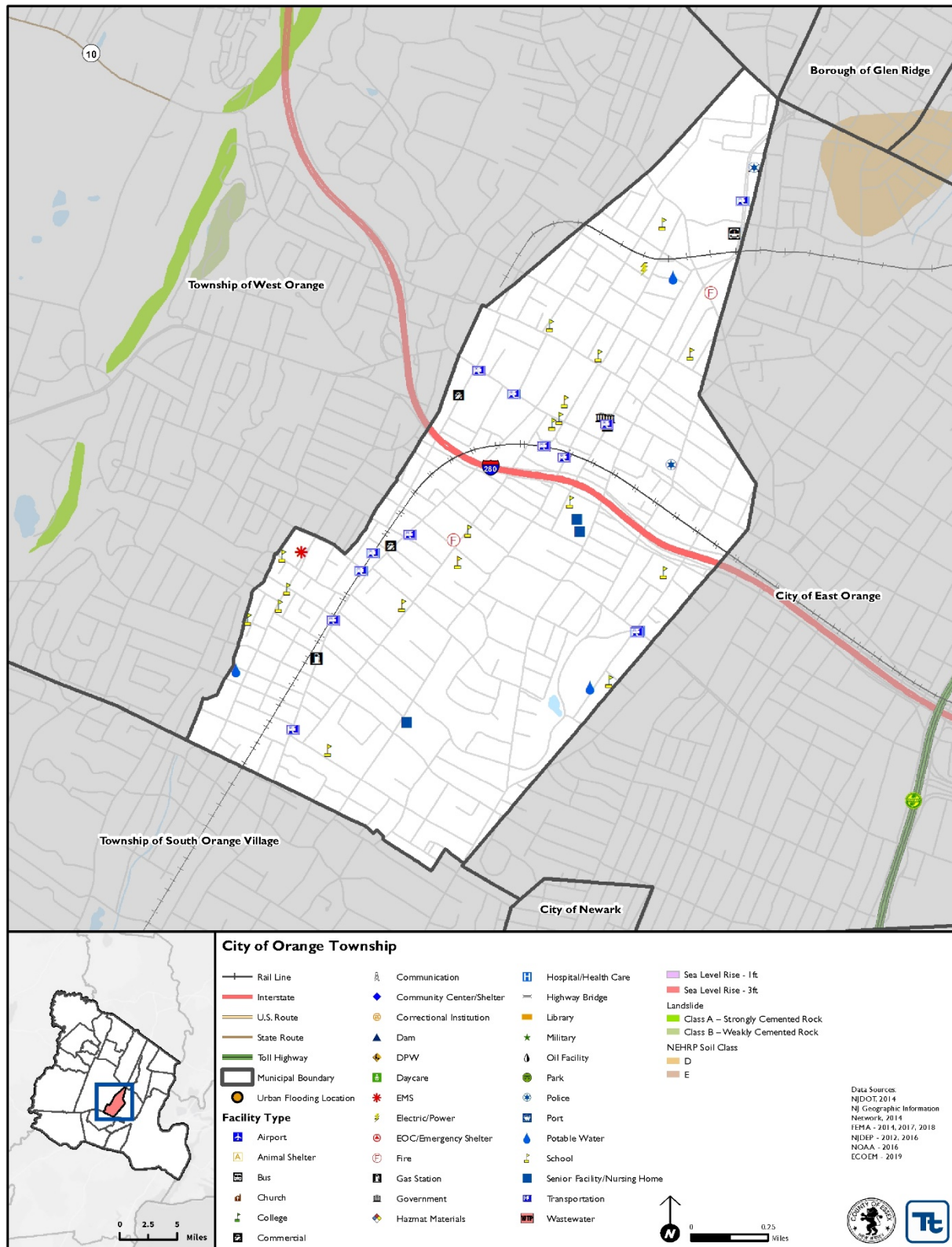




Figure 9.18-2. City of Orange Township Hazard Area Extent and Location Map 2





Name of Jurisdiction:

Name and Title Completing Worksheet:

Action Worksheet			
Project Name:	Generator for Fire Station #2		
Project Number:	2020-Orange-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Utility Interruption		
Description of the Problem:	Fire Station #2 does not have backup power		
Action or Project Intended for Implementation			
Description of the Solution:	The City of Orange will determine the appropriate sized generator needed. The City will then purchase and install the generator and components for Fire Station #2.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	Potential Sources:	Firefighter Assistance Grant Program
Responsible Organization:	Fire Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	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)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Name of Jurisdiction:

Name and Title Completing Worksheet:

Action Worksheet		
Project Name:	Generator for Fire Station #2	
Project Number:	2020-Orange-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of Fire Station.
Property Protection	1	Project will protect Fire Station from power loss.
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	1	All hazards
Timeline	1	1 year
Agency Champion	1	Fire Department
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Name of Jurisdiction: _____

Name and Title Completing Worksheet: _____

Action Worksheet			
Project Name:	Mitigate flood-prone properties, including RL/SRL properties		
Project Number:	2020-Orange-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages in the _____ area. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims. The city has 14 repetitive loss properties and one severe repetitive loss property.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the _____ area that experience frequent flooding (high risk areas).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event + freeboard (in accordance with flood ordinance)	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	Goals Met:	2
Estimated Cost:	\$3Million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Three years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	NFIP Floodplain Administrator, supported by homeowners	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
	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)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Name of Jurisdiction: _____



Name and Title Completing Worksheet:

Action Worksheet		
Project Name:	Mitigate flood-prone properties, including RL/SRL properties	
Project Number:	2020-Orange-002	
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 remove families from _____ area of the city.
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	

Name of Jurisdiction:



Name and Title Completing Worksheet: _____

Action Worksheet			
Project Name:	Protect Orange Water Pumping Station at Gist Place		
Project Number:	2020-Orange-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Orange Water Pumping Station at Gist Place is located in the 100-year floodplain. The level of exposure to flood damages is unknown.		
Action or Project Intended for Implementation			
Description of the Solution:	The City will conduct a feasibility assessment to determine the level of exposure and mitigation options to protect the facility to the 500-year flood level. The City will then implement the selected action.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood	Estimated Benefits (losses avoided):	Facility protected to 500-year flood level
Useful Life:	TBD by feasibility assessment	Goals Met:	2, 6
Estimated Cost:	TBD by feasibility assessment	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:	Municipal budget, HMGP
Responsible Organization:	Engineering	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
	Relocate water pumping station	N/A	No space available for relocation
	Remove water pumping station entirely	N/A	Water utility cannot support capacity requirements without pump station
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Name of Jurisdiction: _____

Name and Title Completing Worksheet: _____



Action Worksheet		
Project Name:	Protect Orange Water Pumping Station at Gist Place	
Project Number:	2020-Orange-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project protects critical service of water supply
Property Protection	1	Project protects facility from flood damage
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	Flood
Timeline	0	Within 5 years
Agency Champion	1	Engineering
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	