



9.22 TOWNSHIP OF WEST CALDWELL

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

9.22.1 Hazard Mitigation Planning Team

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

Table 9.22-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Larry Peter, Emergency Management Coordinator Address: 30 Clinton Road, West Caldwell, NJ 07006 Phone Number: 973-747-9946 Email: lpeter@westcaldwell.com	Name / Title: John Medina, Deputy Emergency Management Coordinator Address: 30 Clinton Road, West Caldwell, NJ 07006 Phone Number: 973-226-2300 Email: jmedina@westcaldwell.com
NFIP Floodplain Administrator	
Name / Title: Robert McLoughlin, Construction Official Address: 30 Clinton Road, West Caldwell, NJ 07006 Phone Number: 973-226-2300 Email: rmcloughlin@westcaldwell.com	

9.22.2 Jurisdiction Profile

The Township of West Caldwell was part of the original land known as Horseneck. In 1798, Horseneck was renamed Caldwell Township for James Caldwell- an aid to George Washington's men during the Revolutionary War. In 1904, the population of Caldwell Township had grown so significantly that forming smaller governing bodies was essential. As a result, West Caldwell Township was formed. The first mayor of West Caldwell Township was Caleb Crane (Township of West Caldwell, 2014).

According to the U.S. Census Bureau, the Township has a total land area of 5.07 square miles, of which 5.055 square miles is land and 0.015 square miles is water. West Caldwell operates with a Mayor and Council consisting of six members in the Borough form of government. The Mayor is elected to a four-year term and each of the six Council members is elected to a three year term. Each Council member chairs one of the Township's six committees (Township of West Caldwell, 2014).

According to the U.S. Census, the 2010 population for the Township of West Caldwell was 10,759. The estimated 2017 population was 10,932, a 1.6 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 5.2 percent of the population is 5 years of age or younger and 22.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.22.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.22-2



summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.22-1 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.22-2. 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	10	3	0	2	2
Multi-Family	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	1	5	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 and Mitigation if located in Hazard Zone
Recent Major Development and Infrastructure from 2015 to Present					
Bloomfield Avenue Rehabilitation Project	-	-	-	-	-
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
None anticipated					

* Only location-specific hazard zones or vulnerabilities identified.

9.22.4 Capability Assessment

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

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

Areas that mitigation is currently integrated are summarized in this subsection. The Township of West Caldwell identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy. Refer to Appendix X for the results of the planning/policy document review and the answers to integration survey questions.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Township of West Caldwell.



Table 9.22-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandat ed / 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	Yes/No	Yes/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					
Zoning Code	Yes	Local and State	Yes	Yes	-
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 XX Zoning of the municipal code. This ordinance specifically prevents structures with certain zoning classifications from being built within a flood hazard area.					
Subdivisions	Yes	Local and State	Yes	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 XIX Subdivision of Land of the municipal code. This ordinance prevents lots being platted for residential use in flood hazard areas .					
Stormwater Management	Yes	Local	Yes	No	-
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8). Chapter XXIA Stormwater Management and Control of the municipal code. Chapter XXIA of Municipal Code. The Township has identified minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	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	-
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	-
Comment: Chapter XXIVIII A Land Use Procedures 18A-9 Subdivision and Site Plan Review and Approval of the municipal code.					
Environmental Protection	No	-	Yes	No	-
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code.					
Flood Damage Prevention	Yes	Local	No	No	-
Comment: Chapter XXI Floodplain and Storm Water Management of the municipal code.					
Wellhead Protection	No	-	No	-	-
Comment:					



Codes, Ordinances, & Requirements					
Emergency Management	Yes	Local	No	-	-
<i>Comment: Chapter III Police Department, Chapter IV Fire Department of the municipal code.</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	No	-
<i>Comment:</i>					
Capital Improvement Plan	Yes	Local	Allowed	No	-
<i>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. Capital Improvements are included as line items within the annual municipal budget, and a 6 year plan is also adopted within the budgeting process.</i>					
Disaster Debris Management Plan	No	-	No	No	2020-Township of West Caldwell-005
<i>Comment: The Township of West Caldwell does not have a Disaster Debris Management Plan, but has expressed interested in creating a debris management plan. See 2020-Township of West Caldwell-005 for additional information.</i>					
Floodplain or Watershed Plan	No	-	No	No	-
<i>Comment:</i>					
Stormwater Management Plan	Yes	Local and State	Yes	No	-
<i>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).</i>					
Stormwater Pollution Prevention Plan	Yes	Local and State	Yes	NO	-
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	No	-	-
<i>Comment:</i>					
Economic Development Plan	No	-	No	-	-
<i>Comment:</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					



Codes, Ordinances, & Requirements					
Transportation Plan	No	-	No	-	-
Comment:					
Agriculture Plan	No	-	No	-	-
Comment:					
Climate Action Plan	No	-	No	-	-
Comment:					
Tourism Plan	No	-	No	-	-
Comment:					
Business Development Plan	No	-	No	-	-
Comment:					
Redevelopment Plan	Yes	Local	No	No	-
Comment: The West Caldwell Redevelopment Plan focuses on the "Area in Need of Rehabilitation" which was prepared in accordance with the New Jersey Local Redevelopment and Housing Law N.J.S.A. 40A:12A et seq. It should be noted this redevelopment plan applies only to a limited area, which is the subject of proposed redevelopment.					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	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. West Caldwell's most recent emergency operations plan was approved on February 14, 2017.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	No	Local	No	-	-
Comment:					
Continuity of Operations Plan	No	Local	No	-	-
Comment:					
Public Health Plan	Yes	Local	No	No	-
Comment:					
Other	-	-	-	-	-
Comment:					

Table 9.22-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes, Planning Board, Construction Department Issues Permits (and inspects)
- If no, who does? If yes, which department?	
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No, minimal open land is left

**ADMINISTRATIVE AND TECHNICAL CAPABILITY**

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

Table 9.22-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board/Zoning Board of Adjustment
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Environmental Commission
Open Space Board / Committee	Yes/No	Open Space Committee
Economic Development Commission / Committee	Yes	West Caldwell Planning
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Nixle, Swift 911, Municipal Website, TV 36 (Local Access Channel)
Maintenance program to reduce risk	No	-
Mutual aid agreements	Yes	Surrounding Communities, County, State
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/Engineering (Board Engineer, Municipal Engineer)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering
Planners or engineers with an understanding of natural hazards	Yes	Planning/ Engineering
Staff with training in benefit/cost analysis	Yes	Finance
Staff with training in green infrastructure	Yes	Engineering (Maser Consulting)
Staff with education/knowledge/training in low impact development	Yes	Engineering (Maser Consulting)
Surveyors	Yes	Engineering
Stormwater engineer	Yes	Engineering (Maser Consulting)
Personnel skilled or trained in GIS applications	Yes	Engineering (Maser)
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Office of Emergency Management
Grant writers	Yes	Employees write grants on behalf of their own departments
Resilience Officer	No	-
Watershed planner	Yes	Engineering (Maser Consulting)
Environmental specialist	Yes	Engineering (Maser Consulting)
Other	Yes	DPW, Fire officials

FISCAL CAPABILITY

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

Table 9.22-6. 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



Financial Resource	Accessible or Eligible to Use?
User Fees for Water, Sewer, Gas or Electric Service	Yes (Water, Sewer for Commercial Properties)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	Yes
Other	No

EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Township of West Caldwell.

Table 9.22-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes, designated as needed
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.	No
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	Yes; Facebook and Twitter
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	Yes; TV-36, Municipal Website, Nixle, Swift 911, Facebook, Special Notices with Water Bills
Do you have any established warning systems for hazard events? If yes, briefly describe.	Yes; Nixle, Swift911, fire sirens

COMMUNITY CLASSIFICATIONS

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

Table 9.22-8. 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	4	October 23, 2017
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	None	03/03/2011

ADAPTIVE CAPACITY

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of local capacity for adapting to



current and future risks and changing conditions. The table below summarizes the adaptive capacity for climate change and the jurisdiction's rating.

Table 9.22-9. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Weather	High
Winter Storm	High
Wildfire	Low
Civil Disorder	Medium
Cyber Attack	Medium
Disease Outbreak	High
Economic Collapse	Medium
Hazardous Substances	Medium
Utility Interruption	Medium
Terrorism	Medium
Transportation Failure	Medium

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 9.22-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction (in conjunction with Consultant)
Who is your floodplain administrator? (name, department/position)	Construction Official / Floodplain Coordinator
Are any certified floodplain managers on staff in your jurisdiction?	Yes (Consultant)
What is the date that your flood damage prevention ordinance was last amended?	Insert appropriate information
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none">If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	Visits take place annually
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none">If so, state what they are.	None that the township is aware of
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none">If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none">If no, state why.	Yes, currently being updated



Criterion	Response
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)? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	No, the township would be open to receiving additional information on the CRS program
How many flood insurance policies are in force in your jurisdiction?*	Flood insurance policies: 86
<ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	Insurance in force: \$30,516,800 Premium in force: \$142,916
How many total loss claims have been filed in your jurisdiction?*	Total loss claims: 47
<ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	Claims still open or closed without payment: 14 Total payments for losses: \$2,000,067
Do you maintain a list of properties that have been damaged by flooding?	May have it within CAD reports
Do you maintain a list of property owners interested in flood mitigation?	No

*According to FEMA statistics as of 03/31/19

ADDITIONAL AREAS OF EXISTING INTEGRATION

Code Enforcement Department: The West Caldwell Code Enforcement Department (commonly known as the Building Department) is staffed by a combination of full-time, part-time, and private industry professionals. All department inspectors are licensed by the State of New Jersey to maintain a Class 1 rating, the highest offered by the State.

Engineering, Planning, and Zoning: The West Caldwell Engineering Department, which includes Engineering, Planning and Zoning, provides a broad range of services for our residents, including the planning, design and construction management of municipal improvements, site plan review, management of our comprehensive recycling program, inspection of new subdivisions and site improvements, maintenance of maps and records, preparation of grant applications, coordination with public works and water department, and residential services to assist homeowners solve a variety of problems. In the areas of Planning and Zoning, the department provides zoning inspections and enforcement, master plan review and preparation and the processing of all site plan, subdivision and variance applications heard by the Planning Board and Board of Adjustment.

Planning Board and Zoning Board of Adjustment: The members of the Planning Board and the Zoning Board of Adjustment are appointed by the Mayor with concurrence of the Council and play an important role in the development of the town. Generally, the Planning Board deals with commercial development, and the Zoning Board with residential variances.

Fire Prevention Bureau: The mission of the West Caldwell Fire Prevention Bureau is to preserve and enhance the quality of life for the citizens of West Caldwell, through the application of comprehensive fire and hazard prevention programs. The goals of the bureau are:

- To raise public awareness of fire safety considerations. This is accomplished through various educational programs offered to all populations within the community.
- To identify and cause the abatement of fire hazards through a comprehensive inspection program.
- To verify the proper operation and maintenance of all fire protection systems or devices.

Health Department: The mission of the West Caldwell Health Department is to improve the health and quality of life of the citizens of West Caldwell, North Caldwell and Fairfield through the use of health promotion strategies, health protection strategies, preventive services and community health surveillance.



Public Works: The mission of the West Caldwell Department of Public Works (DPW) is to maintain, repair and, whenever possible, improve the infrastructure of our community. This includes maintenance and repair of Township roads, sidewalks, parking lots, parks, buildings, sewers and the municipal fleet of cars and trucks. The department also handles special pickup of debris.

Water Utility: The West Caldwell water system consists of over 55 miles of pipeline, 480 fire hydrants and serves over 3700 residential and commercial properties. The system is maintained and operated by the West Caldwell Water Department. The department conducts routine sampling of the system to assure that our water meets all state and federal standards.

Office of Emergency Management: The Office of Emergency Management is responsible for coordinating efforts to protect lives and property during times of emergencies. This has been accomplished by creating the "Township of West Caldwell Emergency Operations Plan." The plan was approved by the New Jersey State Police on August 9, 1991 and was thereby instituted as the Township's guide for emergency response. This plan is constantly being revised and updated to maintain and raise the standards by which the Township measures its effectiveness.

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.

9.22.5 Hazard Event History Specific to the Jurisdiction

Essex County has a history of hazard events, as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 4.3 (Hazard Profiles) and includes a chronology of events that affected Essex County and its jurisdictions. The Township of West Caldwell'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; refer to Appendix E (Risk Assessment Supplement). Table 9.22-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events from 2014 to 2019. Information provided in the table below is based on reference material or local sources.

Table 9.22-11. 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	\$45,765.81 was obligated for through FEMA's Public Assistance Program for municipal expenses occurred. FEMA reimbursed \$34,324.36.



Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
			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.	
March 6-7, 2018	Severe Winter Storm, Snowstorm (DR-4368)	Yes	A strong low pressure system developed along the Middle Atlantic coast during the morning of Wednesday, March 7, 2018. The low tracked along the coast through the early morning hours on Thursday, March 8, 2018. The storm brought heavy wet snow, strong gusty winds, and even some thundersnow across northeast New Jersey. Snowfall rates ranged from 1 to 3 inches per hour at times in the heaviest snow bands. Trained spotters and the public reported 1 to 2 feet of snow. 23.0 inches was reported in North Caldwell and 19.7 inches in Roseland. The heavy wet snow and strong winds also brought down trees and some power lines.	\$199,682.01 was spent by West Caldwell Township on Debris Collection and disposal of vegetative debris. FEMA reimbursed \$148,044.84

9.22.6 Jurisdiction-Specific Vulnerabilities and Hazard Ranking

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.22-12 summarizes the Township of West Caldwell risk assessment results and data used to determine the hazard ranking.

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

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



Table 9.22-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario(s) Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion Hazard Area (CEHA): Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	0	CEHA:	\$0	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	92	Category 1:	19	100-year Wind Loss:	\$3,381,110	High
		Category 2:	951	Category 2:	197			
		Category 3:	2,229	Category 3:	462	500-year Wind Loss:	\$16,934,187	
		Category 4:	2,595	Category 4:	533			
Drought	Drought event	Majority of the County is serviced by water suppliers with surface water sources.		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:	2,368	NEHRP D&E:	504	100-year Loss:	\$0	High
		Liquefaction Class 4:	179	Liquefaction Class 4:	37	500-year Loss:	\$4,616,521	
						2,500-year Loss:	\$71,094,612	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	4,600	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:	3,515					
Flood	100- and 500-Year Mean Return Period Event	100-year	716	100-year	152	100-year Loss:	\$269,142,437	High
		500-year	1,606	500-year	545			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	5	Class B:	1	Class B:	\$359,884	



Hazard of Concern	Hazard/ Scenario(s) 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	An outbreak of one of the diseases evaluated	Entire population exposed; The degree of impact to the population depends on the scale of the incident	Disease outbreak would not have a direct impact on buildings.	Impacts to food supply and water supply; Costs of activities and programs implemented to address outbreaks and prevent spread.	Low
Economic Collapse	Recessions, Depressions, Interruption of normal economic conditions	The degree of impact to the population depends on the scale of the incident.	Damages due to economic collapse may be limited; property owners that cannot afford to maintain the structure may become abandoned/run-down.	The degree of damages depends on the scale of the incident. Massive impacts due to loss of jobs, businesses, and tax revenue are possible.	Low



Hazard of Concern	Hazard/ Scenario(s) Evaluated	Population	Buildings	Economy (Loss)	Certainty Factor
Hazardous Substances	Release of a hazardous substance whether fixed site or in-transit	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 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 in the County	The degree of impact to the population depends on the scale of the incident; Population in the immediate vicinity will be impacted.	The degree of damages to buildings depends on the scale of the incident; Buildings in the immediate vicinity will be most impacted.	The degree of damages depends on the scale of the incident.	Low
Transportation Failure	One accident on any of the following: Roadway/vehicular, Aviation, Rail	The degree of impact to the population depends on the scale of the incident; Population in the immediate vicinity will be 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 Township of West Caldwell.

- Number of repetitive loss (RL) properties: 4
- Number of severe repetitive loss (SRL) properties: 1
- Number of RL/SRL properties that have been mitigated: 0

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).

CRITICAL FACILITIES AND LIFELINES

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

Table 9.22-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
None				

ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Severe storms, severe winter weather, and traffic accidents can lead to downed trees and wires causing power outage around the township. A lack of backup power at critical facilities means that there are impacts to the continuity of operations needed during an emergency or long-term power outage.
- Severe storms and severe winter storms cause an increased amount of debris that must be collected and disposed of. West Caldwell currently has a permitted site for debris disposal but does not have a standalone debris management plan. West Caldwell does not the administrative capability, and allocated funding to develop a debris management plan on their own.
- Traffic, public safety, and commerce interruptions
- Severe storm, severe winter, and flooding cause interruption of traffic signals, which places an increased demand on police personnel to direct traffic when traffic lights are not functioning.
- Gardens Section of the township has stormwater runoff due to an increasing amount of high intensity short duration rainfall events because of inadequate stormwater infrastructure.
- West Caldwell's Sanitary Sewer System is aging and cannot handle the increased stormwater runoff. This is causing stormwater infiltration into sanitary sewer system leading to sanitary sewer backups into residential structures and increased capacity to the water treatment plant.
- There are 4 repetitive loss and 1 severe repetitive loss property located in the Township.

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Township of West Caldwell that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps have been generated only for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of West Caldwell has significant



exposure; refer to Figures 9.22-1 and 9.22-2. This map also displays 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 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; and community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

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

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

- The Township changed the hazard ranking for earthquake from high to medium.
- The Township changed the hazard ranking for flood from low to medium.
- The Township changed the hazard ranking for wildfire from low to medium.
- The Township changed the hazard ranking for cyber attack from low to medium.
- The Township changed the hazard ranking for economic collapse from medium to low.
- The Township changed the hazard ranking for hazardous substances from low to medium.
- The Township changed the hazard ranking for transportation failure from low to medium

Table 9.22-14. Township of West Caldwell Hazard Ranking

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

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

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



9.22.7 Mitigation Strategy and Prioritization

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

PAST MITIGATION INITIATIVE STATUS

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

Table 9.22-15. 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 #
West Caldwell-1: Obtain backup power to ensure continuity of operations. The following have been identified to date: 1. West Caldwell Police station generator project 2. West Caldwell West Essex First Aid Building 3. West Caldwell Municipal 4. West Caldwell Department of Public Works	Township OEM	1. Completed 2017 2. Private Corporation, would work with them, but no jurisdiction 3. Completed, 2018 4. Tied into police generator in 2019	X	2020-Township of West Caldwell-004
West Caldwell-2: Increase stream dumping enforcement	Township Code Enforcement	Ongoing capability		
West Caldwell-3: Stream channel clearing and de-snagging	Township	Ongoing capability		
West Caldwell-4: Construction of a chlorine booster station	Township	Discontinue		
West Caldwell-5: Purchase and replace emergency stand-by generator	Township	Continue	X	2020-Township of West Caldwell-001
West Caldwell-6: Police/Fire/EMS radio system (Police Department).	Police Department	Ongoing capability, pursuing funding (discontinue action)		
West Caldwell-7: Police headquarters building security locks and video monitoring (Police Department).	Police Department	Completed, 2018		
West Caldwell-8: Purchase remote monitoring system for certain roads and intersections (Police Department).	Police Department	Ongoing capability (Discontinue)		
West Caldwell-9: Message sign board (Police Department).	Police Department	Completed, 2016		
West Caldwell-10: Vehicular traffic lane diversion equipment (Police Department).	Police Department	Ongoing capability (Discontinue)		
West Caldwell-11: Laser mapping equipment (Police Department).	Police Department	Ongoing capability (Discontinue)		
West Caldwell-12: Patrol car awning (Police headquarters). (Police Department).	Police Department	Ongoing capability (Discontinue)		
West Caldwell-13: Equip the department classroom (Police Department).	Police Department	Ongoing capability (Discontinue)		



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 #
West Caldwell-14: Clean and maintain stream culvert between all municipalities.	Township OEM	Ongoing capability (DPW)		
West Caldwell-15: Infiltration study for sanitary sewer system- old pipes, back flow.	Township Engineering, FPA	In progress, some studies have been completed. Transition to continuous process by studying sections	X	2020-Township of West Caldwell-002
West Caldwell-16: Obtain information about becoming a certified Firewise Community due to the potential for forest fires.	Fire Dept	No progress, Discontinue		
West Caldwell-17: Upgrade sanitary sewer system back-ups and overflows.	Township Engineering	In progress, see study progress above.		
West Caldwell-18: Kirkpatrick Lane wastewater pumping stations.	Township Engineering	In progress, renovations for capacity increase	X	2020-Township of West Caldwell-003
West Caldwell-19: Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable. Assess and prioritize non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as repetitive loss, such as acquisition/relocation, or elevation depending on feasibility. The parameters for feasibility for this initiative would be: funding, benefits versus costs and willing participation of property owners. Implement as funding becomes available.	Township Engineering, FPA	No progress	X	2020-Township of West Caldwell-008

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



Table 9.22-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of West Caldwell would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four (4) FEMA mitigation action categories and the size (6) CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as *High*, *Medium*, or *Low*. Table 9.22-17 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update and Table 9.22-18 summarizes the actions by type across hazards of concern.

DRAFT



Table 9.22-16. 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-Township of West Caldwell-001	Purchase and replace emergency stand-by generator	The Municipal Town hall acts as the Emergency Operation Center in the event that the primary EOC (Municipal Police Department) is overwhelmed or if the incident expands in scope and size. The generator is in need of replacement	Purchase 175 KW (or more) diesel GENERAC Automatic Standby Generator with tank capacity of 380 gallons, 24 Hour run time via a 600A 3PH 4W 240/120/3/60 Automatic Transfer Switch.	Existing	Utility Interruption	2, 3, 6	Township	Municipal budget, HMGP	Protection of critical services	High	Within 5 years	High	SIP	PP, ES
2020-Township of West Caldwell-002	Implement identified actions of infiltration study for sanitary sewer system- old pipes.	West Caldwell's Sanitary Sewer System is aging and it's condition may be allowing storm water infiltration into the sanitary sewer system leading to sanitary sewer backups into residential structures and increased capacity to the waste water treatment plant.	West Caldwell has hired a consultant to perform an infiltration study of the sanitary sewer along Forest Avenue. The study will be completed with the next 6- 12 months. West Caldwell will implement the best identified alternative as a result of the study within 12-24 months after the results are completed.	Existing	Severe Storm, Flood, Utility Interruption	2	Township Engineering, FPA	Municipal budget	Reduction in infiltration	High	Within 5 years		SIP	PP
2020-Township of West Caldwell-003	Kirkpatrick Lane wastewater pumping stations	Pump stations do not have enough capacity	Continue renovations for capacity increase	Existing	Utility Interruption	2	Township Engineering	Municipal budget	Increased capacity of pumps	High	Within 5 years	High	SIP	PP
2020-Township of West Caldwell-004	Assist privately owned critical facilities install generators	Continuity of operations of privately-owned critical facilities must be maintained	Assist West Essex First Aid Squad and West Caldwell BOE in identification and purchase of generators.	Existing	Utility Interruption	2, 3, 6	Township, West Essex First Aid Squad and West	Municipal budget	Continuity of operations.	\$200	1 year	High	EA P, SIP	PL, ES



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		during occurrences of power outage. West Essex First Aid Squad James Caldwell High School (West Caldwell BOE).					Caldwell BOE							
2020-Township of West Caldwell-005	Develop Debris Management Plan	Severe storms and severe winter storms cause an increased amount of debris that must be collected and disposed of. West Caldwell currently has a permitted site for debris disposal, but does not have a standalone debris management plan.	West Caldwell will work to pursue outside funding to contract with a consultant to develop Debris Management Plan for the Township of West Caldwell.	N/A	Severe Storm, Severe Winter Storm	5, 6	Township	Municipal budget	Plan developed	\$5,000	Within 5 years	High	LP R	ES
2020-Township of West Caldwell-006	Battery backup for traffic lights	Traffic, public safety, and commerce interruptions. Severe storm, severe winter, and flooding cause interruption of traffic signals, which places an increased demand on police personnel to direct traffic when traffic lights are not functioning	West Caldwell Police/OEM in conjunction with Essex County will pursue funding for the implementation of battery backup for traffic lights throughout West Caldwell.	Existing	Severe Storm, Severe Winter Storm, Flood, Utility Interruption, Transportation Failure	6	West Caldwell Police/OEM, Essex County	Municipal budget, HMGP	Traffic signals remain functional during power failure	High	Within 5 years	High	SIP	PP, ES
2020-Township of West Caldwell-007	Increase stormwater system capacity in Gardens section of township	Gardens section of Town (Parkview Avenue, Johnson Avenue) has stormwater runoff due to an increasing amount of high intensity short duration rainfall	West Caldwell will install additional catch-basins and upgrade stormwater pipes to increase stormwater capacity. West Caldwell Engineering is currently determining	New and Existing	Severe Storm, Flood	2	Engineering	Municipal budget, HMGP	Increased stormwater capacity, reduced flooding.	High	Within 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
		events because of inadequate stormwater infrastructure.	cost and expected scope of work (to be completed within 6 months).											
2020-Township of West Caldwell-008	Mitigate flood-prone properties, including RL/SRL properties	There are 4 repetitive loss and 1 severe repetitive loss property located in the Township.	The Township will conduct public outreach to the RL and SRL properties to identify if there is interest in mitigation (elevation or acquisition). If there is no interest in mitigation, the Township will provide a list of options homeowners can do to protect their home from future flood damage.	Existing	Flood, Severe Storm	1, 2, 3	Floodplain administrator, 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.	\$750,000	3 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. Actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and preserve or restore the functions of natural systems. Actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects (SP)** - Actions that involve the construction of structures to reduce the impact of a hazard. Structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services (ES)** - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

Table 9.22-17. 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-Township of West Caldwell-001	Purchase and replace emergency stand-by generator	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2020-Township of West Caldwell-002	Implement identified actions of infiltration study for sanitary sewer system- old pipes.	0	1	0	1	1	1	1	1	1	1	0	0	1	1	10	High
2020-Township of West Caldwell-003	Kirkpatrick Lane wastewater pumping stations	0	1	0	1	1	1	1	1	1	1	0	0	1	1	10	High
2020-Township of West Caldwell-004	Assist privately owned critical facilities install generators	1	1	1	1	1	0	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-Township of West Caldwell-005	Develop Debris Management Plan	1	1	0	0	1	1	0	1	1	0	1	0	1	1	9	High
2020-Township of West Caldwell-006	Battery backup for traffic lights	1	0	1	1	1	0	1	1	1	1	0	0	1	1	10	High
2020-Township of West Caldwell-007	Increase stormwater system capacity in Gardens section of township	0	1	0	1	1	1	1	1	0	1	1	0	1	1	10	High
2020-Township of West Caldwell-008	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

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



Table 9.22-18. 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 Storms (hurricanes/tropical storms, nor'easters, coastal erosion, and storm surge)								
Drought								
Earthquake								
Extreme Temperature								
Flood (riverine / flash flood, SLR)		2020-002, 2020-008				2020-002, 2020-007, 2020-008		
Geological Hazards (landslides and subsidence/sinkholes)								
Severe Weather (high wind, tornado, TSTM, and hail)	2020-005	2020-002, 2020-008				2020-002, 2020-008		
Severe Winter Weather (heavy snow, blizzards, and ice storms)	2020-005							
Wildfire								
Civil Disorder								
Cyber Attack								
Disease Outbreak								
Economic Collapse								
Hazardous Substances								
Utility Interruption		2020-001, 2020-002, 2020-003, 2020-006			2020-001, 2020-002, 2020-003, 2020-004, 2020-006	2020-004		
Terrorism								
Transportation Failure								

9.22.8 Staff and Local Stakeholder Involvement in Annex Development

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



Table 9.22-19. Contributors to the Annex

Entity	Title	Method of Participation
Larry Peter	Emergency Management Coordinator	Primary POC
John Medina	Deputy Emergency Management Coordinator	Alternate POC
Vinnie Graziosa	DPW Superintendent	Attended Plan Participant Meetings
Gerard Paris	West Caldwell Police Chief	Attended Plan Participant Meetings
Nikole Baltycki	Township Administrator	Attended Plan Participant Meetings
John Pressler	Water Operator	Attended Plan Participant Meetings
Michael Luker	Fire Chief	Attended Plan Participant Meetings
Bob McLoughlin	Construction Office/ Floodplain Administrator	Attended Plan Participant Meetings

DRAFT



Figure 9.22-1. Township of West Caldwell Hazard Area Extent and Location Map

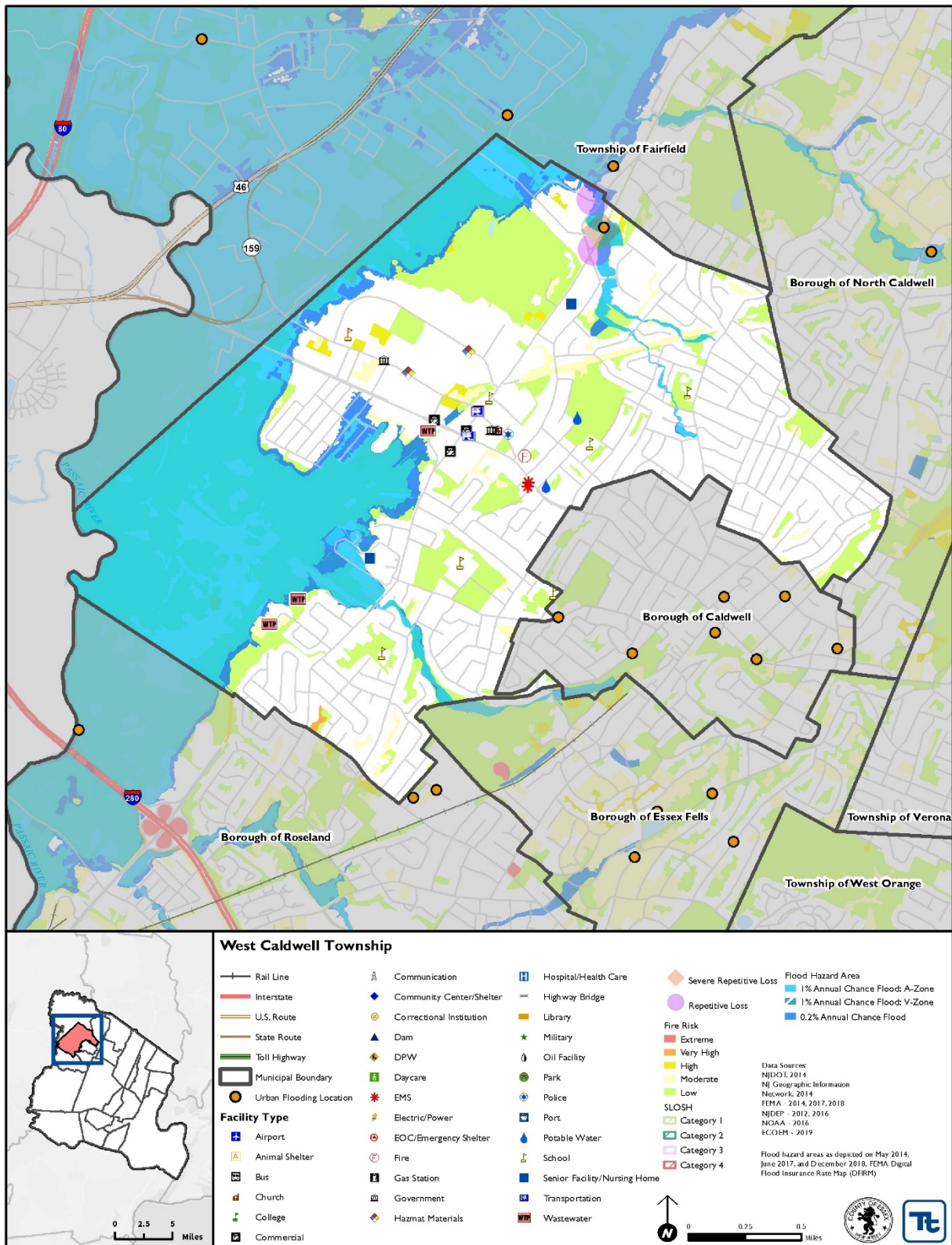
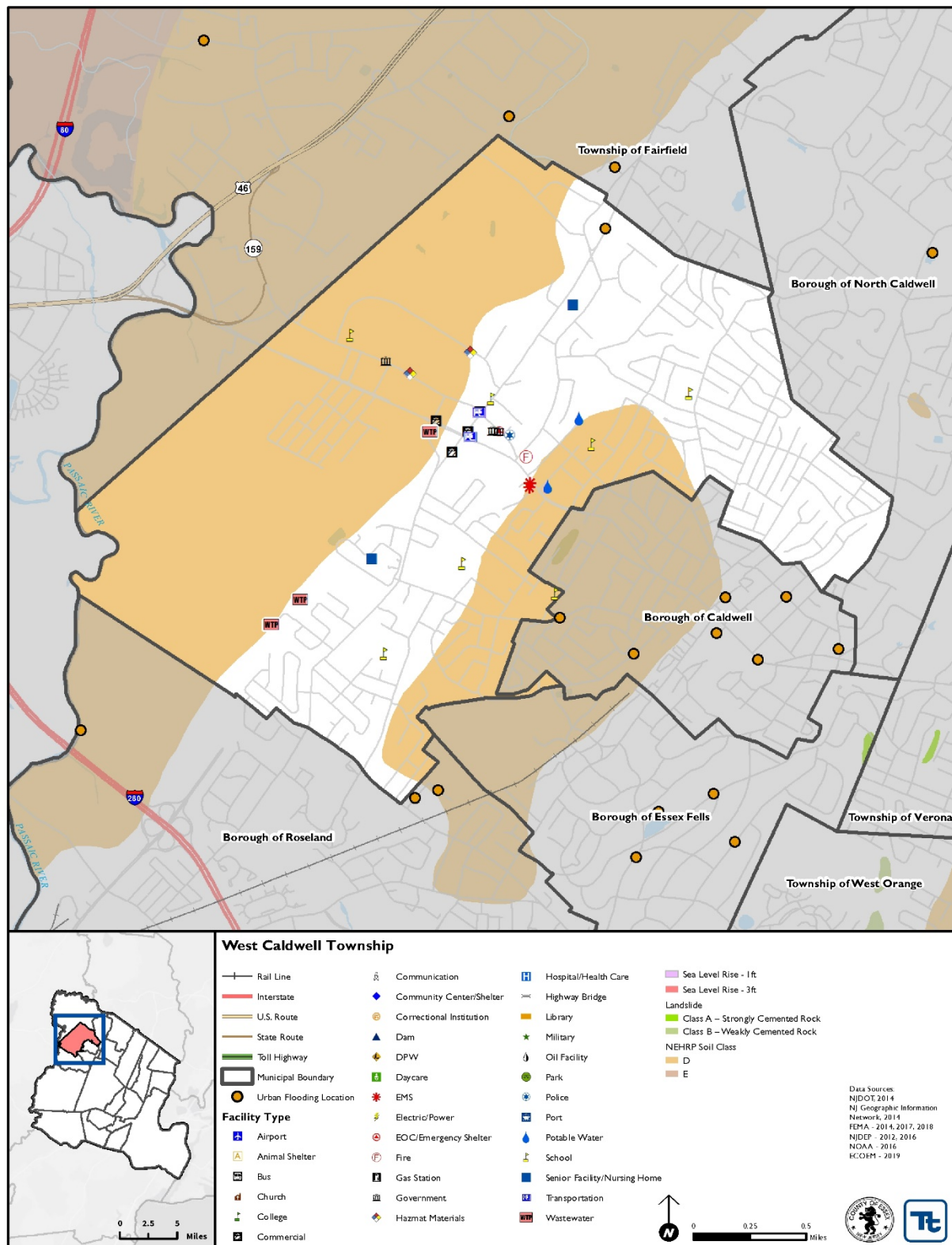




Figure 9.22-2. Township of West Caldwell Hazard Area Extent and Location Map 2





Name of Jurisdiction: Township of West Caldwell

Name and Title Completing Worksheet:

Action Worksheet			
Project Name:	Increase stormwater system capacity in Gardens section of township		
Project Number:	2020-Township of West Caldwell-007		
Risk / Vulnerability			
Hazard(s) of Concern:	Severe Storm, Flood		
Description of the Problem:	Gardens section of Town (Parkview Avenue, Johnson Avenue) has stormwater runoff due to an increasing amount of high intensity short duration rainfall events because of inadequate stormwater infrastructure.		
Action or Project Intended for Implementation			
Description of the Solution:	West Caldwell will install additional catch-basins and upgrade stormwater pipes to increase stormwater capacity. West Caldwell Engineering is currently determining cost and expected scope of work (to be completed within 6 months).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by scope of work	Estimated Benefits (losses avoided):	Increased stormwater capacity, reduced flooding
Useful Life:	50 years	Goals Met:	2
Estimated Cost:	TBD by scope of work	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 year
Estimated Time Required for Project Implementation:	TBD by scope of work	Potential Funding Sources:	Municipal budget, HMGP
Responsible Organization:	Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Stormwater Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			



Update Evaluation of the Problem and/or Solution:	
--	--

DRAFT



Name of Jurisdiction: Township of West Caldwell

Name and Title Completing Worksheet: _____

Action Worksheet		
Project Name:	Increase stormwater system capacity in Gardens section of township	
Project Number:	2020-Township of West Caldwell-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Reduction in flooding risk
Cost-Effectiveness	0	
Technical	1	Technically feasible project
Political	1	
Legal	1	The Township has the legal authority to conduct the project.
Fiscal	1	Municipal budget, HMGP
Environmental	1	
Social	0	Project would reduce flooding impacts.
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	Engineering
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	

Name of Jurisdiction: Township of West Caldwell

Name and Title Completing Worksheet: _____



Action Worksheet			
Project Name:	Mitigate flood-prone properties, including RL/SRL properties		
Project Number:	2020-Township of West Caldwell-008		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages in the Passaic Avenue, Bloomfield Avenue, and Fairfield Crest areas. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.		
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 Passaic Avenue, Bloomfield Avenue, and Fairfield Crest 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:	1, 2, 3
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:	

DRAFT



Name of Jurisdiction:

Township of West Caldwell

Name and Title Completing Worksheet:

Action Worksheet		
Project Name:	Mitigate flood-prone properties, including RL/SRL properties	
Project Number:	2020-Township of West Caldwell-008	
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 Town has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Project would remove families from the Passaic Avenue, Bloomfield Avenue, and Fairfield Crest areas.
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:

Township of West Caldwell

Name and Title Completing Worksheet:

Action Worksheet			
Project Name:	Purchase and replace emergency stand-by generator		
Project Number:	2020-Township of West Caldwell-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Utility Interruption		
Description of the Problem:	The Township of West Caldwell is seeking funding to purchase and install a permanent natural gas generator for the Municipal Town hall so that it can provide power to critical infrastructure in the event of a power outage. The Municipal Town hall will act as the Emergency Operation Center in the event that the primary EOC (Municipal Police Department) is over whelmed or if the incident expands in scope and size. Neither building can remain open in the event of power failures. The purchase of the generator will allow the Township to manage emergencies more efficiently, therefore, allowing for a smooth coordination of our emergency services.		
Action or Project Intended for Implementation			
Description of the Solution:	(1) 175 KW (or more) diesel GENERAC Automatic Standby Generator with tank capacity of 380 gallons, 24 Hour run time via a 600A 3PH 4W 240/120/3/60 Automatic Transfer Switch.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	Prevents power loss	Estimated Benefits (losses avoided):	Protects continuity of operations
Useful Life:	5 years	Goals Met:	2, 3, 6
Estimated Cost:	\$30,000	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:	3 months	Potential Funding Sources:	Municipal budget, HMGP
Responsible Organization:	Township of West Caldwell	Local Planning Mechanisms to be Used in Implementation if any:	
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:	

DRAFT



Name of Jurisdiction:

Township of West Caldwell

Name and Title Completing Worksheet:

Action Worksheet		
Project Name:	Purchase and replace emergency stand-by generator	
Project Number:	2020-Township of West Caldwell-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	With an increase of power outages in the area, it is necessary to install generators at critical facilities within the Township for continuity of operations for emergency responders.
Property Protection	1	Having the ability to keep the Township EOC with power, during power outages, will allow our emergency dispatchers to keep better track of emergency responders and better allocated resources to secure, reduce and eliminate hazards to infrastructure and damage to structures.
Cost-Effectiveness	1	For the small investment of \$121,000; hundreds of thousands of dollars can be saved by the better allocation of resources to secure, reduce and eliminate hazards to infrastructure and damage to structures.
Technical	1	It is technically feasible and meets the Township long-term goals.
Political	1	The Township has applied for HMGP Grant (Application #206 – Project #4086) and is moving through the process. The Township’s Governing Body has already funded the full amount of the project, as it is a reimbursement grant.
Legal	1	Neutral
Fiscal	0	Requires funding support
Environmental	1	The Generator will be permitted and will comply with State Environmental Rules.
Social	1	This project will not negatively affect the population.
Administrative	1	The Township has the administrative capabilities to implement this action and will not require outside help.
Multi-Hazard	0	Utility Interruption
Timeline	0	
Agency Champion	1	Project has been assigned a manager and is being supported by administration. The Township’s Governing Body has already funded the full amount of the project, as it is a reimbursement grant.
Other Community Objectives	1	
Total	11	



Priority (High/Med/Low)	High	
----------------------------	------	--

DRAFT