

Appendix G. New Jersey Office of Emergency Management Mitigation Program Handouts

# Table of Contents

Federal and State Online Resources for Hazard Mitigation	3
Hazard Types	7
Reprint of 44	11
Code of Federal Regulation	11
Preparing your Annual HMP Monitoring Report	13
Endorsement Form	14
Multi-jurisdictional Hazard Mitigation Plan	14
Consequences of not having a FEMA Approved All-Hazards Mitigation Plan	15
What is Mitigation?	17
Benefit/Cost Analysis	19
Hazard Mitigation Assistance (HMA) Decision Matrix	21
Public Assistance Program	26
Why Acquisition?	28
New Jersey State Hazard Mitigation Plan 2019 Standardized Risk Template for Multi-Jurisdictional Mitigation Plans	29



# Federal and State Online Resources for Hazard Mitigation

### State of New Jersey Resources:

- 1. New Jersey Office of Emergency Management
  - a. New Jersey Office of Emergency Management http://www.ready.nj.gov/
  - b. New Jersey Mitigation Programs, Activities, And Initiatives http://ready.nj.gov/mitigation/hazard-mitigation-grant-program.shtml

### 2. Coastal Mapping and Flooding Resources:

- a. NJADAPT -http://www.njadapt.org/home.html
- b. NJ Flood Mapper <u>http://www.njfloodmapper.org/profiler/#/start</u>
- c. Coastal Resilience New Jersey http://maps.coastalresilience.org/newjersey/#
- d. New Jersey Resilient Coastal Communities Initiative -<u>http://www.prepareyourcommunitynj.org/municipal-maps/</u>

#### Federal Resources:

- 1. Specific Laws Governing FEMA Operations
  - A. Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL93-288) as amended the law under which mitigation was created within FEMA.
  - B. National Flood Insurance Act of 1968, as amended
  - C. National Flood Insurance Reform Act of 1994
  - D. Flood Disaster Protection Act of 1973
    - Internet Resource: <u>WWW.FEMA.GOV</u>
- 2. FEMA Grant Programs
  - A. The Hazard Mitigation Grant Program (HMGP) https://www.fema.gov/hazard-mitigation-grant-program
    - Eligible Mitigation Actions –
    - https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart
  - B. The Flood Mitigation Assistance (FMA) program https://www.fema.gov/flood-mitigation-assistance-grant-program
  - C. The Pre-Disaster Mitigation (PDM) program https://www.fema.gov/pre-disaster-mitigation-grant-program
  - D. The Repetitive Flood Claims (RFC) program https://www.fema.gov/repetitive-flood-claims-grant-program-fact-sheet

# 3. Relevant Laws Impacting FEMA Operations

- A. National Historic Preservation Act, 16 U.S.C. § 470.
- B. Archaeological & Historic Preservation Act, as amended, 16 U.S.C. §§ 469-469c.
  - Internet Resource: WWW.ACHP.GOV
- C. Endangered Species Act, 16 U.S.C. § 1531 et seq. Federal agencies must ensure that projects are not likely to harm or destroy federally threatened or endangered species or their critical habitat.
- D. Fish and Wildlife Coordination Act, 16 U.S.C. § 661 et seq. Federal agencies must assess the impact that water-related projects will have on fish and wildlife resources and take actions to prevent their loss or damage.
  - Internet Resource: <u>WWW.FWS.GOV</u>
- E. Wild and Scenic Rivers Act, 16 U.S.C. § 271 et seq. Federal agencies cannot provide assistance for the construction of any water resource project that would adversely affect rivers listed on the National Wild and Scenic Rivers System.
- F. Wilderness Act System of National Wilderness areas and policies to

manage and protect

- Internet Resource: <u>WWW.NPS.GOV</u>
- G. Farmlands Protection Policy Act, 7 U.S.C. § 4201 et. seq. and EPA Policy to Protect Environmentally Sensitive Agricultural lands, September 1978. Encourages preservation of prime, unique, and important farmlands.
   Internet Resource: WWW.DOA.GOV
- H. Coastal Zone Management Act, 16 U.S.C. § 1451 et. seq. Federal agency projects must be consistent with the state coastal zone management programs.
- I. Coastal Barriers Resources Act, 16 U.S.C. § 3501 et. seq. Federal agencies are restricted on the type of assistance allowed in designated CBRA or Otherwise Protected Areas (OPAs).
  - Internet Resource: <u>WWW.NOAA.GOV</u>
- J. Clean Air Act, 42 U.S.C. § 7401 Federal agencies must assess the impact that projects will have on air quality and take actions to prevent air quality degradation.
   Internet Resource: WWW.EPA.GOV
- K. Department of Transportation Act, Section 4(f) Environmental review of Recreational Area/Parkland/Protected Land

• Internet Resource: <u>HTTP://WWW.FRA.DOT.GOV/S/REGS/EIS/NEPA.HTM</u>

L. Clean Water Act - 33 U.S.C. § 1344

Section 313 – Storm Water Management and Erosion Sediment Control Section 402 – Sewage Disposal Discharge Permits Section 404 – Federal agencies must assess the impacts that water-related projects will have on water quality and take actions to prevent water quality degradation.

- Notes: (1) "Waters of the U.S." includes waters subject to ebb and flow of tide; wetlands; lakes, rivers, streams, mudflats, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, impoundment, tributaries, territorial seas, and wetlands adjacent to waters previously identified.
   (2) Provides the authority with which the USACE regulated the excavation and discharge of fill materials.
- M. Rivers and Harbors Act 33 U.S.C. § 403 Section 10 of the Rivers and Harbors Act of 1889 provides that Federal agencies must assess the impact that projects will have on navigable waters. Act establishes the authority with which USACE regulates the construction of any structure in or over any navigable waters of the United States. Also covers excavation and deposition of materials.
  - Internet Resource: <u>WWW.USACE.ARMY.MIL</u>

#### N. Resource Conservation and Recovery Act, 42 U.S.C. § 6901 Federal agencies must assess the impact that debris, debris removal and hazardous wastes and hazardous waste clean-up projects will have on air and water quality and take actions to prevent degradation.

 O. Other Environmental Comprehensive Environmental Response, Compensation and Liability Act (Superfund) 42 U.S.C. § 9601
 EPA Underground Storage Tank regulations 42 U.S.C. § 6901
 Federal Safe Drinking Water Act 42 U.S.C. § 300f

Internet Resource: <u>WWW.EPA.GOV</u>

# 4. Other Laws Impacting FEMA Operations

- A. Department of Transportation Act, Section 4(f) Environmental review of Recreational Area/Parkland/Protected Land
   Internet Resource: HTTP://WWW.FRA.DOT.GOV/S/REGS/EIS/NEPA.HTM
- B. Applicable State and Local requirements such as:
  - Local Flood Plain Management Laws
  - Highlands, Meadowlands, Pinelands National Reserve and Coastal etc. Regulations (NJ)

# 5. Executive Orders and Presidential Declarations Impacting FEMA Operations

- A. E.O. 11988 Floodplain Management, see 44 C.F.R. Part 9.
- B. E.O. 11990 Protection of Wetlands, see 44 C.F.R. Part 9.
- C. E..O. 12898 Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7629-7633 (1994).

- D. E.O. 12699 Seismic Safety of Federal or Federally Funded New Building Construction, (1990).
  - Internet Resource: <u>WWW.ACCESS.GPO.GOV/</u>
- E. New Jersey Presidential Declarations https://www.fema.gov/disasters/state-tribal-government/0/NJ

### 6. FEMA Web Sites

- FEMA web site <u>https://www.fema.gov/</u>
- FEMA Individual Assistance https://www.fema.gov/individual-disaster-assistance
- FEMA Public Assistance https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit
- FEMA Mitigation https://www.fema.gov/what-mitigation
- FEMA Planning, Training and Exercises <u>https://www.fema.gov/training</u>
- FEMA National Flood Insurance Program https://www.fema.gov/national-flood-insurance-program
- FEMA Publications https://www.fema.gov/national-flood-insurance-program-publications

### 7. Other Agency & Association Web Sites (with Mitigation/Recovery Programs)

- Small Business Administration (SBA) <u>http://www.sba.qov</u>
- U.S. Geological Survey <u>https://www.usgs.gov/</u>
- U.S. Environmental Protection Agency <u>https://www.epa.gov/</u>
- U.S. Department of Housing and Urban Development <u>https://www.hud.gov/</u>
- U.S. Department of Agriculture <u>-</u>https://www.usda.gov/
- USDA Natural Resource Conservation Service (NRCS) <u>https://www.nrcs.usda.gov</u>
- Department of Defense, US Army Corps of Engineers (USACE) http://www.usace.army.mil
- National Archives & Records Administration-CFR <u>https://www.archives.gov/</u>
- American Society of Engineers https://www.asce.org/
- Applied Technology Council https://www.atcouncil.org/
- Association of Continuity Planners <u>https://acp-international.com/</u>
- Association of Engineering Geologists https://www.aegweb.org/
- International City/County Management Association https://icma.org/
- National Association of Home Builders http://www.nahb.com
- National Institute of Building Sciences https://www.nibs.org/
- American Planning Association <u>http://www.planning.org</u>
- American Public Works Association https://www.apwa.net/

#### 8. Flood Web Sites

- FEMA web site <u>https://www.fema.gov/</u>
- The Natural Hazards Center <u>https://hazards.colorado.edu/</u>
- FEMA learning resource center https://training.fema.gov/emi.aspx
- National Oceanic and Atmospheric Administration www.noaa.gov/
- Floodplain Management Association <u>https://floodplain.org/</u>
- Association of State Floodplain Managers <u>https://www.floods.org/</u>
- Northwest FloodPlain Managers Association www.norfma.org/

# 9. Earthquake Web Sites

- FEMA web site <u>https://www.fema.gov/</u>
- National Earthquake Information Center, USGS, Golden, CO https://earthquake.usgs.gov/contactus/golden/neic.php
- Central U.S. Earthquake Consortium https://cusec.org/recent-central-u-s-earthquakes/
- USGS, Menlo Park, CA https://earthquake.usgs.gov/contactus/menlo/
- Building Seismic Safety Council <u>https://www.nibs.org/page/bssc</u>
- Earthquake Engineering Research Center, University of CA at Berkeley https://peer.berkeley.edu/

• Earthquake Engineering Research Institute - https://www.eeri.org/

#### 10. Landslide Web Sites

- FEMA <u>https://www.fema.gov/</u>
- U.S. Geological Survey <u>https://www.usgs.gov/</u>

#### 11. Wind Web Sites

- American Association of Wind Engineering http://www.civil.buffalo.edu/wind/windneeds.html
- Wind Engineering Research Laboratory http://www.depts.ttu.edu/nwi/

#### 12. Tsunami Web Sites

• National Tsunami Hazard Mitigation Program – <u>https://nws.weather.gov/nthmp/index.html</u>

#### 13. Volcano Web Sites

- Cascades Volcano Observatory <u>https://volcanoes.usgs.gov/observatories/cvo/</u>
- USGS Volcano web site <u>http://quake.wr.usgs.gov</u>
- Alaska Volcano Observatory <u>http://www.avo.alaska.edu</u>

#### 14. Wildfire Web Sites

- Firewise web site https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA
- U.S. Forest Service <u>https://www.fs.fed.us/</u>
- National Interagency Fire Center, Boise <u>https://www.nifc.gov/</u>
- NIST-Building and Fire Research Laboratory -
- https://www.nist.gov/el/fire-research-division-73300/national-fire-research-laboratory-73306
- Wildland Firefighter Magazine wildfiremagazine.org/

#### For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

#### Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649

Email: <a href="mailto:lpp6433@gw.njsp.org">lpp6433@gw.njsp.org</a>

# Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649

Email: <a href="mailto:lpptestc@gw.njsp.org">lpptestc@gw.njsp.org</a>



# **Hazard Types**

Hazards may occur alone or in combination with severe weather leading to flooding; an earthquake leading to landslides; or high winds leading wildfires. The New Jersey State Hazard Mitigation Plan addresses natural hazards and what can be done to eliminate or reduce their impact. The Plan is online at: <u>http://www.State.nj.njoem/</u>

Natural Hazards	<ul> <li>Fires: Arson, wild fires, urban fires</li> <li>Flooding: alluvial fan (rain), coastal flooding, dam failure, flash floods, mudslides, riverine flooding.</li> <li>Geological Hazards: earthquake, ground subsidence, landslides, tidal waves or tsunami</li> <li>Severe Weather: Avalanche, coastal erosion, dam failure, drought, extreme weather, hail, winds, hurricane, ice storms, land subsidence, landslide, lightning, severe winter storm, snow storms, tornado, tsunami, wildfire</li> </ul>	
Man-Made Hazards:	<ul> <li>Hazardous Materials: biological, chemical, explosive, and radioactive materials.</li> <li>Radiological: Institutional incidents, power plant accidents, transportation accidents, weapons accidents</li> <li>Technological: Disease, infestation, economic crisis, loss of essential services</li> <li>Terrorism: Bombings, civil unrest, crime, threats to government, violent protests.</li> </ul>	

The New Jersey State Hazard Mitigation Plan addresses vulnerability to each hazard in the Hazard Assessment Process.

# Flooding (Riverine, coastal flooding, storm surge and tsunami)

- Riverine Flooding is the accumulation of water within a water body (e.g., stream, river, lake, or reservoir) and the overflow of excess water onto adjacent floodplains. Floods are natural events that are considered hazards only when people and property are affected.
- □ Coastal Flooding is the inundation of land areas along the coast caused by sea water above normal tidal actions. This is often caused by prolonged strong onshore flow of wind and/or high astronomical tides.
- □ **Tsunami** A series of sea waves usually caused by displacement of the ocean floor by an undersea earthquake. The wave travels at speeds of up to 600 mph. As tsunamis enter the shallow waters near land, they increase in height causing great loss of life and property damage where they come ashore. Tsunamis are not a single wave but a series of waves.

# Hurricanes and tropical storms

- □ **Tropical Cyclone is a** low-pressure system in which wind speed spiral counterclockwise around the center, accompanied by heavy rain and strong winds. Occur during the month of June through November in the Atlantic Ocean and Caribbean.
- □ Hurricanes are tropical cyclones with winds of 74 mph or more. Its devastating effects include storm surge, strong winds heavy rains and flooding

	CategoryNo.*	Wind Speed (mph)	Potential Damage
	1	74-95	Minimal
Hurricanes - Rated under	2	96-110	Moderate
the Saffir-Simpson Scale	3	111-130	Extensive
	4	131-155	Extreme
	5	>156	Catastrophic

Because hurricanes often occur at the same time, officials assign short, distinctive names to the storms to avoid confusion among weather stations, coastal bases, and ships at sea.

Since 1953, Atlantic tropical storms have been named from lists created by the National Hurricane Center and now maintained and updated by the World Meteorological Organization. The lists featured only women's names until 1979, when men's and women's names were alternated. Six lists are used in rotation. The 2011 list will be used again in

2017. If all the names in a season's list have been used, later storms are named for Greek letters, in alphabetical order. (This has happened only once, in 2005.)

A storm is given a name once its winds reach a speed of 40 mph. In addition to the Atlantic list of names, there are ten other lists corresponding to other storm-prone regions of the world.

2018	2019	2020	2021	2022	2023
Alberto	Andrea	Arthur	Ana	Alex	Arlene
Beryl	Barry	Bertha	Bill	Bonnie	Bret
Chris	Chantal	Cristobal	Claudette	Colin	Cindy
Debby	Dorian	Dolly	Danny	Danielle	Don
Ernesto	Erin	Edouard	Elsa	Earl	Emily
Florence	Fernand	Fay	Fred	Fiona	Franklin
Gordon	Gabrielle	Gonzalo	Grace	Gaston	Gert
Helene	Humberto	Hanna	Henri	Hermine	Harold
Isaac	Imelda	Isaias	lda	lan	Idalia
Joyce	Jerry	Josephine	Julian	Julia	Jose
Kirk	Karen	Kyle	Kate	Karl	Katia
Leslie	Lorenzo	Laura	Larry	Lisa	Lee
Michael	Melissa	Marco	Mindy	Martin	Margot
Nadine	Nestor	Nana	Nicholas	Nicole	Nigel
Oscar	Olga	Omar	Odette	Owen	Ophelia
Patty	Pablo	Paulette	Peter	Paula	Philippe
Rafael	Rebekah	Rene	Rose	Richard	Rina
Sara	Sebastien	Sally	Sam	Shary	Sean
Tony	Tanya	Teddy	Teresa	Tobias	Tammy
Valerie	Van	Vicky	Victor	Virginie	Vince
William	Wendy	Wilfred	Wanda	Walter	Whitney

- Nor'easters (North Easter or Nor'easter) Storm located off the east coast of North America so called because winds over the coastal area are from the North East. They may occur at any time of the year but are more frequent between September and April. North Easters nearly always bring rain and wind of more than 50 mph to the coastal region.
- Other Flood, Hurricane and Nor'easter terms
  - **Tropical Storm -** A tropical cyclone with winds of 39 to 74 mph.
  - Tropical Depression A tropical cyclone with winds less than 39 mph.
  - **Storm Surge -** Quickly rising ocean water level associated with hurricanes that may cause wide spread flooding and destruction along coastal region.
  - Flash Floods Flooding with rapid water rise.
  - Tropical Wave Weak low pressure system that travels in the easterly across the Atlantic and Caribbean.
  - **Upper Trough -** An area of low atmospheric pressure usually between 20,000 and 30,000 feet. The atmosphere below becomes unstable producing conditions of severe weather near the ground.
- □ Winter storms (Snow, ice storms, cold waves and cold chills (resulting in flooding, storm surge, closed highways, blocked roads, downed power lines and hypothermia.
  - Winter storm. A storm with significant snowfall, ice, and/or freezing rain; the quantity of precipitation varies by elevation. In Non-mountainous areas heavy snowfall is 4 inches or more in a 12-hour period, or 6 or more inches in a 24-hour period and in Mountainous areas 12 inches or more in a 12-hour period or 18 inches or more in a 24-hour period
  - **Blizzard**. A storm with considerable falling and/or blowing snow combined with sustained winds or frequent gusts of 35 mph or greater that frequently reduces visibility to less than one-quarter mile.
  - Cold Front When cold air displaces warm air it forms a boundary known as a "cold front". Violent weather may form along the front with danger of flooding, hail and tornadoes.

- □ Tornadoes, High Winds and Thunderstorms.
  - Tornado A strong rotating column of air that extends from the base of thunderstorm clouds to the ground. Strongest winds have been around 300 mph and have traveled more than 200 miles in distance. Thunderstorms and hurricanes spawn tornadoes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. The winds produced from hurricanes, earthquake-induced fires, and wildfires have also been known to produce tornadoes. The nature of tornadoes is that they strike at random.
  - Fujita defines these wind speeds as the "fastest quarter-mile wind." The accuracy of expected damage at particular wind speed has never been scientifically proven

Tornado - Classified under the Fujita Scale				
Gale (F0)Light damage. Some damage to chimneys; break branches off trees;40-72 mphpush over shallow-rooted trees; damage to sign boards		About 61 %. Cause less than		
Moderate (F1) 73-112 mph	The lower limitis the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads	5% of death		
Significant (F2) 113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-objects missiles generated. Can last 20 minutes or more.	About 29 %. Cause 30% of deaths.		
Severe ((F-3) 158-206 mph	Roof and some walls torn off well-constructed houses; trains over turned; most trees in forest uprooted; cars lifted off ground.			
Devastating (F4) 207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distances; cars thrown and large missiles generated. Can last longer than an hour	About 2%. Cause 70% of all deaths.		
Incredible (F5) 261-318 mph	Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 yards; trees debarked.			

• Earthquakes are caused by abrupt release of stored energy within the Earth's crust. Seismologists study earthquakes by using a variety of methods to measure and compare the motion of the ground.

Richter	chter TNT Equivalent Characteristics		
Magnitude			
1.0-2.0	6 ounces-13 pounds	Not felt	
3.0	397 pounds	Slight quake. Feels like a passing truck.	
4.0	6 tons	Moderate quake. Dishes rattle, sleepers awakened.	
5.0	199 tons	Considerable quake. Dishes break.	
6.0	6,270 tons	Severe quake. Hard to keep balance. Houses could fall.	
7.0+	199,000 tons	Major quake. Substantial damage to brick and wooden buildings. Fissures form in the ground. About a dozen quakes exceeding 7.0 occur each year.	

#### The strength of an earthquake is measured using the "Richter Scale".

#### The New Jersey State Natural Hazard Mitigation Plan covers:

- Flooding (Riverine, Coastal Flooding, Storm Surge, Tsunami
- Geological Hazards (Landslides, Subsidence and Sinkholes)
- Winter Storms
- Extreme Heat
- Drought
- Wildfire
- Hail
- Extreme Heat
- Wind and Tornadoes
- Coastal Erosion

The Plan also includes information on Human-Caused Hazards including:

- Animal Diseases
- Civil Unrest
- Crop and Fishing Failures
- Nuclear and Hazardous Waste Incidents
- Pandemics
- Power Outages
- Terrorism

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

# Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649

Email: <u>lpp6433@gw.njsp.org</u>

# Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649

Email: <u>lpptestc@gw.njsp.org</u>



# Reprint of 44 Code of Federal Regulation

# (Partial - as of October 1, 2004)

# An All Hazard Mitigation Plan is a requirement of the Federal Disaster Mitigation Act of 2000.

# 44 CFR § 201.6 Local Mitigation Plans

The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

# (a) Plan Requirement.

- (1) For disasters declared after November 1, 2003, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of the project grant.
- (2) Regional Directors may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.
- (3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multijurisdictional plans.

(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

(c) *Plan content.* The plan shall include the following:

- (1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
- (2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:
  - A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
  - (ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its

impact on the community. The plan should describe vulnerability in terms of:

- (A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
- (B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;
- (C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
- (iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.
- (3) A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:
  - (i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
  - (ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.
  - (iii) An action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
  - (iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
- (4) A plan maintenance process that includes:
  - (i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
  - (ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
  - (iii) Discussion on how the community will continue public participation in the plan maintenance process.
- (5) *Documentation* that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi- jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

# (d) Plan review.

- (1) Plans must be submitted to the State Hazard Mitigation Officer for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval.
- (2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.
- (3) Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.
- (4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office.

# For More Information, Contact:

# Sgt. Bradley Waugh, State Hazard Mitigation Officer Phone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649

Email:<u>lpp6433@gw.njsp.org</u> Chris Testa, Hazard Mitigation Unit Manager Phone: (609) 508-6557 Fax: (609) 530-3649 Email:<u>lpptestc@gw.njsp.org</u>



# Preparing your Annual HMP Monitoring Report

All Hazard Mitigation Plans have agreed to the provisions of Code of Federal Regulations; Local Mitigation Plan Review Guidance (October 1, 2011); and Element A6 Regulation [§201.6(c) (4) (i)] that states "The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle".

The intent of this 4 part supplement is to establish an annual process for jurisdictions to track the progress of the plan's implementation; serves as the basis of the next plan update; and also provides for continued public participation and can reduce the cost and time involved in the formal update of the HMP. This handout outlines and suggests what might be included as you report on progress.

1. Report Fo	ormat
The XXX COUNTY Hazard Mitigation Planning Team has monitored activities that have occurred since the <u>20XX Hazard</u> <u>Mitigation Plan (HMP)</u> approval in its effort to keep the plan current. As noted in the HMP's Plan Maintenance section, Chapter XX, the county will keep track of all changes annually and incorporate these updates into a revised plan document at the end of the five-year plan-update cycle in 20XX.	It identifies: <ul> <li>Your jurisdiction</li> <li>Your plan</li> <li>The HMP chapter/section on "Plain Maintenance"</li> <li>When the current plan expires</li> </ul>
2. What the report s	should cover
Please find the attached 20XX supplement which includes updates on the planning process, risk assessment, and mitigation strategy chapters of the HMP in addition to a new hazard profile on hazardous materials releases.	It identifies: <ul> <li>The date of this supplement</li> <li>The sections of the HMP the annex covers</li> </ul>
3. Updates (attached) are	summarized below:
<ul> <li>3A Section (1) – Chapter 2: Planning Process: Mitigation Planning Team meetings, agency and representative names (with any changes noted), and summary of resiliency initiatives</li> <li>3B Section (2) – Chapter 3: Risk Assessment: Additional resources/reports that increase our knowledge of hazards as well as hazard events that have occurred since the last annual HMP Update Annex</li> <li>3C Section (3) – Chapter 4: Mitigation Strategy: Mitigation Actions Overview and increases in our abilities to implement mitigation</li> </ul>	It references a specific chapter in the HMP and identifies: • When the meeting was held • Who was there • An overview of accomplishments It references a specific chapter in the HMP and identifies: • New materials, reports, tools, plans and/or information • Events that have occurred It references a specific chapter in the HMP and identifies:
strategies	<ul><li>Accomplishments</li><li>Project status</li><li>Changes in capabilities</li></ul>
4. Optional Speci	al Features
<b>4A Assessment</b> (Example: the risk and general strategies for reducing the risk of a hazardous materials release incident.)	Identify changes to special sections unique to your HMP. Other topics may cover: Climate change Terrorism
<b>4B Posting</b> – Changes will be posted to our website.	Identify website address,

# For More Information, Contact:

# Sgt. Bradley Waugh, State Hazard Mitigation Officer

Phone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649 Email: <u>lpp6433@gw.njsp.org</u>

#### Chris Testa, Hazard Mitigation Unit Manager

Phone: (609) 508-6557 Fax: (609) 530-3649 Email: <u>lpptestc@gw.njsp.org</u>



# **Endorsement Form**

Multi-jurisdictional Hazard Mitigation Plan Local Jurisdiction:

Name of Municipality

I have reviewed the Hazard Mitigation Plan and certify it is consistent with the professional duties of my office.

#### MAYOR/ADMINISTRATOR:

Name (print)	Signature	Date
ENGINEER		
Name (print)	Signature	Date
FISCAL/CFO		
Name (print)	Signature	Date
BUILDING CODE OFFICIAL		
Name (print)	Signature	Date
FLOODPLAIN ADMINISTRATOR		
Name (print)	Signature	Date
EMERGENCY MANAGER		
Name (print)	Signature	Date
LAND USE PLANNER		
Name (print)	Signature	Date
PUBLIC WORKS DIRECTOR		
Name (print)	Signature	Date
POLICE DEPARTMENT		
Name (print)	Signature	Date
FIRE DEPARTMENT		



# Consequences of not having a FEMA Approved All-Hazards Mitigation Plan

ELIGIBILITY FOR PRE-DISASTER HAZARD MITIGATION ASSISTANCE (HMA) GRANTS			
For the Annual <sup>1</sup> Competitive PDMThen the Applicant <sup>2</sup> is eligible forThen Sub-applicant <sup>3</sup> is eligible for			
<ul> <li>State Plan is FEMA approved and Local Plan is FEMA approved by the date of selection</li> </ul>	PDM Planning & project grants	PDM Planning & project grants	
<ul> <li>State plan is FEMA approved and Local Plan is not approved by the date of selection</li> </ul>	PDM Planning & project grants	PDM Planning grant	
<ul> <li>State plan is not approved and Local Plan is FEMA approved by the date of selection</li> </ul>	PDM Planning grant	PDM Planning grant	
<ul> <li>State Plan is not approved and Local Plan is not approved by the date of selection</li> </ul>	PDM Planning grant	PDM Planning grant	
<sup>1</sup> Date of Selection is defined as the date on which the National Evaluation is completed, and sub-applications			
are presented to the Approving Federal Official (this date is provided in the Annual Fiscal Year PDM Program			
Guidance).			
Applicant is defined as the State.			

<sup>3</sup> Sub-applicant: local governments, universities, river authorities, etc.

# **ELIGIBILITY FOR PUBLIC ASSISTANCE GRANTS**

Fo	or disasters declared after November 1, 2004: if the…	Then Sub-grantee is eligible for
•	State Plan is FEMA approved and Local Plan is FEMA approved	Categories A-G
•	State plan is FEMA approved/re-approved and Local Plan is not approved	Categories A-G
•	State plan is not approved/re-approved and Local Plan is FEMA approved	Categories A and B only
•	State Plan is not approved/re-approved and Local Plan is not approved	Categories A and B only
•	State Plan is not approved/re-approved (but deadline extended until May 1, 2005) and Local Plan is FEMA approved	Categories A-G
•	State Plan is not approved/re-approved (but deadline extended until May 1, 2005) and Local Plan is not approved	Categories A-G
	> THERE IS NO REQUIREMENT FOR LOCAL MITIGATION PLANS AS A PUBLIC ASSISTANCE GRANT FUNDS.	A CONDITION OF RECEIVING
	<ul> <li>PA Categories</li> <li>A – Debris Removal</li> <li>D – Water Control Facilities</li> <li>G – Parks, Recreational Facilities, and other items</li> </ul>	sures <b>C</b> – Roads & Bridges <b>F</b> – Utilities

	ELIGIBILITY FOR HAZARD MITIGATION GRANT PROGRAM (HMGP) GRANTS			
Fo 20	r disasters declared after November 1, 04: if the…	Then the Grantee is eligible for	Then Sub-grantee is eligible for	
•	State Plan is FEMA approved/re-approved and Local Plan is FEMA approved	HMGP Planning &project grants	HMGP Planning &project grants	
•	State plan is FEMA approved/re-approved and Local Plan is not approved	HMGP Planning & project grants	HMGP Planning grant	
•	State plan is not approved/re-approved and Local Plan is FEMA approved	No HMGP available	No HMGP available	
•	State Plan is not approved and Local Plan is not approved	No HMGP available	No HMGP available	
•	State Plan is not approved/re-approved (but deadline extended until May 1, 2008) and Local Plan is FEMA approved	HMGP Planning & Project grants	HMGP Planning & project grants	
•	State Plan is not approved/re-approved (but deadline extended until May 1, 2008) and Local Plan is not approved	HMGP Planning & Project grants	HMGP Planning grant	

- After November 1, 2004 in extraordinary circumstances, a local government may receive a project grant if it does not have a FEMA approved plan if it agrees to complete the plan within 12 months of receiving grant funds. If the plan is not completed within the 12-month period, funding will be discontinued regardless of project status.
- ➢ After May 1, 2005, for States that received an extension but do not have an approved/re-approved plan, HMGP assistance will not be available to either Grantees or Sub-grantees.

# FOR SINGLE HAZARD, FLOOD-RELATED GRANTS

- Under the Repetitive Flood Claims (RFC) Grant Program and the Severe Repetitive Loss (SRL) Program a FEMA-approved State standard or enhanced all hazard mitigation plan is required.
- The State Plan must address how the state has and will continue to reduce the number of severe repetitive loss properties.
- A local plan is required under the SRL
- A local plan is not required under the RFC.
- Under the **Flood Mitigation Assistance Program** a FEMA-approved Flood Mitigation Plan is required.
- Municipalities are encouraged to upgrade Flood Mitigation Plans to All Hazard Mitigation Plans.

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

# Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649 Email: <u>lpp6433@gw.njsp.org</u>

# Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649

Email: <a href="mailto:lpptestc@gw.njsp.org">lpptestc@gw.njsp.org</a>



# What is Mitigation?

# THE FOUR PHASES OF EMERGENCY MANAGEMENT



#### WHAT IS MITIGATION?

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. In order for mitigation to be effective we need to take action now—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, and insuring against risk). It is important to know that disasters can happen at any time and any place and if we are not prepared, consequences can be fatal.

# **MITIGATIONS VALUE TO SOCIETY**

- IT CREATES SAFER COMMUNITIES BY REDUCING LOSS TO LIFE AND PROPERTY DAMAGE.
- IT CREATES SAFER COMMUNITIES BY REDUCING LOSS TO LIFE AND PROPERTY DAMAGE.
- **3.** IT LESSENS THE FINANCIAL IMPACT ON INDIVIDUALS, COMMUNITIES, AND SOCIETY AS A WHOLE.



New Jersey Home Elevated Post SuperStorm Sandy

Mitigation is achieved through:

- Analyzing risks and developing strategies that results in information that provides a foundation for mitigation activities
- Reducing risks that protect people, property and financial investment
- Securing adequate flood insurance coverage and
- Providing benefits to society as a whole.

# **Risk Analysis**

Government agencies must understand the full impact of natural hazards using applied multi-hazard engineering science and advanced technology in order to effectively plan to reduce natural hazard effects.

# **Risk Reduction**

The goal of risk reduction is to reduce the risk to life and property, which includes existing structures and future construction, in the pre and postdisaster environments. This is achieved through regulations, local ordinances, land use and building practices, and Mitigation projects that reduce or eliminate long-term risk from hazards and their effects.

# **Flood Insurance**

FEMA's Mitigation Directorate manages the National Flood Insurance Program (NFIP) and implements a variety of programs authorized by Congress to reduce losses that may result from natural disasters. Effective Mitigation efforts can break the cycle of disaster damage, reconstruction, and repeated damage

The NFIP goal is to reduce the impact of flooding on private and public structures by providing affordable insurance for property owners. The program encourages communities to adopt and enforce floodplain management regulations, which will mitigate the effects of flooding on new and improved structures.

The NFIP is helping communities reduce the socio-economic impact of disasters by promoting the purchase and retention of both Risk Insurance and National Flood Insurance.

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

#### Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649 En

Email: <u>lpp6433@gw.njsp.org</u>

#### Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649

Email: lpptestc@gw.njsp.org



# **Benefit/Cost Analysis**

The benefits of a mitigation project are the elimination and/or reduction of future damages and losses. In other words: Benefits are simply avoided damages and losses. Benefits are calculated by estimating future damages and losses with and without undertaking the mitigation project. For benefit-cost analysis (BCA), much of the effort is focused on estimating damages and losses. Mitigation project benefits are calculated by estimating both damages and losses; both before and after the mitigation project and then taking the difference between the two. The greater the damage and losses are prior to mitigation project, the greater the potential benefits of mitigation. The benefits considered in benefit-cost analysis are the benefits to the community, not just the benefits to FEMA or the federal government.

Benefits for a mitigation project fall into four categories:

- Avoided Physical Damages
- Avoided Loss-of-Function Costs
- Avoided Casualties
- Avoided Emergency Management Costs.

A BCA always involves looking at damages and losses twice. The benefits are simply the difference in expected damages and losses before and after the mitigation project are completed.

**Using Flooding as an example:** The greater the frequency and depth of flooding for a given home, the higher the annualized damages and losses. To the extent that a mitigation project reduces or eliminates these damages and losses, the greater the potential benefits of the mitigation project. For BCA , a similar calculation is done after mitigation, and then benefits are calculated as the difference between

annualized damages with and without undertaking the mitigation project

# Why FEMA requires Benefit-Cost Analysis?

- 1. To meet the statutory and regulatory requirement eligibility requirement, as specified in the Stafford Act and in 44 CFR. To be eligible for FEMA funding each mitigation project must be shown to be cost-effective. As defined in the regulations, cost-effective means that the benefits of each project must exceed the costs (i.e., that the benefit-cost ratio exceeds 1.0).
- 2. To determine whether or not a mitigation project is worth doing.
- 3. To provide a common basis with which to compare and prioritize mitigation projects and to help ensure that limited mitigation funds result in the greatest possible reduction in future damages and losses.
- 4. And to demonstrate that mitigation works. Benefit-cost analysis can be a powerful tool to help sell the concept of mitigation and to convince individuals and communities that mitigation investments are in their own self interest and their actions are fiscally sound.

# The BCA Review Process (Flooding Example)



**Step 1**: Gather data relating to cost-effectiveness including economic, environmental and engineering data. Often, these data are missing or limited.

Subject	Flood Project Data
Hazard Data (often not included in application)	Flood Insurance Study (FIS) data, or historical flood data from application
First Floor Elevation	Available from engineering surveys or estimated from observed flood depths?
Scope	What problem does the project address? How vulnerable is the building or area?
Cost	Is there a well-documented cost-estimate or only a rough estimate?
Useful Lifetime	How long will the project provide protection against damages and losses?
Economic Considerations	Square footage of the building. Replacement values of the building and contents?
Damage Estimates – Before Mitigation	Why do damages occur? What are the historically-observed damages?
Damage Estimates – After Mitigation	How effective will the project be in reducing future damages

Step 2: Determine which benefit-cost analysis tool to use. Provisions are available for conducting a BCA with less than a full set of data. If the project application data are limited or incomplete, then a benefit-cost analysis that uses limited data should be employed. If the data in the project application are more or less complete, then a more robust method of analysis can be used.

- Consider flood depth is expressed in feet of water above the top of the lowest finished floor of the house. Known as the First Floor Elevation, this elevation is measured from sea level.
- Estimate the annual probabilities of floods at each depth are determined by information in the Flood Insurance Study (FIS) for this community. This information is not always available.
- Develop scenario damages and losses the total damages and losses that are estimated to occur each time a flood of a given depth occurs. These include damages to buildings, contents, and displacement costs. Scenario damage estimates indicate damages when a flood of a given depth occurs; but do not factor in the likelihood of such flooding.
- The expected annual damages and losses consider not only the damages and losses each time flooding occurs but also whether flooding will occur. Mathematically, the expected annual damages and losses are the product of the annual probability of each flood depth and the scenario damages and losses at each flood depth. The sum of the expected annual damages and losses is the best estimate of the total vulnerability of the building to flood damages (both before and after mitigation).

**Step 3**: If the project is cost-effective, the application moves to the next level in the funding process. If it is not cost-effective, the project is rejected.

# Complete information can be found in OMB Circular A-94 and the FEMA Mitigation compact disc BCA Toolkit available by calling 800-480-2520

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

### Sgt. Bradley Waugh, State Hazard Mitigation Officer

 Telephone: (609) 963-6900 ext. 6208
 Fax: (609) 530-3649
 Email: NJMitigiation@gw.njsp.org

#### Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649



# Hazard Mitigation Assistance (HMA) Decision Matrix

# Annual FEMA funding programs at a glance:

# **CRITERIA APPLICABLE TO ALL PROJECT TYPES**

( $\checkmark$  indicates that project would be eligible under the specific program)

Programs	PDM	FMA	SRL
Applicant and Subapplicant Eligibility			
Applicants: State emergency management agencies	$\checkmark$	$\checkmark$	$\checkmark$
<b>Subapplicants</b> : State agencies, federally recognized Indian Tribal governments, and local communities	$\checkmark$	$\checkmark$	$\checkmark$
<b>Subapplicants:</b> State-recognized Indian Tribals, authorized Indian Tribal organizations, and Alaska Native Villages	$\checkmark$	$\checkmark$	$\checkmark$
Subapplicants: Private Nonprofit Organizations			

Funding Availability				
The applicant/subapplicant can provide the 25 percent non-	$\checkmark$	$\checkmark$	$\checkmark$	
Federal share				
The Subapplicant meets the "small and impoverished community				
requirements" and can provide at least 10 percent of the non-	$\checkmark$			
Federal share.				
The Applicant has a strategy to reduce repetitive loss properties			$\checkmark$	
and can provide 10 percent or more of the non-Federal share.				
The Applicant and the subapplicant cannot provide the non-				
Federal share and can demonstrate reduced capacity. 100				
percent funding is available.				

Cost Related Issues				
Project cost exceeds \$3 million			$\checkmark$	
The Federal share could increase due to project cost overruns,		$\checkmark$	$\checkmark$	
Management costs are available for the Applicant/subapplicant	$\checkmark$	$\checkmark$	$\checkmark$	
The Applicant could use the cost under-run for another subapplication to fund the cost overrun of this application (with prior approval).		$\checkmark$	$\checkmark$	
Applicants may request a change in the Scope of Work after the project is awarded.		$\checkmark$	$\checkmark$	

Programs	PDM	FMA	SRL
----------	-----	-----	-----

Feasibility and Effectiveness Requirements					
Benefit-Cost Ratio of 1.0 or greater is required	$\checkmark$	$\checkmark$	$\checkmark$		
Pilot Alternative BCA allowed for properties that are Eligible Insured Repetitive Loss Properties	$\checkmark$	$\checkmark$	$\checkmark$		
Environmental/Historic Preservation clearance required	$\checkmark$	$\checkmark$	$\checkmark$		

NFIP Requirements				
The sub-applicant participates in the NFIP and has not been	$\checkmark$	$\checkmark$	$\checkmark$	
suspended or withdrawn	-	-	•	

Acquisition/Relocation Projects			
The property must be insured by NFIP at the time of application		$\checkmark$	$\checkmark$
The property must have one or more NFIP claims to be eligible			
Must be a residential property that has had four or more NFIP claim payments (building and contents) exceeding \$20,000.			$\checkmark$
Must be a residential property that has had two or more NFIP claim payments (building payments only) exceeding the market value of the building.			$\checkmark$
The property to be acquired is a residential property.	$\checkmark$	$\checkmark$	$\checkmark$
The property to be acquired is a non-residential property.	$\checkmark$	$\checkmark$	$\checkmark$
Vacant land acquired after relocating structure(s) will be restricted in perpetuity to open space uses.	$\checkmark$	$\checkmark$	$\checkmark$

PDM – Pre Disaster Mitigation

FMA – Flood Mitigation Assistance

SRL – Severe Repetitive Loss

Funding under the Hazard Mitigation Grant Program is made available after a Presidentially declared disaster.

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

# Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649

Email: <u>lpp6433@gw.njsp.org</u>

# Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557 Fax: (609) 530-3649

Email: <u>lpptestc@gw.njsp.org</u>



# **Sample Evaluation Sheet for Mitigation Projects**

Mitigation projects requesting FEMA funding will be evaluated using an impartial evaluation similar to the following:

# **General Application Information**

Yes/No

G1	Is the community in good standing (no unresolved compliance and enforcement issues) with the National Flood Insurance Program (NFIP)?	
G2	Is the Subgrantee one of the following: State Agency/Department; Independent Agency, Authority, Commission, or subdivision of the State; County; Municipality; or recognized Federal partner?	
G3	Does the community have a Local Hazard Mitigation Plan in place, or a commitment to write one?	
G4	Is this project <i>specifically identified</i> in an All Hazards Plan?	
G5	Is the project consistent with or supported by an All Hazards Plan?	
G6	Is the project consistent with resiliency plans of the jurisdiction?	
G7	Is the county in a declared disaster area (for HMGP)?	

# **Project Type by Category** (select applicable project type(s))

Yes/No Funding Eligibility

Acquisition/Demolition		HMGP	PDM	FMA
Property Acquisition and Structure Demolition		Yes	Yes	Yes
Property Acquisition and Structure Relocation		Yes	Yes	Yes
Drainage/Flood Control Projects		HMGP	PDM	FMA
Aquifer and Storage Recovery		Yes	Yes	Yes
Flood Diversion and Storage		Yes	Yes	Yes
Floodplain and Stream Restoration		Yes	Yes	Yes
Localized Flood Risk Reduction Projects		Yes	Yes	Yes
Non-Localized Flood Risk Reduction Projects		Yes	Yes	No
Elevations and Reconstruction of Buildings & Facilities		HMGP	PDM	FMA
Mitigation Reconstruction		Yes	Yes	Yes
Nonstructural Retrofitting of Existing Buildings and		Vos	Voc	Voc
Facilities		163	163	163
Safe Room Construction		Yes	Yes	No
Structural Retrofitting of Existing Buildings		Yes	Yes	Yes
Structure Elevation		Yes	Yes	Yes
Wind Retrofit for One- and Two-Family Residences		Yes	Yes	No
	Acquisition/DemolitionProperty Acquisition and Structure DemolitionProperty Acquisition and Structure RelocationDrainage/Flood Control ProjectsAquifer and Storage RecoveryFlood Diversion and StorageFloodplain and Stream RestorationLocalized Flood Risk Reduction ProjectsNon-Localized Flood Risk Reduction ProjectsMitigation ReconstructionNonstructural Retrofitting of Existing Buildings and FacilitiesSafe Room ConstructionStructural Retrofitting of Existing BuildingsStructure ElevationWind Retrofit for One- and Two-Family Residences	Acquisition/DemolitionProperty Acquisition and Structure DemolitionProperty Acquisition and Structure RelocationDrainage/Flood Control ProjectsAquifer and Storage RecoveryFlood Diversion and StorageFlood plain and Stream RestorationLocalized Flood Risk Reduction ProjectsNon-Localized Flood Risk Reduction ProjectsElevations and Reconstruction of Buildings & FacilitiesMitigation ReconstructionNonstructural Retrofitting of Existing Buildings and FacilitiesSafe Room ConstructionStructural Retrofitting of Existing BuildingsStructure ElevationWind Retrofit for One- and Two-Family Residences	Acquisition/DemolitionHMGPProperty Acquisition and Structure DemolitionYesProperty Acquisition and Structure RelocationYesDrainage/Flood Control ProjectsHMGPAquifer and Storage RecoveryYesFlood Diversion and StorageYesFlood Diversion and StorageYesLocalized Flood Risk Reduction ProjectsYesNon-Localized Flood Risk Reduction ProjectsYesElevations and Reconstruction of Buildings & FacilitiesHMGPMitigation ReconstructionYesSafe Room ConstructionYesStructural Retrofitting of Existing BuildingsYesStructure ElevationYesWind Retrofit for One- and Two-Family ResidencesYes	Acquisition/DemolitionHMGPPDMProperty Acquisition and Structure DemolitionYesYesProperty Acquisition and Structure RelocationYesYesDrainage/Flood Control ProjectsHMGPPDMAquifer and Storage RecoveryYesYesFlood Diversion and StorageYesYesFlood Diversion and StorageYesYesFlood Diversion and StorageYesYesVesYesYesVesYesYesVon-Localized Flood Risk Reduction ProjectsYesYesNon-Localized Flood Risk Reduction ProjectsYesYesVesYesYesYesNonstructural Retrofitting of Existing Buildings and FacilitiesYesYesStructural Retrofitting of Existing BuildingsYesYesYesYesYesYesStructure ElevationYesYesYesYesYesYesYesYesYesYesYesYesYesYes

Projec	ct Type by Category (continued)	Yes/No	Fundi	ng Elig	ibility
P4	Emergency Work/Continuity of Operations		HMGP	PDM	FMA
	Generators		Yes	Yes	No
	Warning and Information System Projects		Yes	Yes	No
Р5	Environmental Restoration & Improvements		HMGP	PDM	FMA
	Green Infrastructure		Yes	Yes	Yes
	Wildfire Mitigation		Yes	Yes	Yes
	Soil Stabilization		Yes	Yes	Yes
	Miscellaneous/Other		Yes	Yes	No
P6	Floodproofing		HMGP	PDM	FMA
	Dry Floodproofing of Historic Residential Structures		Yes	Yes	Yes
	Dry Floodproofing of Non-Residential Structures		Yes	Yes	Yes
P7	Infrastructure Improvements		HMGP	PDM	FMA
	Infrastructure Retrofit		Yes	Yes	Yes
P8	Unique/Special Project		HMGP	PDM	FMA
	Advance Assistance		Yes	No	No
	Post-Disaster Code Enforcement		Yes	No	No

# Effectiveness

Yes/No

Ef1	Is the project supported by technical information demonstrating feasibility?	
Ef2	Will the project likely be effective at achieving the project objective?	
Ef3	Is the proposed budget in line with available funding requested?	
Ef4	Does the subapplicant have a successful track record in managing grants?	
Ef5	Has a " <i>positive</i> " Benefit/Cost study been provided?	
Ef6	Has a " <i>weak</i> " Benefit/Cost study been provided (e.g. no back up documentation)?	
Ef7	Has subgrantee identified funding to sustain mitigation action?	

# **Environmental & Social Benefits**

En1	Is the project <i>eligible</i> for a Categorical Exclusion (CATEX)?	
En2	Has an engineering study been provided?	
En3	Is the project designed with climate adaptation in mind (e.g. to withstand anticipated future events)?	
En4	Will the project enhance natural habitat or ecosystem services?	
En5	Does the project protect socially vulnerable populations?	
En6	Will the project protect important cultural or historic features?	

# Yes/No

### Impact

IM1	Does the project address a site with multiple past damages related to it?	
IM2	Is the structure on the <i>Severe Repetitive Loss</i> list?	
IM3	Is the structure on the <i>Repetitive Loss</i> list?	
IM4	Is the project in a <i>CRS</i> community?	
IM5	Is the structure <b>within a floodplain</b> ?	
IM6	Is the mitigation action a community priority that will result in a significant increase in safety or reduction in risk to a high cost, critical, or high impact problem?	
IM7	Will the project increase available river corridor, floodplain acreage storage, and/or storage/headwater forests?	
IM8	Will the project protect economic assets (e.g. businesses, key infrastructure, key employers, etc.)?	

# Proactivity

Proactivity		Yes/No
Pr1	Has the community taken previous mitigation actions to remedy, study, or alleviate the problem?	
Pr2	Does the project prevent loss of service?	
Pr3	Does community have plan or mechanism for post-acquisition of properties?	

# Unique Circumstances

Yes/No

Un1	Does the project have special qualities in terms of importance to the community, a compelling narrative, or other circumstance that is not reflected in other questions?	
Un2	Does the project create significant benefits above the minimum (e.g. BCR $\geq$ 3.0)?	

For more information Contact: New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

Sgt. Bradley Waugh, State Hazard Mitigation Officer

Telephone: (609) 963-6900 ext. 6208	Fax: (609) 530-3649	Email: <u>lpp6433@gw.njsp.org</u>

# Chris Testa, Hazard Mitigation Unit Manager

Telephone: (609) 508-6557

Fax: (609) 530-3649

Email: <u>lpptestc@gw.njsp.org</u>

Yes/No





# Public Assistance Program

# Section 406 – Mitigation and Public Assistance

The FEMA Public Assistance Grant Program is based on the <u>Robert T. Stafford Disaster Relief and Emergency Assistance Act</u> (Stafford Act), the underlying document that authorizes the program. Regulations published in Title 44 of the *Code of Federal Regulations* (44 CFR) Part 206 implement and interpret the statute. Policies are written to apply the statute and regulations to specific situations. These documents govern the eligibility criteria through which FEMA provides funds for Public Assistance. These criteria have the following four components: Eligible Applicants, Eligible Costs, Eligible Facilities, and Eligible Work. Alternate and improved projects may be applied for under certain criteria, as explained below.

The applicant is the basis for eligibility. The **applicant** must be eligible for the facility to be eligible. The **facility** must be eligible for the work to be eligible. The **work** must be eligible for the cost to be eligible. Using these guidelines, FEMA determines whether the various components are eligible for disaster assistance. Additional information on the FEMA Public Assistance Grant Program may be found in the publication <u>FEMA 321, Public Assistance Policy Digest</u>.

#### **Eligible Applicants**

Four types of entities are eligible applicants for Public Assistance. If an entity meets the requirements of one of the types, the applicant may apply for FEMA disaster assistance. They are:

- 1. State government agencies, such as Departments of Transportation and Environmental Resources/Protection agencies.
- 2. Local governments municipalities, regional and interstate government entities and Schooldistricts
- Private nonprofit organizations or institutions that own or operate facilities that are open to the public and that provide certain services otherwise performed by a government agency including educational, emergency, medical, utilities, custodial care. community centers, homeless shelters, libraries, museums, rehabilitation centers, zoos, and health and safety service facilities
- nomeless shellers, libraries, museums, renabilitation centers, 200s, and nearin and sa
- 4. Federally recognized Indian tribes or authorized tribal organizations.

#### **Eligible Costs**

Not all costs incurred by an eligible applicant are eligible for Public Assistance funding. Eligible costs are costs that:

- 1. Are reasonable and necessary to accomplish the eligible work;
- 2. Comply with federal, state, and local requirements for procurement; and
- 3. Do not include (or are reduced by) insurance proceeds, salvage values, and other credits

The eligible cost criteria apply to all direct costs, including salaries, wages, fringe benefits, materials, equipment, and contracts awarded for eligible work. In addition to these direct costs, an applicant will receive an administrative allowance.

#### **Eligible Facilities (Projects)**

Projects eligible for Public Assistance funding include facilities for transportation, water control, utilities, and recreation, and are listed below by the categories defined by FEMA.

- Category A: Removal of debris, including clearance of trees, woody debris, and building wreckage; sand, mud, silt, and gravel; and other disaster- related material on public property.
- Category B: Measures taken before, during, and after a disaster to save lives and protect public health and
- safety. Category C: Roads, bridges, and associated features, such as shoulders, ditches, culverts, lighting
- and signs.

Category D: Water control facilities, including drainage channels, pumping facilities, and the emergency repair of levees. Permanent repair of flood control works is the responsibility of the U.S. Army Corps of Engineers and the Natural Resources Conservation Service.

- Category E: Buildings including their contents and systems.
- Category F: Utility distribution systems, such as water treatment and delivery systems, power generation facilities and distribution lines, and sewage collection and treatment facilities.
- Category G: Public parks, recreational facilities and other facilities, including playgrounds, swimming pools and cemeteries.

#### Eligible Work

In general, eligible work is based on the following minimum criteria:

- · It must be required as a direct result of the declared event
- It must be within the designated disaster area
- · It must be the legal responsibility of an eligible applicant at the time of the disaster

There are two types of work eligible for the Public Assistance Grant Program. These types of work are:

- Emergency work (Categories A and B)
- Permanent work (Categories C through G)

#### **Alternate Projects**

Occasionally an applicant may determine that the public welfare would not be best served by restoring a damaged facility or its function to the predisaster design. This usually occurs when the service provided by the facility is no longer needed, although the facility was still in use at the time of the disaster. Under these circumstances, the applicant may apply to FEMA to use the eligible funds for an alternate project. Possible alternate projects include:

- Repair or expansion of other public facilities
- Construction of new public facilities
- Purchase of capital equipment

· Funding of hazard mitigation measures in the area affected by the disaster

The alternate project option may be proposed for both small and large projects, but only for permanent restoration projects located within the declared disaster area. All requests for alternate projects must be made within 12 months of the kickoff meeting and approved by FEMA prior to construction. However, due to the extent of disaster related damage in Greater New Orleans, many deadlines have been extended. Alternate projects are eligible for 75 percent of the approved federal share of the estimated eligible costs associated with repairing the damaged facility to its pre-disaster design, or the actual costs of completing the alternate project, whichever is less. The share of the costs may be increased to 90 percent for publicly owned facilities where unstable soils are present at the site of the damaged facility. This exception does not apply to private nonprofit facilities.

The proposed alternate project must not be located in the regulatory floodway and will have to be insured if located in the 100-year floodplain. Public Assistance funding may not be used for operating costs or to meet the state or local share requirement on other Public Assistance projects or projects that use other federal grants. Hazard Mitigation funds cannot be applied to an alternate project (Hazard Mitigation, Stafford Act Section 406). An environmental assessment is normally performed for alternate projects. For alternate projects in Greater New Orleans, Alternative Arrangements will be used and applicants must meet all Alternative Arrangement requirements. Environmental/Historic Preservation review must be completed prior to approval of alternate projects by the grantee.

#### Improved Projects

Applicants performing restoration work on a damaged facility may use the opportunity to make additional improvements while restoring the facility to its pre- disaster design. For example, an applicant might propose laying asphalt on a gravel road or replacing a firehouse that originally had two bays with one that has three. Projects that incorporate such improvements are called improved projects. For the most part, these are projects in which it is hard to differentiate between the funding for approved work the improved project because of physical changes or contracting arrangements.

An improved project may be requested for both small and large projects, but must be approved by the grantee prior to construction. Any project that results in a significant change from the pre-disaster configuration (that is, different location, footprint, function, or size) must be reviewed by FEMA's Environmental and Historic Preservation process prior to initiation of any construction or deconstruction activity. Environmental/Historic Preservation review must be completed prior to approval of improved projects by the grantee. Federal funding for improved projects is limited to the federal share of the estimated costs and to the time limits that would be associated with repairing the damaged facility to its pre-disaster design. Funds to construct the improved project can be combined with a grant from another federal agency; however, federal grants cannot be used to meet the grantee or local cost-share requirement.

If the original facility is being repaired and improvements are being added, Section 406 Hazard Mitigation funding may be applied to the original facility. If the improved project involves a new facility on the same site or on a different site, Hazard Mitigation funding will not be applied to that project.

Section 406 Public Assistance (PA) is a post-disaster program established under Section 406 of the Stafford Act—it is jointly administered by FEMA and individual states. As part of the reimbursements made to restore damaged public facilities and certain private non-profit (PNP) facilities, public assistance funds may be made available for cost-effective mitigation measures undertaken as part of the recovery. The amount of Section 406 Mitigation funds made available in any given disaster is not computed by a formula, but is based on a project-by-project evaluation of the feasibility and cost-effectiveness of mitigation measures.

Who determines which structures are "substantially damaged? Substantial damages means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before- damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.	The local government official – usually the Floodplain management official - make "substantially damaged" determinations based on the data that is collected. The determination is not made by FEMA or the state
Conditions	Eligible Costs
<ol> <li>The repair cost does not exceed 50% of the replacement cost and no upgrades are triggered -</li> </ol>	Repair of eligible damage only.
2. The repair cost does not exceed 59% of the replacement cost. However, upgrades to undamaged elements are triggered by codes and standards. The total of the two items is greater than 50% but less than 100% of the estimated replacement cost -	Repair of eligible damage plus mandatory upgrade costs.
3. The repair cost does not exceed 59% of the replacement cost. However, upgrades to undamaged elements are triggered by codes and standards. The total of the two items is greater than 100% of the estimated replacement cost -	Repair of eligible damage plus mandatory upgrade costs, but totals eligible costs are capped at the estimated replacement cost. In this case, the applicant may elect to replace the facility, but total eligible costs are capped at the estimated replacement cost.
4. The repair cost exceeds 50% of the estimated replacement cost	The facility's replacement cost is eligible. In accordance with 44 CFR Section 206.226(f)(2), the applicant may elect to repair the facility in conformity with applicable codes and standards. In this case, eligible costs are limited to the estimated costs of repair or replacement, whichever is lower.
Relocation: FEMA funds can be used for the permanent relocation of a facility when -	<ul> <li>An applicable floodplain management regulation requires relocation away from the hazardous area.</li> <li>The original facility is and will be subject to repetitive heavy damage.</li> <li>The approval is not barred by other provisions of policy, and</li> <li>The overall project, including all costs, is cost-effective.</li> </ul>

For more information Contact: Sgt. Bradley Waugh, State Hazard Mitigation Officer

NJ Office of Emergency Management, Division of State Police, PO Box 7068, West Trenton, NJ 08628-0068





# Why Acquisition?

# FEDERAL ASSISTANCE IN THE ACQUISITION OF PROPERTY

### LAND ACOUISITION AS A FORM OF MITIGATION



Estimated polulation living in the 1% annual flood-hazard areas, 2015

Number of repetitive loss properties, 2013

Number of severe repetitive loss properties, 2013

Total flood losses since 1978, reported June 2018

6.027.581.265 In total flood insurance payments

to cover losses, reported June 2018

ACQUISITION AS A FORM OF MITTON WHAT? Property acquisition is where the Property acquisition is where the community buys private property. By law, that property must remain open space.

### WHY?

It takes people out of harm's way forever by removing development from vulnerable areas, and it helps mitigate community goals such as watershed protection and provision of open space.

# HOW?

Acquisition projects are 75% funded by FEMA, but are administered by State and local communities working together. Communities may offer homeowners who agree to participate in a buyout project up to the fair market value of the home **BEFORE the disaster struck. Buyouts are** strictly voluntary.

# THE STEPS OF A BUYOUT



An application for assistance is prepared by local officials with input from the community and those homeowners with destroyed or severely damaged properties. Their local officials will have been notified by the State of what the State's priorities are or other special restrictions decided upon by state officials.



The State receives and reviews the application and submits those deemed appropriate to FEMA for approval. FEMA reviews the applications to ensure they follow the rules, are environmentally sound, and are a cost-effective use of funds.



Once FEMA gives its approval, the State begins the acquisition process. The communities actually conduct the purchase and title transfer. Then the buildings are removed or destroyed by the community and the land is cleared.

# **ADVANTAGES**

- Peace of mind because it reduces or eliminates most of your future risk.
- Fair compensation generally based on the pre-flood markety value of your home.
- A chance for a new start.
- A means of recovery that is more advantageous than repair grants or loans.
- An opportunity to recoup at least partially your financial investment in property that has lost value.

# DISADVANTAGES

• Loss of roots.

- • Despite efforts to compensate you fairly, property
- acquisition may not make you "whole" again.
- The process can be lengthy

For more information Contact: Sgt. Bradley Waugh, State Hazard Mitigation Officer NJ Office of Emergency Management, Division of State Police, PO Box 7068, West Trenton, NJ 08628-0068 Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649Email: NJMitigation@gw.njsp.org



# New Jersey State Hazard Mitigation Plan 2019 Standardized Risk Template for Multi-Jurisdictional Mitigation Plans

Per FEMA standards, all approved multi-jurisdictional Hazard Mitigation Plans (HMP) must address the following in a risk assessment when profiling natural hazards.

# 1. Type, Location, and Extent:

- a. Description of natural hazards is required:
  - i. Multi-jurisdictional plans must describe natural hazards that can affect all the jurisdictions participating in the plan.
  - ii. Explanation is needed if a hazard is omitted from a plan update.
- b. Description of location and extent is required:
  - i. Location: Geographic area that can be affected by a hazard.
  - ii. Extent: Strength or magnitude of a hazard. Can be described in terms of a scientific scale:
    - 1. Enhanced Fujita Scale
    - 2. Saffir- Simpson Hurricane Scale
    - 3. Richter Scale
    - 4. Flood-depth grids

# 2. Previous Occurrences:

- a. Information on previous occurrences and future probability for each hazard is required
  - i. Previous occurrences: include those that were documented in the previous plan and those that have occurred since the last update.
  - ii. Future probability: previous occurrences can be used to develop an estimate of the probability or likelihood of that hazard occurring in the future.

# 3. Impact and Vulnerability:

- a. Description of impact and vulnerability is required.
  - i. Describe potential impacts of each hazard on:
    - People
    - Structures
    - Facilities
    - Systems
    - Capabilities
- b. Summarize Vulnerabilities
  - i. Key issues or problem statements that describe the vulnerabilities that will be addressed in the mitigation strategy

# 4. NFIP Insured Structures

- a. Describe types of structures
- b. Number of repetitive loss (RL) and severe repetitive loss (SRL) properties
- c. Plans must not release the names of NFIP policy holders or amounts of claims payments violation of the Privacy Act of 1974

# New Jersey Specific Standardized Risk & Vulnerability Reporting for County Multi-Jurisdictional Mitigation Plans

In an effort to standardize the evaluation and comparison of risk and vulnerability across County HMPs, the following analysis and reporting criteria are required for risk assessments when profiling the following hazards in New Jersey County HMPs.

# A. Sea Level Rise

# **Risk Analysis Assumptions:**

Evaluate Sea Level Rise (SLR) scenarios using Rutgers Science and Technical Advisory Panel (STAP) Report's<sup>1</sup> projected SLR estimates. Assume of 1FT for the year 2050 and 3FT for the year 2100.

Report the Following:

- 1. Total Replacement Cost Value (RCV) for the Critical Facilities Vulnerable to SLR:
  - a. Total RCV for Critical Facilities vulnerable to SLR reported by Municipality
  - b. Total RCV for Critical Facilities in +1FT MHHW reported by Municipality
  - c. Total RCV for Critical Facilities in +3FT MHHW reported by Municipality
- 2. Total Number of Critical Facilities Vulnerable to SLR:
  - a. Total Number and Percentage of Critical Facilities in +1FT MHHW reported by Municipality
  - b. Total Number and Percentage of Critical Facilities in +3FT MHHW reported by Municipality
- 3. Total RCV for the General Building Stock Vulnerable to SLR:
  - a. Total Number and Percentage of RCV for General Building Stock in +1FT MHHW reported by Municipality
  - b. Total Number and Percentage of RCV for General Building Stock in +3FT MHHW reported by Municipality
- 4. Total Number of the General Building Stock Vulnerable to SLR:
  - a. Total Number and Percentage of General Building Stock in +1FT MHHW reported by Municipality
  - b. Total Number and Percentage of General Building Stock in +3FT MHHW reported by Municipality

# Resources:

 Kopp, R.E., A. Broccoli, B. Horton, D. Kreeger, R. Leichenko, J.A. Miller, J.K. Miller, P. Orton, A. Parris, D. Robinson, C.P. Weaver, M. Campo, M. Kaplan, M. Buchanan, J. Herb, L. Auermuller and C. Andrews. 2016. Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: Report of the New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel. Prepared for the New Jersey Climate Adaptation Alliance. New Brunswick, New Jersey: Rutgers University.

# **B.** Coastal Erosion

# **Risk Analysis Assumptions:**

Exposure to Coastal Erosion is calculated as areas with a proportion of a parcel or census block lying within 120 FT of beach or erodible shoreline, known as Coastal Erosion Susceptible Area (CESA).

Report the Following:

- 1. Total Replacement Cost Value (RCV) for Critical Facilities with Risk of Coastal Erosion:
  - a. Total RCV for Critical Facilities with Risk of Coastal Erosion reported by municipality
- 2. Total Number of Critical Facilities with Risk of Coastal Erosion:
  - a. Total Number and Percentage of Critical Facilities with Risk of Coastal Erosion reported by municipality
- 3. Total RCV for the General Building Stock with Risk of Coastal Erosion:
  - a. Total Number and Percentage of RCV for General Building Stock with Risk of Coastal Erosion reported by municipality
- 4. Total Number of the General Building Stock with Risk of Coastal Erosion:
  - a. Total Number and Percentage of the General Building Stock with Risk of Coastal Erosion reported by municipality
- 5. Current U.S. Army Corp of Engineers (USACE) Beach Replenishment Projects listed by:
  - a. Project
  - b. Type
  - c. Location
  - d. Status

# **Resources:**

- 1. New Jersey Department of Environmental Protection, Shoreline Type
- 2. U.S. Army Corp of Engineers (USACE), Project Corp Notebook

# C. Dam Failure

# **Risk Analysis Assumptions:**

Dam Failure Risk is calculated based on the proportion of parcel area within the estimated inundation area from a dam's Emergency Action Plan (EAP). If a dam's EAP is unavailable, then the inundation area can be estimated using a 1.5-mile radius buffer downstream of each dam.

- 1. Total Replacement Cost Value (RCV) for Critical Facilities with Risk of Dam Failure:
  - a. Total RCV for Critical Facilities with risk of Dam Failure reported by municipality
- 2. Total Number of Critical Facilities with Risk of Dam Failure
  - a. Total Number and Percentage of Critical Facilities with risk of Dam Failure reported by municipality
- 3. Total RCV for the General Building Stock with risk of Dam Failure
  - a. Total Number and Percentage of RCV for General Building Stock with risk of Dam Failure reported by municipality
- 4. Total Number of the General Building Stock with risk of Dam Failure
  - a. Total Number and Percentage of the General Building Stock with risk of Dam Failure reported by municipality
- 5. Total Number of Dams

- a. Total Number of Dams by Municipality
- b. Total Number of High Hazard Dams by Municipality
- c. Total Number of Significant Hazard Dams by Municipality
- d. Total Number of Low Hazard Dams by Municipality
- e. Other Structures (NJDEP Dams database classifies structures that are not technically dams within their database. These include dams that are less than 5 feet, have been removed, never built, failed, etc.)

### **References:**

1. New Jersey Department of Environmental Protection Bureau of Dam Safety: <u>https://www.nj.gov/dep/damsafety/about.htm</u>

# D. Levee Failure

# **Risk Analysis Assumptions:**

Area of impact from Levee failure is defined as the Levee Impact Area as delineated on FEMA Flood Insurance Rate Maps, or within a 1,000 ft buffer around a levee when Levee Impact Areas are not available.

Report the Following:

- 1. Total Replacement Cost Value (RCV) for the Critical Facilities with risk of Levee Failure:
  - a. Total RCV for Critical Facilities with risk to Levee Failure reported by municipality
- 2. Total Number of Critical Facilities with Risk of Levee Failure:
  - a. Total Number and Percentage of Critical Facilities with risk of Levee Failure reported by municipality
- 3. Total RCV for the General Building Stock with Risk of Levee Failure:
  - a. Total Number and Percentage of RCV for General Building Stock with risk to Levee Failure reported by municipality
- 4. Total Number of the General Building Stock with Risk of Levee Failure:
  - a. Total Number and Percentage of the General Building Stock with risk to Levee Failure reported by municipality

# Resources:

1. New Jersey Department of Environmental Protection Bureau of Dam Safety: <u>https://www.nj.gov/dep/damsafety/about.htm</u>

# E. Drought

# **Risk Analysis Assumptions:**

Potential impacts of drought are categorized by Groundwater Impacts and Crop Failure. Groundwater Impacts are calculated by the number of wells, intakes, and treatment plants while Crop Failure is calculated by comparing market value of products sold to the agriculture land area.

- 1. Groundwater Impacts:
  - a. Total Number of Wells reported by municipality
  - b. Total Number of Intakes reported by municipality
  - c. Total Number of Treatment Plants reported by municipality
  - d. Total Number of all Wells, Intakes, and Treatment Plans reported by municipality

- 2. Crop Failure:
  - a. Total market value of agricultural products sold as reported by the U.S. Agricultural Census
  - b. Total area (square miles) of agriculture land by cropland type within each municipality.

#### Resources:

- 1. NJ Private Well Testing Act Data <u>https://www.nj.gov/dep/dsr/pwta/index.htm</u>
- 2. U.S. Agricultural Census https://www.agcensus.usda.gov/

# F. Earthquake

# **Risk Analysis Assumptions:**

Earthquake risk is calculated by FEMA's Hazus Level 2 probabilistic analysis for 100, 500, 1000 and 2500-year Mean Return Period (MRPs).

Report the Following:

- 1. Total Replacement Cost Value (RCV) for the Critical Facilities with risk of Earthquakes
  - a. Total RCV for Critical Facilities with risk of earthquakes for each return period, reported by municipality
  - b. Total RCV for Critical Facilities with risk of earthquakes by Associated NEHRP Soil Classes reported by municipality
    - i. Class A Soil
    - ii. Class B Soil
    - iii. Class C Soil
    - iv. Class D Soil
    - v. Class E Soil
- 2. Total Number of Critical Facilities with Risk of Earthquakes
  - a. Total Number and Percentage of Critical Facilities with risk of earthquakes for each return period, reported by municipality
  - b. Total Number and Percentage of Critical Facilities with risk of earthquakes reported by municipality
    - i. Class A Soil
    - ii. Class B Soil
    - iii. Class C Soil
    - iv. Class D Soil
    - v. Class E Soil

# Resources:

1. FEMA Hazus: <u>https://www.fema.gov/hazus</u>

# G. Flood: Riverine (Inland) & Coastal Flooding

# **Risk Analysis Assumptions:**

Flood Risk is calculated by exposure to the 1% Annual Flood depicted by the FIRMs (Zone A and V), known as the Special Flood Hazard Area (SFHA), participation in the National Floodplain Insurance Program (NFIP) and Community Rating System (CRS), Repetitive Loss (RL) & Several Repetitive Loss (SRL) statistics, and areas located in the Flood Hazard Boundaries.

- 1. Total Replacement Cost Value (RCV) for the Critical Facilities with Flood Risk:
  - a. Total RCV for Critical Facilities in SFHA reported by Municipality
  - b. Total RCV for Critical Facilities in Zone A reported by Municipality
  - c. Total RCV for Critical Facilities in Zone V reported by Municipality
- 2. Total Number of Critical Facilities with Flood Risk:
  - a. Total Number and Percentage of Critical Facilities in SFHA reported by Municipality
  - b. Total Number and Percentage of Critical Facilities in Zone A reported by Municipality
  - c. Total Number and Percentage of Critical Facilities in Zone V reported by Municipality
- 3. Total RCV for the General Building Stock with Flood Risk:
  - a. Total Number and Percentage of RCV for General Building Stock in SFHA reported by Municipality
  - b. Total Number and Percentage of RCV for General Building Stock in Zone A reported by Municipality
  - c. Total Number and Percentage of RCV for General Building Stock in Zone V reported by Municipality
- 4. Total Number of the General Building Stock with Flood Risk:
  - a. Total Number and Percentage of General Building Stock in SFHA reported by Municipality
  - b. Total Number and Percentage of General Building Stock in Zone A reported by Municipality
  - c. Total Number and Percentage of General Building Stock in Zone V reported by Municipality
- 5. Status of National Floodplain Insurance Program (NFIP) Policies & Claims:
  - a. Total Number of Active NFIP Policies reported by Municipality
  - b. Total Number of Losses reported by Municipality
  - c. Number of Closed Paid Losses reported by Municipality
  - d. Total Number of Repetitive Loss Payments reported by Municipality (move to #6?)
- 6. Repetitive Loss (RL) & Several Repetitive Loss (SRL) Statistics:
  - a. Total Number of RL Properties reported by Municipality
  - b. Total Number of SRL Properties reported by Municipality
  - c. Total Number of RL and SRL Combined reported by Municipality
  - d. Total Number of Mitigated Properties reported by Municipality
- 7. Community Rating System (CRS) Participation:
  - a. Community Number reported by Municipality
  - b. Participation Status reported by Municipality
  - c. CRS Entry Date reported by Municipality
  - d. Current Effective Date reported by Municipality
  - e. Class reported by Municipality
  - f. Percent Discount for SFHA reported by Municipality
  - g. Percent Discount for Non-SFHA reported by Municipality
- 8. Flood Hazard Boundaries:
  - a. Total Municipal Land Area reported by Municipality
  - b. Total Land Area and Percentage of Total Land Area Located in SFHA reported by Municipality
  - c. Total Land Area and Percentage of Total Land Area Located in Zone A reported by Municipality

d. Total Land Area and Percentage of Total Land Area Located in Zone V reported by Municipality

### **Resources:**

1. FEMA Hazus: <u>https://www.fema.gov/hazus</u>

# G1. Flood: Ice James

### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. United States Army Cold Regions Research and Engineering Laboratory's (CRREL) database of ice jams: <u>http://icejams.crrel.usace.army.mil/</u>

# **G2.** Flood: Stormwater Flooding

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. NOAA National Centers for Environmental Information: <u>https://www.ncdc.noaa.gov/</u>

# G3. Flood: Tsunamis

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. National Tsunami Hazard Mitigation Program: https://nws.weather.gov/nthmp/

# H. Geological Hazards: Landslides

#### **Risk Analysis Assumptions:**

Where data is available, perform a GIS analysis using landslide susceptibility data from NJDEP to identify areas vulnerable to landslides.

- 1. Total Replacement Cost Value (RCV) for Critical Facilities in the Landslide Areas:
  - a. Total RCV for Critical Facilities in the Landslide Areas reported by municipality
- 2. Total Number of Critical Facilities in the Landslide Areas:
  - a. Total Number and Percentage of Critical Facilities in the Landslide Areas reported by municipality

- 3. Total Land Area Located in the Landslide Areas
  - a. Total Land Area and percentage of Total Land Area in Landslide Areas reported by municipality

### **Resources:**

1. NJDEP Division of Water Supply and Geoscience: Soil, Liquefaction and Landslide Susceptibility in New Jersey

# H1. Geological Hazards: Subsidence/Sinkholes/Abandoned Mines and Quarries

# **Risk Analysis Assumptions:**

GIS analysis using known location of sinkholes, caves, abandoned mines, and abandoned and operating quarries to identify potential hazard areas. NJGWS-created spatial data set identifying the location of carbonate bedrock throughout the state to identify potential hazard areas for subsidence and sinkholes.

Report the Following:

- 1. Total Replacement Cost Value (RCV) for Critical Facilities with Risk to Sinkholes
  - a. Total RCV for Critical Facilities with risk of sinkholes reported by municipality
- 2. Total Number of Critical Facilities with Risk to Sinkholes.
  - a. Total Number and Percentage of Critical Facilities with risk of sinkholes reported by municipality.
- 3. Total Land Area Located in the Landslide Areas
  - a. Total Land Area and percentage of Total Land Area with risk of sinkholes reported by municipality.

#### **Resources:**

- 1. Soil, Liquefaction and Landslide Susceptibility in New Jersey: https://www.njgeology.org/geodata/dgs15-2.htm
- 2. NJDEP Division of Water Supply and Geoscience: https://www.nj.gov/dep/njgs/

# I. Hurricane & Tropical Storm

# **Risk Analysis Assumptions:**

Provide a FEMA Hazus Level 2 analysis for Hurricanes to determine annualized losses from storm surge and wind damage. Analysis should be performed for the 100- and 500-year mean return periods (MRPs).

- 1. Total Number Critical Facilities with Risk of Storm Surge:
  - a. Total Number and Percentage of Critical Facilities with risk of Category 1 Storm Surge reported by municipality
  - b. Total Number and Percentage of Critical Facilities with risk of Category 2 Storm Surge reported by municipality
  - c. Total Number and Percentage of Critical Facilities with risk of Category 3 Storm Surge reported by municipality
  - d. Total Number and Percentage of Critical Facilities with risk of Category 4 Storm Surge reported by municipality
- 2. Estimated Shelter Needs (Wind Analysis Only)
  - a. Total Displaced Households for a 100-Year Event reported by municipality
  - b. Total Short-Term Shelter Needs for a 100-Year Event reported by municipality

- c. Total Displaced Households for a 500-Year Event reported by municipality
- d. Short-Term Shelter Needs for a 500-Year Event reported by municipality
- 3. Total Replacement Cost Value (RCV) for the Building Damage (Wind Analysis Only)
  - a. Total RCV for building damage during 100-Year Storm reported by municipality
  - b. Total RCV for building damage during 500-Year Storm reported by municipality
  - c. Total Annualized Loss RCV for the Building Damage reported by municipality
- 4. Estimated Economic Loss from the 100-Year Storm Event (Wind Analysis Only)
  - a. Total amount of income in 100 years reported by municipality
  - b. Total amount of wages in 100 years reported by municipality
  - c. Total amount of rental income in 100 years reported by municipality
  - d. Total amount of funds required for relocation in a 100-year storm event reported by municipality
  - e. Total economic loss from the 100-year storm event reported by municipality
- 5. Estimated Economic Loss from the 500-Year Storm Event (Wind Analysis Only)
  - a. Total amount of income in 500 years reported by municipality
  - b. Total amount of wages in 500 years reported by municipality
  - c. Total amount of rental income in 500 years reported by municipality
  - d. Total amount of funds required for relocation in a 500-year storm event reported by municipality
  - e. Total economic loss from the 100-year storm event reported by municipality

# Resources:

1. FEMA Hazus: https://www.fema.gov/hazus

# J. Nor'easters

# **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

# **Resources:**

1. NOAA National Centers for Environmental Information: https://www.ncdc.noaa.gov/

# K. Severe Weather: Thunderstorms

# **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

# **Resources:**

1. NOAA National Centers for Environmental Information: <u>https://www.ncdc.noaa.gov/</u>

# K1. Severe Weather: Extreme Temperatures

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. NOAA National Centers for Environmental Information: https://www.ncdc.noaa.gov/

# K2. Severe Weather: High Winds

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. NOAA National Centers for Environmental Information: https://www.ncdc.noaa.gov/

# K3. Severe Weather: Tornadoes

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

#### **Resources:**

1. NOAA National Centers for Environmental Information: https://www.ncdc.noaa.gov/

# K4. Severe Winter Weather: Heavy Snow & Blizzards

#### **Risk Analysis Assumptions:**

Potential loss caused by a severe winter weather event is estimated by calculating 1percent of a building's structural replacement cost value. Given professional knowledge and the currently available information, the potential loss for this hazard is often considered to be overestimated because of varying factors (building structure type, age, load distribution, building codes in place, etc.). Therefore, this estimate should be used for planning purposes with the knowledge that the associated losses for severe winter storm events can vary greatly.

- 1. Total Replacement Cost Value (RCV) for Critical Facilities Damaged Due to a Severe Winter Weather Event:
  - a. Total RCV for Critical Facilities damaged by winter weather reported by municipality
- 2. Total Number of Critical Facilities Damaged Due to a Severe Winter Weather Event:

- a. Total Number and Percentage of Critical Facilities damaged by winter weather reported by municipality
- 3. Total RCV for the General Building Stock Damaged Due to a Severe Winter Weather Event:
  - a. Total Number and Percentage of RCV for General Building Stock damaged by winter weather reported by municipality
- 4. Total Number of the General Building Stock Damaged Due to a Severe Winter Weather Event:
  - a. Total Number and Percentage of the General Building Stock damaged by winter weather reported by municipality

#### **Resources:**

1. NOAA National Centers for Environmental Information: <u>https://www.ncdc.noaa.gov/</u>

# K5. Severe Winter Weather: Ice Storms

# **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

# L. Wildfire

# **Risk Analysis Assumptions:**

GIS overlay analysis using NJ Forest Fire Service maps and data of Fuel Hazard Areas.

Report the Following:

- 1. Total Replacement Cost Value (RCV) for Critical Facilities Located in Wildfire Hazard Areas:
  - a. Total RCV for Critical Facilities located in Wildfire Hazard Areas reported by municipality
  - b. Total RCV for Critical Facilities located in Moderate and Low Areas Wildfire Hazard Areas reported by municipality
  - c. Total RCV for Critical Facilities located in Extreme, Very High and High Wildfire Hazard Areas reported by municipality
- 2. Total Number of Critical Facilities Located in Wildfire Hazard Areas:
  - a. Total Number and Percentage of Critical Facilities located in Wildfire Hazard Areas reported by municipality
  - b. Total Number and Percentage of Critical Facilities located in Moderate and Low Areas Wildfire Hazard Areas reported by municipality
  - c. Total Number and Percentage of Critical Facilities located in Extreme, Very High and High Wildfire Hazard Areas reported by municipality
- 3. Total Land Area Located in Wildfire Hazard Areas:
  - a. Total Land Area (Square Miles) of Wildfire Hazard Area
  - b. Total Land Area and Percentage of Land Area in Moderate and Low Areas (Square Miles)
  - c. Total Land Area and Percentage of Land Area in Extreme, Very High and High Areas (Square Miles)

# Resources:

1. New Jersey Forest Fire Service Fuel Hazards and Fire Risk: https://www.state.nj.us/dep/parksandforests/fire/wildfire\_hazard\_mitigation.htm

# Human – Based Hazards

# **Animal Disease**

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available

#### **Resources:**

- 1. New Jersey Department of Health and Human Services
- 2. New Jersey, the Department of Agriculture (NJDA), Division of Animal Health

# **Crop Failure**

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to value of property damage by historic event, when information is available.

#### **Resources:**

1. U.S. Department of Agriculture, Farm Service Agency, NJ: <u>https://www.fsa.usda.gov/state-offices/New-Jersey/index#Crop\_Damage</u>

# **Hazardous Substances**

#### **Risk Analysis Assumptions:**

Assessment based on historical data collected for all hazard events.

Report the Following:

- 1. Total losses to life and value of property damage by historic event and municipality, when information is available
- 2. Total number of superfund site reported by municipality
- 3. Total number of Known Contaminated Sites reported by municipality

#### **Resources:**

- 1. EPA, Superfund Sites: <u>https://www.epa.gov/superfund</u>
- 2. NJDEP Known Contaminated Sites: https://www.state.nj.us/dep/srp/kcsnj/
- 3. USDOT

# **Nuclear Hazards**

#### **Risk Analysis Assumptions:**

Number of Critical Facilities Located within the 10 Mile and 50 Mile Radii of nuclear plants.

#### Report the Following:

1. Total Number of critical facilities located within 10 miles of a nuclear plant reported by municipality

- 2. Total Number of critical facilities located within 50 miles of a nuclear plant reported by municipality
- 3. Total Number of Housing Units located within 10 miles of a nuclear plant reported by municipality
- 4. Total Number of Housing Units located within 50 miles of a nuclear plant reported by municipality
- 5. Total Population located within 10 miles of a nuclear plant reported by municipality
- 6. Total Population located within 50 miles of a nuclear plant reported by municipality

# The hazards below have the same risk analysis:

- Economic Collapse
- Fishing Failure
- Pandemic
- Power Failure
- Terrorism
- Cyber Attack
- Civil Unrest

**Risk Analysis Assumptions:** Assessment based on historical data collected for all hazard events.

Report the Following: Total losses to life and value of property damage by historic event and municipality, when information is available.

# For More Information Contact:

New Jersey Office of Emergency Management, Division of State Police P. O. Box 7068, West Trenton, NJ 08628-0068

Sgt. Bradley Waugh, State Hazard Mitigation Officer Telephone: (609) 963-6900 ext. 6208 Fax: (609) 530-3649 Email:<u>lpp6433@gw.njsp.org</u>

Chris Testa, Hazard Mitigation Unit Manager Telephone: (609) 508-6557 Fax: (609) 530-3649 Email: <u>lpptestc@gw.njsp.org</u>