



## APPENDIX H. MITIGATION STRATEGY SUPPLEMENT

This appendix houses the supplemental information for Section X: Mitigation Strategy including:

- Updates to Goals and Objectives;
- Review of the status of the 2019 NJSHMP mitigation actions; and
- Coastal protection projects conducted by the NJ Office of Coastal Engineering.

## Updates to the 2019 SHMP Goals and Objectives

Goals	Objectives
Goal 1: Protect life	1.1: Improve warning and emergency communications systems 1.2: Effectively address hazard mitigation issues, laws, and regulations <del>1.3: Reduce the impacts of hazards on vulnerable populations</del> 1.4: Strengthen State and local planning, building codes, ordinances, and enforcement
Goal 2: Protect property	2.1: Protect critical facilities, <del>buildings, infrastructure, and community lifelines.</del> 2.2: Reduce repetitive and severe repetitive losses 2.3: Implement hazard mitigation policies to protect environmental resources that serve a natural hazard mitigation function 2.4: Encourage cost-effective and environmentally-sound development and land use <del>in low-risk areas</del> <del>2.5: Mitigate High Hazard Potential Dams within the State</del> <del>2.6: Promote a comprehensive community strategy to reduce flood risk in high-hazard areas</del>
Goal 3: Increase public preparedness and awareness	3.1: Improve public awareness of hazards and the risks they pose 3.2: Improve hazard information databases, maps, and tools and increase accessibility to those resources 3.3: Enhance stakeholder education and training
Goal 4: Develop and maintain an understanding of <del>increased risk from hazards</del> <del>climate change impacts to natural hazards</del>	4.1: Review and incorporate updated hazard data into the State Hazard Mitigation Plan 4.2: Increase support for the development of local mitigation planning and projects 4.3: Incorporate new <del>state and</del> FEMA guidance, rules, and regulations into the <del>Plan</del> <del>appropriate plans</del> 4.4: Update the Plan <del>from lessons</del> incorporating local and national best practices <del>learned at the national level</del>
Goal 5: Enhance State and local mitigation capabilities to reduce hazard vulnerabilities	<del>5.1: Integrate the State Hazard Mitigation Plan with other State and regional planning initiatives</del> 5.2: Monitor the progress of on-going mitigation activities by State agencies 5.3: Provide current information, technical assistance, and incentives for mitigation planning and actions 5.4: Encourage the formation of partnerships to leverage and share mitigation resources <del>5.4: Integrate the State Hazard Mitigation Plan with other State and regional planning initiatives</del> 5.5: Incentivize best practices through mitigation planning
Goal 6: Support continuity of operations pre-, during, and post-hazard events	6.1: <del>Increase</del> <del>Ensure</del> continuity of operations of government, non-government, commerce, private sector, and infrastructure 6.2: Increase resiliency by facilitating rapid disaster <del>response and recovery</del> 6.3: Encourage planning and the implementation of alternative energy sources

Goals	Objectives
Goal 7: Reduce the risk of natural hazards for socially vulnerable populations and underserved communities	7.1: Work with communities to identify the impacts of hazards on socially vulnerable populations 7.2 Ensure hazard mitigation planning includes and is responsive to the entire community 7.3 Direct resources to build capacity in lower-resourced communities

*Note: Red text represents the 2024 changes to the 2019 goals and objectives*

## Review of 2019 NJSHMP Mitigation Actions

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
<b>Completed Actions</b>							
<b>2019-NJSEA-04</b>	New Jersey Sports and Exposition Authority	Flood	1, 2, 3	Completion of the Meadowlands District Floodplain Management Plan in October 2022.	Completes the development of the Floodplain Management Plan.	Completed	As an NFIP Category C community, the NJSEA is required to either prepare and adopt a floodplain management plan or prepare and adopt a repetitive loss area analysis for all repetitive loss areas. The NJSEA's goal in preparing the District-wide Floodplain Management Plan is to maintain the 15 percent flood insurance discount and to examine additional projects to potentially increase the rating while comprehensively addressing the flooding that occurs in the District.
<b>2019-NJDOC-06</b>	NJ Department of Corrections	All Hazards	6	Purchase and install new system-wide alert for the department of corrections, similar to Reverse 911.	The Department is seeking to enhance and expand its warning and emergency communication system. Enhances warning and response time to hazards and capability to protect life.	Completed	Department has enhanced messaging through Everbridge platform.
<b>2019-NJDOC-05</b>	NJ Department of Corrections	Civil unrest, Terrorism, Hazardous Substance	6	Purchase and install additional equipment to assist in detecting and decontaminating hazardous substances.	The Department of Corrections has a dedicated team of over 60 law enforcement officers in their HazMat/C.O.B.R. A (Chemical Ordinance Biological Radiological Aid) team. Protects life and property. Will help	Completed	The Department purchased the Hazmat ID Elite and ACE ID which is utilized by our COBRA (Hazmat) Team to identify potential hazardous material when called upon.

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					State maintain operations.		
<b>2019-NJDOC-04</b>	NJ Department of Corrections	Hurricane, Tropical Storms, Nor'Easter, Flood, Flash Flood, High Wind Storm, Ice Jam, Tornado, Winter Storm, Utility Interruption	1, 6	Purchase mobile air conditioning and heater units to provide temporary heat and air to facilities that may experience unsafe temperatures during emergency situations.	Protects inmates and staff from life threatening conditions as a result in damage to HVAC systems during Severe weather conditions. Protects life and property. Will help State maintain operations.	Completed	Purchased a generator truck and 4 portable HVAC units.
<b>2019-NJDEP-43</b>	NJ Department of Environmental Protection	All Hazards	1, 2	Improve retail fuel stations' ability to provide fuel in the event of power disruptions through the Liquid Fuel Resilience Program, which provides funding for onsite generators and "quick connect" points for portable generators	Builds resilience in fuel supply and distribution. Provides liquid fuel supply continuity during future hazards. Refer to Appendix E for additional details (2013 New Jersey State Hazard Mitigation Plan Amendment).	Completed	The retail gas station fuel program involved 3 agencies: 1) NJOEM purchased and maintained the portable generators, 2) EDA approved grant money for gas stations for quick connects, 3) BPU was responsible for tracking the ESF-12 function - keeping track of what gas stations were installed, keeping up to date gas station contact information and making sure during an emergency that the gas stations received a NJOEM portable generator.
<b>2019-NJDEP-35</b>	NJ Department of Environmental Protection	Wildfire	4	2008 Action 471 Develop and implement a State database/GIS to track and archive past wildfire occurrences.	Map of all areas of the State with the ranking of the threat from wildland fuels will assist in local and regional planning. Provides basis for Pinelands Commission and other defensible	Completed	A wildfire occurrence tracking and database system was created and is in use.

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					space regulations and enforcement.		
<b>2019-SJTA-01</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	6	Improvements to the primary electric and natural gas service to the NJ State Police station located at the Farley Service Plaza on the Atlantic City Expressway.	The current primary electric feed (the only electric feed) to the only State Police station on the Expressway is currently serviced by an aerial wire that passes through a heavily wooded area. This project would convert that feed to underground, which would protect against loss of power associated with future weather events. Natural Gas service would provide a more reliable back up power generation for the station as well. Helps support the continuity of operations pre-, during, and post- hazard events for the State Police.	Completed	Primary Electrical Service to the Farley Service Plaza and the New Jersey State Police station was put underground by the Atlantic City Electric Company in 2021. The South Jersey Gas Company extended Natural Gas Service to the Farley Service Plaza in 2021. A new natural gas fired emergency backup generator was placed into service for the SJTA Administration Bldg in 2022, however the emergency backup generator at the State Police station is less than 10 years old and not due for replacement at that time.
<b>2019-NJTA-07</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	State Police Station Improvements: In coordination with the New Jersey State Police, elevate and/or floodproof portions of the New Jersey State Police facilities at risk for potential flooding during a high-water event. New Jersey State Police Stations: New Jersey State Police Newark Station (under construction), New Jersey	The Authority recently completed a Detailed Inundation Mapping Study that modeled coastal surge inundation areas along the Authority's Right of Way. The study identified Areas of Strategic Concern, including New Jersey State Police Stations that have the greatest risk for potential inundation	Completed	The Newark Station has been reconstructed to place the door opening at the current 100-year design flood hazard elevation. The Bass River Station has been relocated to Galloway which is not exposed to flood hazards.

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				State Police Bass River Station.	during a high-water event. The elevation and/or floodproofing of State Police Stations from potential inundation during a high-water event advance ensures the continuity of operations of State Police facilities and assists State Police to respond pre-, during, and post- hazard events.		
<b>2019-SCCRC-01</b>	Stockton College – Coastal Research Center (CRC)	All Hazards	3	Purchase a Laser Scanner to enhance coastal surveying	Enhance and complement existing and new methods of surveying to collect high resolution elevation data. Deploying a mobile laser scanner will enhance the CRC's efforts by reducing field data collection time for the New Jersey Beach Profile Network (NJBPN), while increasing the resolution of data within the State of New Jersey's coastal zone.	Completed	The Stockton CRC has a Laser Scanner that it uses regularly.
<b>2019-NJDOT-07</b>	NJ Department of Transportation	All Hazards	4, 5, 6	Geospatial mapping of navigable waterways	Understand State assets to better prepare for future hazards. Improves allocation of resources to maintain navigable waterways.	Completed	Provides baseline conditions for possible future reimbursement
<b>2019-NJDOT-02</b>	NJ Department of Transportation	All Hazards	1, 2, 6	Hardening of traffic controllers	Critical bridge/route for evacuation purposes. Reduces future traffic controller and bridge damage.	Completed	Over 250 priority intersections were identified on various routes. The signals controllers at these intersections were hardened. They

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							were outfitted so a generator could be attached for power if needed.
<b>Discontinued Actions</b>							
<b>2019-DVRPC-03</b>	Delaware Valley Regional Planning Commission	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	3, 6	Enhance and Expand the Interactive Detour Route Mapping (IDRuM) to include all of New Jersey and where data is available, model flooding and coastal surge inundation areas for roadway segments, ramps, and bridges that have the greatest risk for potential inundation during a high-water event.	As exposure to IDRuM grew, the New Jersey Department of Transportation (NJDOT) decided to partner with DVRPC to expand IDRuM into the State of New Jersey. Currently, NJDOT's detour route maps for Burlington and Camden Counties have been incorporated into the application, with counties to follow. The ultimate goal is to integrate NJDOT's detour route maps for all New Jersey counties, with IDRuM being utilized statewide. IDRuM is available both in an online and offline version. Supports continuity of operations post disaster.	Discontinued	<p>NJDOT worked with NJIT to develop a statewide traffic incident management portal, NJTIM. This is an interactive, statewide detour portal that achieves some of the goals laid out in the 2019 plan. This tool can be accessed here: <a href="https://www.njtim.org/NJTIM/NJDe tour/DetourIndex">https://www.njtim.org/NJTIM/NJDe tour/DetourIndex</a>. This tool achieves some of the goals laid out in the 2019 plan but does not include information on flood or coastal surge inundations areas.</p> <p>DVRPC was not involved in developing these resources. DVRPC still maintains IDRuM for our Pennsylvania region.</p>
<b>2019-NJSEA-01</b>	New Jersey Sports and Exposition Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Coordinate and execute an agreement with leaseholders to use the MetLife Sports Complex as a shelter during a hazardous event or disaster.	Having an agreement that defines the terms of use and access to convert the arena into an emergency shelter during a hazard event will help facilitate rapid recovery and the protection of life and property. Helps protect life and property by ensuring a place of last	Discontinued	This action is being discontinued. The status of several sports complex buildings has changed since 2019. This action will be re-examined and re-submitted as a new mitigation action for the 2024 Plan update.

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					resort/shelter during a hazard event.		
<b>2019-NJDOC-01</b>	NJ Department of Corrections	Flood, Flash Flood, Hurricane, Tropical Storms, Nor'Easter	1, 2, 6	Purchase and install new mobile trailers or structures that can withstand high winds during hazardous events.	Enhances the resiliency of mobile structures that provide essential services for the department. Protects life and property. Will help State maintain operations.	Discontinued	This action is no longer a priority and will be discontinued.
<b>2019-NJDEP-21</b>	NJ Department of Environmental Protection	Drought, Shallow Groundwater	4	Conduct a comprehensive inventory of private well locations and ground water depth at private wells.	Private well locations are tracked when a well permit is issued. Water quality in them is tracked during the event of a real estate transaction; water level in the well isn't. A comprehensive database of wells and groundwater depth would aid in the understanding of risk and vulnerability to flooding and drought related hazards. However this would require significant effort and intrusive monitoring of these domestic wells.	Discontinued	This project is not doable as written. Private wells did not require a permit until 1947; no records before then. Since then all wells have required a permit. But locations, at least pre-GPS, are of varying accuracy. NJDEP has engaged in a more detailed estimate of the number of domestic wells in each of the 7,000 census blocks in New Jersey. Additionally, measuring ground water depth at a private well would require digging up the well, breaking the sanitary seal, measuring the depth to water, disinfecting the water, resetting the sanitary seal, and burying the well. Perhaps this could be added to the water quality sampling requirements of the Private Well Testing Act (which apply when a property changes hands) but the cost to homeowner or buyer would increase significantly.
<b>2019-NJDEP-25</b>	NJ Department of Environmental Protection	All Hazards	1, 2	Conduct an assessment of public and private debris management facilities to study vulnerability to flooding and identify resiliency measures needed	To better understand and manage debris management at all levels for hazards. Supports continuity of operations for debris management	Discontinued	There is no need to conduct a separate assessment for the following reason: All applications submitted by either a county or municipal entity as part of the TDMA pre-approval process are

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				to prevent flooding and other cascading failures during a hazard.	and facilities rapid disaster recovery.		forwarded to numerous units within the Department for review. One of those units is Flood Hazard which reviews the application including the identified site for vulnerability for potential flooding. The Flood Hazard Unit will also recommend suggested resiliency measures. TDMA approvals are recertified every five years and changing conditions would trigger prompt additional evaluation. Further TDMA's and other solid waste/recycling facilities are subject to inspection by the Department and county representatives, so if changes to the facility are observed they are noted and reported to the respective permitting units. Also, the TDMA pre-approval program is limited to only public entities. Private companies are not eligible as FEMA discourages the use and approval of a private TDMA.
<b>2019-NJDEP-10</b>	NJ Department of Environmental Protection	All Hazards	4	Create and maintain a spatial damage assessment and inventory of damage to park systems and infrastructure from hazard events.	Creates a central spatial database of damage assessments for park systems, whereas the current system is composed of individually submitted spreadsheets. Improves hazard information databases and maps and increase accessibility to those resources.	Discontinued	This action currently does not have an agency lead and is no longer a priority.
<b>2019-NJDEP-01</b>	NJ Department of Environmental Protection	Fishing losses	2, 6	Install generators at state aquaculture/fishery facilities to ensure the continuous operation of	Prevents loss of fish used to ensure New Jersey waterways are stocked. Advances the goal of	Discontinued	Fish & Wildlife's two fish hatcheries have always had backup generators to maintain waterflow during power

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				critical equipment for the survival of fish used to stock New Jersey waterways.	mitigating losses from the identified Fishing losses hazard.		outages. This action should be discontinued.
<b>2019-NJDEP-28</b>	NJ Department of Environmental Protection	All Hazards	5, 6	Establish contracts for the emergency storage of debris with a Hazmat component in each county to facilitate debris management prior to a hazard event.	Creates agreements and partnerships to identify sites for the storage of debris with a hazmat component to facilitate rapid disaster recovery planning. Encourage the formation of partnerships to leverage and share mitigation resources.	Discontinued	This task is usually led by NJDEP-OEM who will coordinate with the respective units with the Department (Enforcement-BHWC&E & DSWM-Bureau of Recycling & Hazardous Waste). Currently there is no need to establish new contracts as existing statewide Debris Management Contracts do not preclude handling debris with hazmat component and are available to all county and municipal governments.
<b>2019-NJDEP-23</b>	NJ Department of Environmental Protection	All Hazards	1, 2, 6	Amend rules to require a 90-day minimum to Temporary Debris Management Areas approvals that are activated	Allows for a continuous operation of debris management at temporary sites to facilitate clean-up. Supports continuity of operations for debris management and facilities rapid disaster recovery.	Discontinued	There is no need to change the current position which is that TDMA's when activated are for a 60-day period and they can be extended for additional time periods with a request submitted to the Department. The procedures for requesting an extension are specified in the TDMA pre-approval document.
<b>2019-NJOEM-35</b>	NJ Office of Emergency Management	All Hazards	1, 2, 4, 5	Work with State agencies to update the critical facility spatial inventory developed for the 2014 Plan update with best available data and identify which are State-owned critical facilities, and which are non-State owned critical facilities.	This new attribute will further allow State agencies to identify mitigation priorities and actions for their facilities. Protects life, protects property, increases understanding of risks, and supports continuity of operations.	Discontinued	This action is duplicative of other actions involving inventorying critical facilities and will be discontinued.  NJOEM utilizes information from the updated risk assessment to provide situational awareness on current State-owned and non-State-owned critical facilities.
<b>2019-NJOEM-28</b>	NJ Office of Emergency Management	Flood	2	2009 Action 253 Initiate mitigation projects to reduce risks to	Protects critical facilities. Contributes to goals of	Discontinued	This action is very similar to action 2019-NJOEM-27, therefore it will be discontinued.

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				State-owned critical facilities located in V and VE zones	protecting property and life.		
<b>2019-NJOEM-17</b>	NJ Office of Emergency Management	All Hazards	2	2008 PSA 271 Update and maintain continuity of government to enable the State government to provide critical services during an interruption of business.	Critical services are still necessary during an interruption of business. The existence and exercise of these plans will assure that State Government services will continue to be provided regardless of the hazards faced.	Discontinued	The action, as written, is nearly identical to Goal 6 of the Hazard Mitigation Plan. As such, this action item is repetitive and no longer serves a purpose.
<b>2019-NJOEM-06</b>	NJ Office of Emergency Management	All Hazards	5	2008 Action 521 Ensures that mitigation planning continues to evolve in the State	Ensures that mitigation planning continues to evolve in the State, and that efforts of State, federal government and local jurisdictions are aligned. Ensures a regional and statewide mitigation planning effort. Planning participation at the local level is expanding beyond municipalities to other institutions and independent subdivisions of State government.	Discontinued	This action will be discontinued as this represents a FEMA requirement. Hazard mitigation planning in NJ continues to evolve through NJDEP's resiliency programs, the FEMA resilience accelerator, the Interagency Council on Climate Change, etc.
<b>2019-NJOEM-05</b>	NJ Office of Emergency Management	All Hazards	4	2008 Action 493 Identify and describe existing plans addressing hazard mitigation issues for review and integration into the SHMP.	Develop plans for their effective use and integration with other agencies' for use of existing resources to reduce losses. Enhances local capabilities to utilize public and private resources.	Discontinued	This action is part of FEMA's standard requirements and will be discontinued.

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<b>2019-NJOEM-16</b>	NJ Office of Emergency Management	Flood	2	2008 PSA 235 Conduct community outreach, workshops and training to increase NFIP participation.	Encourages participation in the program so that losses will be covered and allows eligibility in the FMA program. Allows for people to receive flood insurance claims and maintains eligibility in the FMA program of which flood insurance is a requirement.	Discontinued	NFIP and floodplain management falls under NJ DEP. However, continued funding of training of floodplain managers has occurred. NJOEM are strong advocates of leading floodplain management strategies through recovery programs. Seeking to build policies around past recognition of best actions.
<b>2019-NJOEM-12</b>	NJ Office of Emergency Management	Flood	1, 2, 4, 5	Local Projects Program: This program continues to enable county and local governments across all 21 counties to pursue regional and local resiliency projects. These funds can be used to advance drainage, flood control, energy resiliency and other hazard mitigation projects.	Identifying candidates with the strongest potential to meet benefit cost requirements allows communities to focus mitigation alternatives and applications on SRL and RL properties. Retrofitting, elevating, or removing RL properties from known hazard areas protect property and lives as well as preserve personal, state, and federal financial resources.	Discontinued	This action has been absorbed into other FEMA funding opportunities.
<b>2019-PANYNJ-19</b>	PANYNJ	Terrorism	1, 2, 6	Teterboro Airport: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to Teterboro Airport over the past 17 years. The Port Authority will work with tenants and fixed based operators to incorporate security design for redeveloped infrastructure.	Man-Made Hazards: To ensure survivability of airport infrastructure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensure resilience of a major general aviation facility supporting the NY/NJ region.	Discontinued	No ongoing projects at this time.

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2019-NJDOT-05	NJ Department of Transportation	Flood	1, 2, 6	Installing and hardening pumps stations	Critical bridge/route for evacuation purposes. Reduces flood damage.	Discontinued	The focus of this status is based on the Contraflow evacuation routes. Pump stations along another shore route have been added.
2019-NJDOT-01	NJ Department of Transportation	Earthquake	1, 2, 6	Constructing seismic retrofits on bridges to improve resiliency against earthquake damage	Critical bridge/route for evacuation purposes. Reduces future earthquake road and bridge damage.	Discontinued	Upon review, this action is no longer seen as a priority and will be discontinued. Seismic protections are incorporated in new structure designs and typical upkeep/repair where appropriate.
2019-NJDOT-06	NJ Department of Transportation	All Hazards	1, 2, 6	Installing deep pavement boxes throughout critical evacuation routes	Critical bridge/route for evacuation purposes. Reduces future road and bridge damage.	Discontinued	Upon review, this action is no longer seen as a priority for the NJDOT and will be discontinued.
2019-NJDCA-01	NJ Department of Community Affairs	Earthquake	1, 2, 4	Prioritize earthquake risk by conducting more detailed risk assessments of the State-owned critical facilities	Serves as first step in a long-term plan to reduce risks to the most critical State facilities. Results in protecting both life and property.	Discontinued	NJDCA's Division of Codes and Standards can supply the UCC criteria, but do not conduct the risk assessments themselves. As such, this action should be discontinued from DCA's assigned actions. If this action is continued, the agency of responsibility would need to be the Department of Treasury, Division of Property Management and Construction.
<b>In Progress Actions</b>							
2019-NJDEP-11	NJ Department of Environmental Protection	All Hazards	2, 6	Assessment of NJDEP facilities for the need of resiliency improvements, such as installation of new generators.	Inventory of potential resiliency improvements to facilities that can be incorporated into future mitigation actions. Supports continuity of operations and protection of property for critical infrastructure for emergency operations.	In Progress	<u>Hazard Mitigation Plan per Program</u>  AEMS: The field offices at 33 Arctic Parkway need to remain operational during natural disasters that may affect the safe operation of the nuclear power plants located in the state. 33 Arctic Parkway serves as the DEP's Forward Command Center for implementation of the NJ Radiological Emergency Response Plan for nuclear power plants. Field monitoring teams muster at that

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							<p>location if an emergency event is declared at a nuclear facility identified as an Alert or higher. The FCC serves as the coordinating facility for field monitoring activities and radiological environmental assessment and needs to remain operational if there is an event. There is no generator located at that facility to provide backup power, however, the facility operations may be relocated to the DEP's Emergency Operations Center at 401 if necessary. Alternately, the NJOEM may be able to provide space for the FCC to relocate in the event of a power loss at their Regional Operations and Intelligence Center (ROIC).</p> <p><i>Air:</i> No additional needs</p> <p><i>CSRR:</i> CSRR has offices in Cedar Knolls and 536 E. State Street. We need for the Northern Field office in Cedar Knolls to be operational. Other programs also have offices in the same building, including emergency response. Bureau of Environmental Measurements and Site Assessment is located at 536 E. State Street. I believe only CSRR has offices in that building. In case of a disaster, they can work at 401 if needed.</p> <p><i>Parks:</i> Greenbank Facility – Processing Liberty State Park RO (Maintenance</p>

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							<p>Building) - Processing Hopatcong Office - Processing Monmouth Training Center – Processing &amp; Evidence Vorhees – Processing State Forest Tree Nursery – Needs Generator Coyle Field – Needs Generator</p> <p>These buildings would require generators for power as they are facilities used in the event of an arrest, Monmouth also houses our evidence (some of which requires to be temperature controlled).</p> <p><i>Solid Waste:</i> For the waste (solid/Haz/RMW) and UST enforcement response programs, which are critical in response/oversight effort during and after a disaster for damage/debris assessment and fuel distribution purposes, our primary concern would be the operability of 9 Ewing St. Building. The Building was knocked out during Sandy and created all kinds of difficulty and lost time finding other areas to work from. While this is not a State-owned bldg., oddly enough when the Comm Ctr was housed here on the third floor, a natural gas generator was installed on the roof, When the Comm Ctr. left for Horizon Ctr. , the generator was not maintained and ceased working. (maybe it can be repaired - don't know) but I believe it only provided power to the third floor which while</p>

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							<p>not perfect, would still be a significant help if it could be rehabbed/replaced.</p> <p><i>WLM:</i>  Green Brook - Flood Resilience System including pump stations, levees, flood walls, and closure gates  Ramapo River at Oakland - Inline Weir Structure  Pompton Dam Floodgate – Floodgate  Raritan Bay - Keansburg Floodgate - Floodgate Facility with flood gate &amp; 4 diesel pumps. Diesel backup generator. Levee System with 8 interior drainage pipes. 12 outfall pipes into Raritan Bay. Sluice gates at Natco Lake. Non renourished beach and dune.  Raritan and Sandy Hook - Port Monmouth - Floodgate Facility with tide gate &amp; 3 electric pumps. Two diesel backup generators. Road Closure gate. Concrete Floodwall. Bulkhead. Beach and Dune. Currently installing additional pump station, floodwall, levee, interior drainage. Additional features in upcoming phases.</p> <p><i>Fish &amp; Wildlife:</i>  REGIONAL OFFICES  Northern Region Office  No backup generator. Since the office is due to be closed with the new NRO on the horizon it is not worth seeking a backup generator.</p>

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							<p>The new NRO will have a backup generator.  Central Region Office  Backup generator in case of a power failure.  Southern Region Office  No backup generator. Emergency lights on battery backup. Since the office is due to be closed with the new SRO (Holly Farm) a backup generator is not being requested at this time.</p> <p><i>Pequest Trout Hatchery</i></p> <p>Well Field  Culture operations at the Pequest Trout Hatchery are based on groundwater withdrawal from seven production wells. To maintain the high water quality standards for trout, approximately 9 million gallons per day of groundwater is pumped through the hatchery's 6400 feet raceway system. Presently, seven on-site artesian wells, located southerly of the Pequest River Bridge, in the Townships of Liberty, White, and Mansfield in Warren County, supply the hatchery with up to seven thousand gallons of water per minute (figure 3). The seven wells are spaced 600 to 1,000 feet apart over a 1.3-mile area. The hatchery also maintains six observation wells (figure 4). This groundwater supply has a constant temperature of 11°C (52°F) year-round and is capable of maintaining a continuous flow of</p>

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							<p>water through the hatchery system.</p> <p><b>EMERGENCY PLAN</b>  A continual supply of cold groundwater water is critical to successfully propagating the over 1,000,000 trout (3-year classes) on the premises of the Pequest Trout Hatchery. As such, the hatchery's main systems are monitored continuously 24 hours a day, seven days a week. The hatchery also has full-time staff scheduled 24 hours per day on the premises.</p> <p><b>Power Outages</b>  Power outages, despite the cause, are the greatest concern to the Pequest operation. As such, power to the hatchery is closely monitored, and critical backup systems exist to ensure that power to the well system is always maintained.</p> <p><b>Alarm and System Monitoring</b>  Flow from each of the operating wells is monitored closely and controlled remotely through a broad-spectrum radio monitoring system. Well operations are monitored through a main control panel at the hatchery and remotely from the hatchery Superintendent's Crew Supervisor's smartphones and computers.</p> <p>All major power and emergency circuits are monitored by an alarm company. Any disruption in power, or loss of flow from any of the wells results in notification by the alarm</p>

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							<p>company to the Hatchery Superintendent, Crew Supervisor Building Maintenance Programs, Crew Supervisor Wildlife Management Area Operations, and other scheduled on-site personnel. Exterior sirens are also mounted and active on the nursery building when alarms are triggered, these can be heard throughout the hatchery facility, including the two employee houses located on-site. Text messages are also relayed to the hatchery Superintendent's and Maintenance Engineer cell phones, in addition to phone calls from alarm company personnel. The alarm monitoring system records all events.</p> <p>Pre planning:  Six out of the seven wells in the Pequest Well Field (Wells 1, 2, 3, 4, 5 ,and 7) have diesel-powered backup generators. In the event of a power failure, the generators are automatically started by the system to maintain pumps to the active wells.</p> <ul style="list-style-type: none"> <li>ü Emergency backup systems are checked at least once per week.</li> <li>ü All backup diesels are started and run for five hours once a month.</li> <li>ü Diesel tanks are topped off when needed and filled before major storm events. On- site storage of diesel fuel is available for extended outages.</li> <li>ü Fluids are changed on a regular basis.</li> </ul>

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							<p>During a power outage: Hatchery policy requires a minimum of three employees on-site during a major power outage, the Superintendent or Crew Supervisor Building Maintenance Programs, Crew Supervisor Wildlife Management Area Operations, and 1-2 of the hatchery's Wildlife Workers or Technicians. The hatchery maintains current contact information and priority order for staff notification in the event of a power failure. One employee is stationed at the main control panel in the nursery building, while the other two are in the field monitoring diesel engines and troubleshooting any mechanical issues. Raceways are checked every fifteen minutes for the well-being of the production stock.</p> <p>After When power is restored to all well houses and diesel generators, staff checks and confirms all systems have functioned properly and transferred to line power. Diesel tanks are refilled. All diesel fuel tanks are checked and re-fueled if needed. All mechanical operations are inspected and confirmed, ready for the next event. Each pool and raceway is checked for the well-being of the trout. The main control panel and flow meters are checked to see that the flow and all mechanical operations are back to normal. The alarm monitoring</p>

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							<p>system automatically records the event in the event log. NEED: Main generator is 40 years old and requires replacement.</p> <p><b>Gas Pumps</b> In the event of extended power outage, a portable generator can be tied into the main lines in the lower maintenance building to maintain functioning gas pumps. NEED: Gas pumps replaced. Extremely old and will not endure a significant storm event. Gas pumps utilized by State Police (during emergencies), FW Law Enforcement, and also hatchery vehicles and equipment.</p> <p><b>Flooding</b> Due to the hatchery's upland location in the Pequest Valley, flooding does not threaten the fish culture operations at the Pequest Trout Hatchery.</p> <p><b>Fallen Trees</b> The hatchery raceways and hatchery buildings are clear of any large trees. Although located in a wooded area, well houses are constructed of stone or concrete, so felled trees do not threaten hatchery operations. Wells can be operated remotely, so if a fallen tree blocks access to a well house, it poses no immediate threat to hatchery operations. If a tree needs to be cleared, the hatchery has chainsaws and other</p>

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							<p>necessary tools to clear access.</p> <p><b>Mechanical Failure</b>  The well field at Pequest is comprised of seven production wells. The wells range in size from 1000 to 3200 gallons per minute. Three to four wells, depending on specific well capabilities, must be active to meet the hatchery's 9 million gallons per day needs. The large well field allows water needs to be met through various well combinations, and also allows for wells to be put offline for scheduled maintenance. The hatchery can sustain a simultaneous failure of two wells without a health risk to the fish on the premises.</p> <p><b>Pre-Planning</b>  ü Output of each well is monitored continuously.  ü Well pumps should be completely pulled and fully inspected every seven to ten years or when significant inefficiencies are noted in pumping capacity.</p> <p>Accessible well parts are greased each year.  During a mechanical failure:  The alarm system will sound if a well stops pumping or there is a measurable decrease in flow. Staff on site will immediately consult the main control panel, put the well offline, and initiate start-up of an alternate well sufficient to maintain flows. The Superintendent and Crew</p>

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							<p>Supervisors will be notified of the issue and will direct steps to be taken. System failures that cannot be corrected in-house will be corrected will require a well specialist to be contacted the next immediate business day. Necessary repairs will be made as expediently as possible. Purchasing representatives will be contacted for un-scheduled repairs over \$ 10,000 or if a contract vendor is unavailable to make the necessary repairs.</p> <p><b>Snow Events</b> Dealing with a live product, it is critical that the fish hatchery and raceways are clear of snow immediately. Plow trucks are set-up and fueled. To secure the well-being and feeding schedules of the production stock and mechanical systems that support the water flow all areas must be assessable. Additional personnel are brought in during major snow events to maintain the facility and gain access to the well field and all production areas. Any debris along and in the raceways is removed, and all standpipes are checked for water loss. During major power outages with big snow events, emergency procedures are followed as outlined in the emergency plan.</p> <p><b>Essential Personnel</b> Facility is staffed 24 hours a day, 7 days a week.</p>

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							<p>HACKETTSTOWN STATE FISH HATCHERY  Intensive Recirculation System  Pump Failure  Make a couple of calls and try and get a second or third person responding/on site.</p> <p>In the case of a pump failure on one of the three recirc. systems, immediately try to turn on the secondary pump. With the new alarm system staff have the ability to do this with phone/tablet.</p> <p>If the pump does not fire, grab a long-handled wrench and try to free up/break loose the shaft. Check breakers and knife switches on panels. Press reset buttons.</p> <p>If the down pump is one on a heated system and the other heated system is running, there is the option of cutting flow into the downed system. 68 degree into 80 or 80 into the 68.</p> <p>Turn fish food feeders off and add oxygen stones to the tanks.</p> <p>If all heated water options have failed crack some 52-degree spring water in. If there is no water flow to the building and options are exhausted, load fish on tank trucks and move to hatchery ponds or stock them in acceptable water bodies.</p>

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							<p>Intensive Recirculation System Boiler Failure  Press reset button. Take notice of the alarm code inside panel door. Example: Lockout 57  As long as it is not busy season one boiler should be able to maintain heating loop temperatures. If one boiler is struggling to maintain temps, turn the 68 and 80 degree system setpoints down a degree or two.  Depending on the time of day and day of the week and load on the systems, Call Miller &amp; Chitty Emergency Number: 908-241-4500. Short term - less than two hour boiler shutdown to work on systems: turn valves and put recirculation systems on 100% recirculated water.</p> <p>Pre-Storm Preparations (Tropical Storm/Hurricane/Blizzard)  Fill tank trucks up with water in case the need for emergency stocking occurs. Check oxygen bottle levels.</p> <p>Call in gasoline and diesel fuel orders as far in advance of storm as possible. One of the biggest issues with SuperStorm Sandy was gasoline and fuel for generators.</p> <p>All vehicles (Pickups, UTV's and ATV's) fueled and put away in garages. Flashlights and spotlights in all of them. Length of rope behind seat. Tools such as screen brush,</p>

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							<p>pike pole, shovel, pitchfork, and hammer available. Keep boats fueled with life jackets on board. Offer Hackettstown Fire &amp; Rescue use of our boat and operator during Hurricane Irene.</p> <p>Fuel in all generators (portable and permanent) Gas and Diesel cans full as backups. Diesel heaters available if cold weather.</p> <p>Chainsaws fueled and all new blades.</p> <p>Clean out all debris from ditches and pipelines. Lots of places to check. We will have a list and map of the most important locations.</p> <p>Check all dam boards. Hours/Day before storm begins, lower water levels in Trout Brook and Hatchery Production Ponds. If it looks to be a large storm it would be a good idea to open the flood gates as far ahead of the storm as possible.</p> <p>Schedule staff to be in for coverage.</p> <p>Snow plows hooked up and hydraulic fluid levels checked if cold weather. Have snow blower, UTV, shovels, salt for walks ready.</p> <p>Clean out all road grates in the area of leaves and debris.</p> <p>Divert water out of the main hatchery into Trout Brook at the Upper Dam. Add boards to the first opening to force water through the second and third openings of the upper dam. Divert water into empty ponds when possible. Check battery backups on alarm panel, boilers, and fire alarms.</p>

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							<p>Check with Pequest to make sure they are OK.</p> <p>Periodic checking of ditches and dams for clogging if it can be done safely – high water or lightning could prevent this.</p> <p>Check all hatchery pond inflow and outflow screens before, during, and after. Remove screens if possible.</p> <p>Secure all buildings. Pick up all loose items that could become airborne or float away. Strap down O2 bottles in rack</p> <p>Keep an eye on erosion areas Check East Hatchery – ponds and roads.</p> <p>During Storm Be Safe – Go out in pairs if possible. Keep cell phones charged and on your person. Don't drive through puddled or flowing water that you are not sure of. Stay inside if lightning is in the area. Stay out of strong winds. It is never worth risking your life!</p> <p>Power Outage At first sign of power outage make sure the generator is running and all panels are being powered. Check flows to all tanks and oxygen flow to towers and tanks. Check battery backup to alarm panel and fire alarm panel. Alarms panels just replaced 2023/2023. If conditions allow, monitor water</p>

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							<p>conditions around the hatchery. This includes both dams.</p> <p><b>Flood Gates</b>  We may have to open flood gates and pull boards off the top and side flumes of the dams. Keep an eye out for the gate holes to clog, if so be careful and use pike pole to open/unclog them. Ponds with fish in them would be the next thing to look at. Check all ditches starting with the areas we know have been bad in the past. Places like the school walkway, college view pipe to 17/18 ditch, 27 to 92 ditch, and the manholes to 90 ditch.</p> <p>If trees or limbs are down use caution to make sure there is no power involved. Clean only the areas that are blocking roads that need to be traveled during the emergency. All other debris will be cleaned up during the days that follow.</p> <p><i>Dams</i>  Fish &amp; Wildlife manages a number of dams dispersed throughout the state in various condition.</p> <p>NEED: Increased funding to maintain, replace or eliminate dam structures.</p>
<b>2019-NJDEP-29</b>	NJ Department of Environmental Protection	All Hazards	1, 2, 5	Develop an inventory of properties targeted for buyouts in coordination with DCA to reduce risk from hazard events.	Purchase of large tracts of land vulnerable to flooding-related hazards prevents impacts to life and property.	In Progress	OEM developed a GIS layer to reflect FEMA funded and mitigated open space throughout the state, this information can be utilized to help DEP and DCA determine areas

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				Emphasize the identification of larger tracts of land that have larger scale, net benefits.	Encourages cost-effective and environmentally-sound land use that reduces losses from flood-related hazards.		of opportunity that could be expanded upon. This layer along with other state supported GIS data will drive large buyout project visioning.
<b>2019-NJDEP-42</b>	NJ Department of Environmental Protection	Flood	2	Encourage resolution of flooding issues for NFIP insured properties particularly those identified as Repetitive Loss and Severe Repetitive Loss properties.	Increases the level of protection from flooding throughout the state to a large segment of vulnerable population. Advances the goal of Several mitigation programs.	In Progress	DEP will continue to work with OEM to mitigate NFIP funded properties, emphasizing the need to reduce flood risk and vulnerability for properties designated as Repetitive Loss and Severe Repetitive Loss properties by NFIP.
<b>2019-NJDEP-33</b>	NJ Department of Environmental Protection	Flood	1, 2	Buyout Program - The voluntary acquisition and demolition of homes vulnerable to flooding with an emphasis on those subject to repetitive flooding (SRLs/RLs) and those subject to the evolving threat of flooding and storm damage as a result of climate change. Properties purchased through the program will be removed and the remaining land reverted back to its natural state resulting in the mitigation of flooding for neighboring homes and communities. The buyout program will place an emphasis on resilience, socially vulnerable populations, equity, and risk reduction.	Use voluntary buyouts to permanently break the cycle of flooding and loss for repeatedly vulnerable homes and homeowners; allow flood prone land to revert back to its natural state resulting in greater flood storage.	In Progress	Following Superstorm Sandy over \$220M was used to buyout 807 flood prone and storm damaged homes throughout NJ. Buyout work following this storm event is largely complete. Final project elements (demo and restoration work) should be complete within the next 1-2 years. Post Ida, NJ has allocated \$74M for additional buyouts.

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<b>2019-NJDEP-13</b>	NJ Department of Environmental Protection	All Hazards	3	Create an outreach program to improve disaster preparedness education for cultural resources	Many cultural resource sites were not considered or prepared during previous flood-related hazards. Increases the awareness of mitigation planning for cultural resources within the State.	In Progress	The Historic Preservation Office (HPO) released a two-volume Flood Mitigation Guide and Elevation Design Guidelines for Historic Properties in 2019 to provide an innovative approach to address the specific challenges of mitigating flood impacts on historic properties (links below). Additionally, HPO in 2022 released the New Jersey Comprehensive Statewide Historic Preservation Plan 2023-2028, with greatly expanded goals and objectives around disaster planning and resilience. This new Goal 4: Increase integration of historic preservation into disaster planning and resilience, highlights a variety of activities that enable better understanding of historic property hazards and risks, and strengthens relationships with emergency management agencies and officials. Links: Flood Guidance: <a href="https://www.nj.gov/dep/hpo/hurricane_sandy.htm">https://www.nj.gov/dep/hpo/hurricane_sandy.htm</a> Preservation Plan: <a href="https://nj.gov/dep/hpo/4sustain/njhpp.htm">https://nj.gov/dep/hpo/4sustain/njhpp.htm</a>
<b>2019-NJDEP-07</b>	NJ Department of Environmental Protection	Flood	1, 2	Develop guidance that will encourage system resiliency. Steps may involve avoidance of threat or mitigation. Mitigation can include barriers or elevation.	Strengthen State and local planning, building codes, ordinances, and enforcement	In Progress	The IBank has an increasing emphasis on resilience. Updated guidance is nearly finished. This will direct program participants to demonstrate projects are resilient. Guidance will require mapping of future storm surge predictions with appropriate course of action (avoidance or mitigation). Protective measures may depend on criticality and value of asset.

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2019-NJDEP-27	NJ Department of Environmental Protection	All Hazards	5	Coordinate with NJDOT to establish an interagency tracking mechanism to understand impacted transportation networks that prevent the transfer and cleanup of debris during and post hazard event.	To better manage debris removal during- and post-hazard. Supports continuity of operations for debris management and facilities rapid disaster recovery.	In Progress	This task is usually handled by both NJOEM and NJDEP-BER working in coordination with NJDOT during any storm event. NJDEP-BER will forward the information regarding the status of transportation networks to the respective units within DEP.
2019-NJDEP-24	NJ Department of Environmental Protection	All Hazards	3	Conduct outreach for each county to increase awareness and/or adopt their own Debris Management Plan.	To better understand and manage debris management at the local levels for hazards. Supports continuity of operations for debris management and facilities rapid disaster recovery.	In Progress	During 2019-2020, staff from our unit in coordination with NJDEP-BER and NJOEM conducted virtual meetings with most of the counties and their respective county and municipal OEM's and discussed the need to develop a their own Debris Management Plan as well a to submit applications for the pre-approval of TDMA's. Three counties (Gloucester, Hudson, and Monmouth) developed Debris Management Plans as part of their overall Disaster Management Plans. The respective plans had to be submitted to NJOEM (as the lead agency) who in turn forwarded to DEP-BER. DEP-BER had the units within the Department review specific sections of the document applicable to their programs. The current status of these plans is with NJOEM as they are the lead agency. Also, after Tropical Storm IDA there was a discussion of holding another outreach with the counties to discuss disaster management plans. NJOEM was to coordinate the outreach.

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2019-NJDEP-19	NJ Department of Environmental Protection	Nuclear	4	Create a spatial inventory of storm drains and outfalls to integrate with flood data.	Inventory of storm drains and outfalls is a data gap in the state that will help model the impacts of flooding. Improves hazard information databases and maps and increase accessibility to those resources.	In Progress	Since 2018, the MS4 program has required its permittees to map all of their outfall pipes. Additionally, the Public Complex and Highway Agency MS4 permittees have been required to map additional infrastructure since their permit renewals in 2019 and 2020, respectively. Also, the recently renewed 2023 Tier A MS4 permit now requires all Tier A municipalities to map all of their MS4 infrastructure by January 1, 2026.
2019-NJDEP-09	NJ Department of Environmental Protection	Dam/Levee Failure	4	Establish database to digitize dam locations and updates to inundation boundary maps	Allows for a better assessment of risk for dam failures. Improves hazard information databases and maps and increase accessibility to those resources. Improves hazard information databases and maps and increase accessibility to those resources.	In Progress	Dam locations have been digitized. Development of inundation boundary shape files continues.
2019-NJDEP-04	NJ Department of Environmental Protection	All Hazards	1, 2	Replacement or improvement of reservoirs deemed to be deficient.	To reduce risk and vulnerability to water infrastructure. Prevents potential flooding to life and property from deficient reservoirs.	In Progress	Efforts to upgrade dams continue. As dam infrastructure continues to age, additional rehabilitation will be necessary.
2019-NJDEP-03	NJ Department of Environmental Protection	Drought, Water Supply	4, 5	Conduct a study to investigate and refine estimates for total water loss and leakage that occurs throughout New Jersey's water resources.	Supports understanding of water infrastructure and impacts to drought and water supply resiliency. Supports understanding of risks from drought to water resiliency of New	In Progress	New Jersey's proposed rule on WQAA/Asset Management would require public water systems with more than 500 service connections to report high unaccounted for water loss, conduct annual AWWA Water Loss Audits, and report audit results to the NJDEP. Once this requirement is implemented NJDEP

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					Jersey's water resource management.		staff will compile and analyze results to better quantify water loss statewide.
<b>2019-NJDEP-02</b>	NJ Department of Environmental Protection	Drought, Water Supply	4, 5	Conduct hydraulic modeling and a feasibility study to understand water resources and infrastructure improvements across New Jersey. Expand current RiverWare models of raw water in Passaic/Hackensack and Raritan basins to include finished water distribution system. Determine interconnections needed to increase system resiliency during droughts.	Supports understanding of water infrastructure and impacts to drought and flooding-related hazards. Supports understanding of risks from drought and flooding in relation to New Jersey's water resource management.	In Progress	The NJDEP is developing RiverWare models of the raw water infrastructure in the Passaic/Hackensack and Raritan basins. These are being used to assess the safe yield of these basins. They are also used to assess the impact of proposed infrastructure and operating rule changes on the safe yield.
<b>2019-NJDEP-18</b>	NJ Department of Environmental Protection	All Hazards	3	Strengthen social media campaign to raise awareness of resources and capabilities provided by NJDEP Radiation Protection Element and to increase public education on risk.	Raises awareness of the capabilities offered by NJDEP Radiation Protection Element and increases public education on the risk of nuclear hazards. Increase the awareness of Nuclear hazards.	In Progress	The Radiation Protection Element (RPE) continues to support an advertising campaign, to spread the message: Get Inside, Stay Inside, Stay Tuned using grant funding awarded by the US Federal Emergency Management Agency (FEMA) to the NJ Office of Homeland Security and Preparedness (OHSP). Funding provided to the NJDEP as a subgrant, supports an annual advertising campaign that runs every September, Emergency Preparedness Month, informing the public of what to do in a radiological emergency. Additional ads are run in the Spring of each year of the grant if funding is available. The advertising campaign consists of the Center for Disease Control and

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							Prevention (CDC) graphics displayed on buses, subways, and rail stations, and at convenience stores, pharmacies, malls, and college campuses. Successful ad campaigns were run in 2021 and in 2022. Using NJ Transit and PATH rail system for the ads served as a force multiplier since many trains and buses travel to New York City. It is estimated that several million people have seen the advertisements. Grant funding is also used to develop and implement training modules for emergency responders, update Standard Operating Procedures and, produce job aids for first responders. In 2021, the first of several e-learning courses were launched on the NJ Learn platform for credentialed police officers, firefighters, and EMTs. The courses provided basic radiation safety and monitoring information. Online classes continue to be developed under the grant funding, including advanced online courses, Radiation Technician 1 and Radiation Technician 2. Additional online training classes will be developed to supplement the Federal "RDD Response Guidance Planning for the First 100 Minutes". A tabletop exercise to test the knowledge and skills of radiation response personnel as well as interagency response coordination is being planned for 2023 provided grant funding is available. The RPE applied for additional grant funds that

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							would provide funding for these initiatives for three additional years.
<b>2019-NJDEP-17</b>	NJ Department of Environmental Protection	All Hazards	4	Enhance radiation monitoring for power plants	Improves monitoring of radiation from power plants to protect life, property, and the environment. Improves hazard information databases and maps and increase accessibility to those resources.	In Progress	The NJDEP Radiation Protection Element (RPE) continues to make improvements to the environmental monitoring program for nuclear power plants in the state. The Continuous Radiological Environmental Surveillance and Telemetry (CREST) communication hardware and protocols have been upgraded to improved communications and make them more resilient to failures. CREST provides radiation data every minute 24/7/365 in the environs of the nuclear power plants. CREST data is loaded live into both the Air and Radiation Monitoring System (ARMA) and the RAdResponder response tool that allows radiation data to be shared quickly with decisionmakers and partner agencies. The RPE continues to work with the DEP's GIS development team on improvements to the RadCAP tool, developed for improved situational awareness for radiological emergencies. RadCAP provides access to dashboards that display radiation data spatially in specialized maps which include specific response layers for emergency planning and response. RadCAP also provides status boards for all the DEPs emergency response facilities so that decisionmakers have instant access to response activities, plant status, and radiation data collected by field monitoring

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							teams. Access to RadCAP is provided via any internet connection and data has been moved to the cloud for improved access and resilience to network failures. The RadResponder has been fully implemented into the response efforts and provides field monitoring personnel the ability to upload data in real time for the assessment team to review and analyze and to help inform recommendations to protect the public and the environment in radiation emergencies.
<b>2019-NJDEP-12</b>	NJ Department of Environmental Protection	All Hazards	1, 2, 6	Obtain a communications system upgrade for Forest Fire response. Current system relies on old VHF technology.	Enhances communication for fire response. Improve warning and emergency communications systems.	In Progress	Good progress has been made. Additional repeaters have been added to the system to expand coverage capabilities. FFS also has purchased 70 UHF portable radios for full-time staff.
<b>2019-NJOEM-20</b>	NJ Office of Emergency Management	All Hazards	3	2008 PSA 323 Develop a hazard event GIS database to help State and local emergency managers with hazard mitigation and other planning initiatives.	The current NJOEM GIS database to capture and organize the volume of information generated by research and actual disaster events needs to be expanded. Improving knowledge of hazards and hazard events will improve mitigation and other planning designs to reduce the impact of hazard events on local and state economies.	In Progress	A comprehensive ESRI dashboard system to aid in all phases of hazard mitigation is in development.
<b>2019-NJOEM-03</b>	NJ Office of Emergency Management	All Hazards	3	2011 Action 346 Encourage greater active county involvement in plan updates and local project development through	Brings about a greater degree of coordination between state, county and local emergency managers in plan	In Progress	A planner has been hired. This action will be incorporated in pending Local Plan Guidance that is in development.

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				establishing "Plan Update" training courses to assist counties in fulfilling the plan maintenance sections of their plans	maintenance. Advances the goal full awareness of all hazards on all levels.		
<b>2019-NJOEM-10</b>	NJ Office of Emergency Management	All Hazards	1, 2, 3, 4, 5	Promote acquisition and elevation of repetitive loss structures through community partnerships and outreach. (This action is part of the Repetitive Loss Strategy – Section 8)	Making local officials aware of FMA increases participation. FMA contributes to the mitigations strategy to reduce future flood losses.	In Progress	LIDAR projects, building footprints, etc. allow for continued identification of opportunities for acquisition and elevation projects.
<b>2019-NJOEM-09</b>	NJ Office of Emergency Management	All Hazards	4	Conduct yearly workshops related to FEMA hazard mitigation grant programs (This action is part of the Repetitive Loss Strategy – Section 8)	Increased access to the NJ AHP will help spread the concept of hazard mitigation. Advances all of the goals of the plan by increasing preparedness and knowledge of municipal and county officials, citizens and law and policymakers.	In Progress	NJOEM has made progress by utilizing social media instead of workshops. NJOEM staff are embedded with counties as an effort to increase awareness. NJIT has received funding to increase reach.
<b>2019-SJTA-07</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor' Easter, Severe Weather, Severe Winter Weather	1, 5	Purchase and Install dual (natural gas and diesel) hook-ups for emergency generators at critical sites and facilities that support SJTA operations.	Having a heightened ability for early and consistent detection and monitoring will allow for better response and reduced delays during critical times of evacuation and disaster response. Helps support the continuity of operations pre-, during, and post- hazard events for the State Police.	In Progress	
<b>2019-SJTA-06</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm,	1, 5	Enhance signage and Intelligent Traffic Systems (ITS) detection systems on the Atlantic City	Having a heightened ability for early and consistent detection and monitoring will allow for	In Progress	Significant improvements to the SJTA ITS systems have been designed and are out to bid as of

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		Nor' Easter, Severe Weather, Severe Winter Weather		Expressway. This project will add and incorporate ITS devices into the Expressway's current ITS system that will be designed to monitor flood-prone areas during weather events. Types of devices are variable message signs, CCTV cameras, weather stations, traffic monitoring equipment, etc. The Expressway already has a fiber optic backbone that these additional devices can be connected to as well as existing head-end equipment at our 24/7 communications/ dispatch center, where the data will be viewed and analyzed.	better response and reduced delays during critical times of evacuation and disaster response. Helps support the continuity of operations pre-, during, and post- hazard events for the State Police.		3/30/2023. Improvements are expected to be installed by 2025
<b>2019-SJTA-04</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor' Easter, Severe Weather, Severe Winter Weather	1, 2	Scour protection for the Atlantic City Expressway Connector bulkhead	The connector runs north/south along the back-bay portion of Atlantic City. During Hurricane Sandy, portions of the bulkhead experienced erosion and scour associated with the storm surge. Reinforcement to existing bulkheads as well as other mitigation measures will be established to prevent this from happening in the future. Advances the Authority's mission of providing safe roadways by protecting	In Progress	One section of bulkhead was identified as being in less than ideal condition. Design and permitting has been completed and the project is awaiting funding.

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					life, property and ensuring the continuity of operations of government, non-government, commerce, private sector, and infrastructure.		
<b>2019-SJTPO-02</b>	South Jersey Transportation Planning Organization	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	3	Host a Roundtable specific to resiliency and hazard mitigation planning for the region to enhance stakeholder education and training.	Gathers subject matter experts to present on the region's resiliency progress and challenges. Enhances stakeholder education and training and increases public preparedness and awareness. Enhances stakeholder education and training and increases public preparedness and awareness.	In Progress	This is an action that is in progress. After more than a year of planning, the SJTPO will be convening a roundtable comprised of county and regional planners and emergency management officials at the State and local levels. The primary objective is to educate planners about the emergency management process and identify ways that transportation planners can better inform the emergency managers in the emergency planning and response process.
<b>2019-SJTPO-01</b>	South Jersey Transportation Planning Organization	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	4	Develop a Regional Vulnerability Framework for the transportation infrastructure in Atlantic, Cape May, Cumberland, and Salem Counties in southern New Jersey.	The "Regional Vulnerability Assessment" is a critical first step in identifying appropriate sites and operations for mitigation priorities for the regional transportation infrastructure. The Regional Vulnerability Assessment develops and maintains an understanding of risks from hazards. It also recommends strategies to increase capabilities to mitigate against future losses and vulnerability.	In Progress	Later this year, we will be kicking off a technical study for a "Regional Vulnerability Framework." This is the first step towards completing a Regional Vulnerability Assessment, which is the foundation for any future regional resiliency planning study. The regional vulnerability study aims to develop resiliency "through innovative solutions to aid current and future infrastructure planning, development, and design." The upcoming technical study will complete a "systematic review of the region for weaknesses in its transportation infrastructure to provide a comprehensive framework for a future effort that

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							will create a detailed Regional Vulnerability Assessment."
<b>2019-NJTA-04</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2 ,6	Elevation of Service Areas: Elevation and/or floodproofing of portions of Service Areas along the NJTP and/or GSP to reduce risk of storm surge and flood risk. The following locations along the New Jersey Turnpike Authority's Right of Way have the greatest risk for potential flooding during a high-water event. Service Areas: NJTP Vince Lombardi Service Area 13, NJTP Alexander Hamilton Service Area 12S, NJTP Thomas Edison Service Area 10S, NJTP Grover Cleveland Service Area 10N , and GSP Oceanview Service Area	The Authority recently completed a Detailed Inundation Mapping Study that modeled coastal surge inundation areas along the Authority's Right of Way. The study identified Areas of Strategic Concern, including Service Areas that have the greatest risk for potential inundation during a high-water event. The elevation and/or floodproofing of Service Areas from potential inundation during a high-water event advances the Authority's mission of providing safe roadways and protects life, property and ensures the continuity of operations of government, non-government, commerce, private sector, and infrastructure.	In Progress	The NJ Turnpike Authority is conducting an enterprise-wide review of exposure to flood hazards. Following this review, select locations will be prioritized for an evaluation of vulnerability to flood hazards. As such, mitigation efforts to elevate and/or floodproof existing service areas have not advanced at this time. Additional consideration of this action will be re-evaluated once the exposure review is completed.
<b>2019-NJTA-03</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe	1, 2, 6	New Jersey Turnpike Maintenance Yard Elevations: Elevation and/or floodproofing of portions of existing maintenance yards along the NJTP and/or GSP to reduce risk of storm surge	The Authority recently completed a Detailed Inundation Mapping Study that modeled coastal surge inundation areas along the Authority's Right of Way. The study identified	In Progress	The NJ Turnpike Authority is conducting an enterprise-wide review of exposure to flood hazards. Following this review, select locations will be prioritized for an evaluation of vulnerability to flood hazards. As such, mitigation efforts to elevate and/or floodproof

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		Winter Weather		and flood risk. The following locations along the New Jersey Turnpike Authority's Right of Way have the greatest risk for potential flooding during a high-water event. NJTP Maintenance Yards: NJTP Maintenance Yard District PD1- Swainton, NJTP Maintenance Yard District TD6 - Elizabeth, NJTP Maintenance Yard District TD8 - Secaucus, NJTP Maintenance Yard District TD9 - Jersey City, and NJTP Maintenance Yard District TD10 -East Rutherford	Areas of Strategic Concern, including maintenance yards that have the greatest risk for potential inundation during a high-water event. The elevation and/or floodproofing of maintenance yards above high-water events enables continuous maintenance operations and increases the Authority's capability to respond pre-, during, and post-disaster to weather-related hazards.		existing maintenance yards have not advanced at this time. Additional consideration of this action will be re-evaluated once the exposure review is completed.
<b>2019-NJTA-02</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Toll Plaza Elevations: Elevation and/or floodproofing of portions of existing toll plazas along the NJTP and/or GSP to reduce risk of storm surge and flood risk. The following locations along the New Jersey Turnpike Authority's Right of Way have the greatest risk for potential flooding during a high-water event. NJTP Toll Plaza Locations: NJTP Interchange 13A Toll Plaza, NJTP Interchange 14 Toll Plaza, NJTP Interchange 15E Toll Plaza, NJTP Interchange 15W Toll Plaza, NJTP Interchange 16/18E Toll Plaza, NJTP Interchange 16W Toll Plaza, and NJTP	The Authority recently completed a Detailed Inundation Mapping Study that modeled coastal surge inundation areas along the Authority's Right of Way. The study identified Areas of Strategic Concern, including toll plazas that have the greatest risk for potential inundation during a high- water event. The elevation and/or floodproofing of toll plazas from potential inundation during a high-water event advances the Authority's mission of providing safe roadways by protecting	In Progress	The NJ Turnpike Authority is conducting an enterprise-wide review of exposure to flood hazards. Following this review, select locations will be prioritized for an evaluation of vulnerability to flood hazards. As such, mitigation efforts to elevate and/or floodproof existing toll plazas have not advanced at this time. Additional consideration of this action will be re-evaluated once the exposure review is completed.

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				Interchange 18W Toll Plaza. GSP Toll Plaza Locations: GSP Somers Point Toll Plaza, GSP Great Egg Toll Plaza, and GSP Wildwood Toll Plaza.	life, property and ensuring the continuity of operations of government, non-government, commerce, private sector, and infrastructure. The continuity of operations pre-, during, and post-hazard events is particularly important for the Authority's roadway and bridges, as they serve as coastal evacuation routes.		
<b>2019-NJTA-06</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	4	Develop a Resiliency Action Plan for the New Jersey Turnpike (NJTP) and the Garden State Parkway (GSP).	Critical first step in identifying appropriate sites and operations for mitigation priorities for the New Jersey Turnpike Authority (Authority). The Resiliency Action Plan develops and maintains an understanding of risks from hazards. It also establishes an action plan to increase capabilities to mitigate against future losses and vulnerability.	In Progress	The NJ Turnpike Authority is preparing a draft Resilience Plan which addresses our next major steps concerning flood hazards. An exposure assessment is being conducted and subsequently, detailed vulnerability studies will be completed in priority areas. The Resilience Plan is being coordinated with our partner transportation agencies and the NJ Interagency Council (IAC) on Climate Change. The Authority is also collaborating with the IAC to prepare a statewide Resilience Action Plan regarding Extreme Heat to be published later in 2023.
<b>2019-NJT-06</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe	1, 2	Make additional improvements to facilitate the continuity of operations. These may include the Lifeline Critical Infrastructure Sectors before, during, and after extreme weather events,	Supports rapid recovery and continuity of operations. Ensures protection of life and property and the continuity of operations post-hazard events.	In Progress	Updating language to include climate change and other hazard-related wording. Also want to make sure that training is done in coordination with any project development.

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		Winter Weather		cyberattacks, and other man-made or natural disaster events. Sectors include, but are not limited to: transportation systems, energy, communications, and water/wastewater.			
<b>2019-NJT-05</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Determine the availability of innovative technologies such as sealants and coatings for application to protect NJ TRANSIT's infrastructure, including but not limited to rail switches.	Such sealants and coatings are a new and innovative approach to make infrastructure more resilient to flooding. Specifically, there are few alternatives to protecting rail switches from flooding impacts since they cannot be elevated. The floodproofing of NJ TRANSIT's infrastructure from brackish water during a high-water event ensures the continuity of operations post- hazard events.	In Progress	NJ Transit staff previously talked with academic partners about this, and realized it wasn't feasible for the switches in Hoboken. Unsure what other actions related to this have been taken.
<b>2019-NJT-04</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	4	Identify and implement additional resiliency and climate adaptation actions to wet or dry floodproof and protect NJ TRANSIT's assets that are located along the Hudson River and other flood-prone portions of NJ TRANSIT's system.	Protection of transportation infrastructure ensures continuity of operations for vital transit services within the State. The floodproofing of NJ TRANSIT's infrastructure from potential inundation during a high-water event advances the mission of providing safe and reliable travel	In Progress	Want to update original language so it includes other climate change impacts.

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					for the whole community.		
<b>2019-NJT-03</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Wet or dry floodproof NJ TRANSIT's infrastructure and facilities that provide system critical support; and, which cannot be elevated due to physical site constraints or current operational system requirements.	Protection of transportation infrastructure ensures continuity of operations for vital transit services within the State. The floodproofing of NJ TRANSIT's infrastructure from potential inundation during a high-water event advances the mission of providing safe and reliable travel for the whole community.	In Progress	Since the previous HMP Update, NJT has applied this on a project-specific basis. Efforts to evaluate this standard based on system-wide and project-specific climate assessments is ongoing.
<b>2019-NJT-02</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Evaluate and update NJ Transit's Design Flood Elevation (D.F.E.) standards based on updated sea level rise projections, storm surge estimates, climate models, and other related environmental data or projections. Then elevate NJ TRANSIT's infrastructure and facilities as necessary to reflect updated guidelines.	Protection of transportation infrastructure ensures continuity of operations for vital transit services within the State. The floodproofing of NJ TRANSIT's infrastructure from potential inundation during a high-water event advances the mission of providing safe and reliable travel for the whole community.	In Progress	In the time since the previous HMP, this standard has been applied on a project-specific basis. Efforts to evaluate and update this flood standard based on revised sea level rise and storm surge projections is underway. System-wide resilient design guidelines will be developed based on this evaluation. Want to change the language of the action so it gives space to study what the best design standard is based on updated projections.
<b>2019-NJT-01</b>	NJ TRANSIT	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe	4	Conduct extreme weather and climate change impacts vulnerability and risk assessments of NJ TRANSIT's infrastructure and facilities. The assessments would further NJ TRANSIT's	First step in identifying appropriate sites and operations for mitigation priorities for NJ TRANSIT. The Extreme Weather Vulnerability and Risk Assessment develops and maintains an	In Progress	Since 2019, extreme weather vulnerability and risk assessments have been conducted on a project-specific basis. We want to update the language so assessments can be done on both system wide and site/project-specific levels. We also want the language to include both

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		Winter Weather		understanding of current and future climate change hazards, and identify strategies to address vulnerabilities, including but not limited to defining sensitive locations.	understanding of risks from extreme weather events. It also establishes strategies to increase capabilities to mitigate against future losses and vulnerabilities.		intermittent and gradual climate change-related impacts.
<b>2019-PANYNJ-18</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor'Easter, Severe Weather, Power Outage, Severe Winter Weather, Geological Hazards, Earthquake	1, 2, 6	Teterboro Airport: Natural Hazards: Upgrades to airport flood mitigation infrastructure, including rehabilitation of stormwater drainage system. Electrical infrastructure will also be upgraded, particularly to improve airfield lighting, in response to Superstorm Sandy flooding. We will also continue to develop plans and policies to mitigate other hazards that may affect Teterboro Airport.	Natural Hazards: Due to its location, Teterboro Airport is vulnerable to stormwater and coastal flooding. During Superstorm Sandy, the airport experienced serious flooding over much of its infrastructure. Flooding, pooling or ponding water on an active airfield presents a serious safety hazard and may necessitate airport closures or flight cancellations. Natural Hazards: The Teterboro Airport is an important component of the Region's transportation infrastructure, particularly as it concerns private air traffic into the NY/NY metropolitan area. Mitigation measures can lessen the effects of flooding and will allow the airport to continue to function during an emergency and support	In Progress	PANYNJ has conducted multiple flood hazard assessments at Teterboro Airport, including detailed scoping of sitewide stormwater improvements. Currently, risk quantification and Benefit-Cost Analysis activities are underway.

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					the area's normal and emergency transportation needs.		
<b>2019-PANYNJ-16</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor'Easter, Severe Weather, Power Outage, Severe Winter Weather, Geological Hazards, Earthquake	1, 2, 6	Port Newark and Elizabeth-Port Authority Marine Terminal: Natural Hazards: The Port Authority will continue to undertake efforts to mitigate coastal hazards at Port Newark. Projects include: repair and/or relocation of key Port facilities such as Building 260, the resident engineer's office, and Building 111 electrical/mechanical equipment, all of which was damaged by Superstorm Sandy. We will also continue to develop plans and policies to mitigate other hazards that may affect Port Newark.	Natural Hazards: As a port facility, Port Newark is susceptible to flooding due to coastal storms and sea level rise conveyed via Newark Bay and the Arthur Kill. Particularly vulnerable are waterfront assets including but not limited to piers, pilings, gantries/cranes, containers, rail, utility/mechanical infrastructure, and buildings. Natural Hazards: Port Newark is the largest container port in the Eastern United States and is a primary entry-point for goods entering the Northeastern U.S. Proposed resiliency enhancements will help ensure continuity of Port operations during and after a disaster.	In Progress	Building 260 design work ongoing.  Additional protections will be considered if identified by the agency Climate Risk Assessment. All Sandy repairs ongoing
<b>2019-PANYNJ-14</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor'Easter,	1, 2, 6	Port Jersey Port Authority Marine Terminal: Natural Hazards: Upgrades to electrical and flood protection infrastructure at sites such as the east substation. We will also continue to develop plans and policies to mitigate	atural Hazards: As a port facility, Port Jersey is susceptible to flooding due to coastal storms and sea level rise. Particularly vulnerable are waterfront assets including but not limited to piers, pilings,	In Progress	East substation flood protection complete (2021). Other measures ongoing.  Additional protections will be considered if identified by the agency Climate Risk Assessment

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		Severe Weather, Power Outage, Severe Winter Weather, Geological Hazards, Earthquake		other hazards that may affect the Port Jersey Port Authority Marine Terminal.	gantries/cranes, containers, rail, utility/mechanical infrastructure, and buildings. Natural Hazards: Port Jersey is an important link in the New York City waste management system, handling transfers of waste from barges to railcars bound for outlying landfills. Continuous operation of this facility is therefore important for public health and sanitation.		
<b>2019-PANYNJ-09</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor'Easter, Severe Weather, Geological Hazards, Earthquake	2, 6	Newark Liberty International Airport: Natural Hazards: Installation of flood mitigation infrastructure including: improvements to the Bridge N5 underpass, tide gate pumping equipment upgrades, and elevation of the airport's combined heating and refrigeration plant (CHRP). The airport's future Terminal 1 reconstruction plan will also adhere to PANYNJ's Climate Resiliency Guidelines. We will also continue to develop plans and policies to mitigate other hazards that may affect Newark Liberty International Airport.	Natural Hazards: In order to operate safely and efficiently, airfields must remain free from pooling or ponding water. Proposed hazard mitigation plans for Newark Liberty International Airport therefore help ensure that the facility can operate safely and continuously. Natural Hazards: The Newark Liberty International Airport is a critical component of the Region's transportation infrastructure, accounting for over 400,000 aviation operations a year and moving over 33 million	In Progress	Terminal 1 is complete and operational. It was designed and delivered in compliance with PANYNJ's Climate Resilience Guidelines.  Additional mitigations were put in place in 2021-2022, following the widespread rainfall-induced flooding caused by the remnants of Hurricane Ida  Additional protections will be considered if identified by the agency Climate Risk Assessment

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					passengers through the NY/NJ metropolitan area. Service disruptions at Newark-Liberty can have a ripple effect on major airfields worldwide. Maintaining a safe airfield at this facility and its supporting operation is thus critical to the Region's ability to respond to normal and emergency transportation needs and the integrity of the global aviation network.		
<b>2019-PANYNJ-07</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor' Easter, Severe Weather, Power Outage, Geological Hazards, Earthquake	2, 6	Lincoln Tunnel: Natural Hazards: Repair and improve tunnel electrical, mechanical and plumbing infrastructure damaged by Superstorm Sandy-related saltwater intrusion. Protect facility, especially tunnel ventilation buildings, from sea level rise and coastal flooding threats. Improve onsite stormwater management practices. We will also continue to develop plans and policies to mitigate other hazards that may be identified for the Lincoln Tunnel.	Natural Hazards: Plumbing, electrical, and mechanical improvements to the Lincoln Tunnel will reduce system vulnerability to corrosion and future flooding. Further fortification of tunnel entrances and ventilation buildings will reduce the likelihood of saltwater intrusion and facility closures. Stormwater management improvements will mitigate risk of site flooding. Natural Hazards: The Lincoln Tunnel is a critical component of the Region's transportation	In Progress	Selected infrastructure is currently protected by deployable flood control devices.  Additional protections will be considered if identified by the agency Climate Risk Assessment

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
					infrastructure, and in addition to providing access to about 120,000 vehicles a day, it also serves as a major evacuation route for the area and a key point of entry and exit for emergency personnel. These measures would ensure that this vital transportation link for the NY-NJ metropolitan area could restore service as soon as possible in a safe manner.		
<b>2019-PANYNJ-05</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor' Easter, Severe Weather, Power Outage, Geological Hazards, Earthquake	1, 2, 6	Holland Tunnel: Natural Hazards: Repair and improve tunnel electrical, mechanical and plumbing infrastructure damaged by Superstorm Sandy-related saltwater intrusion. Mitigate water leakage, particularly in ventilation ducts and pump rooms. Protect facility, especially tunnel portals, from sea level rise and coastal flooding threats. Improve onsite stormwater management practices. We will also continue to develop plans and policies to mitigate other hazards that may be identified for the Holland Tunnel.	Natural Hazards: Plumbing, electrical, and mechanical improvements to the Holland Tunnel will reduce system vulnerability to corrosion and future flooding. Further fortification of tunnel entrances and ventilation buildings will reduce the likelihood of saltwater intrusion and facility closures. Stormwater management improvements will mitigate risk of site flooding and combined-sewer overflows. Natural Hazards: The Holland Tunnel is a critical component of the	In Progress	This multi-year program has progressed significantly since 2019. Overland flood protection has been installed, and portal protection mechanisms are in the final stages of testing. Program is currently on track for completion in late 2023/early 2024.  Additional protections will be considered if identified by the agency Climate Risk Assessment.

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					Region's transportation infrastructure, and in addition to providing access to about 100,000 vehicles a day, it also serves as a major evacuation route for the area and a key point of entry and exit for emergency personnel. These measures would ensure that this vital transportation link for the NY-NJ metropolitan area can better withstand the threats posed by natural and man-made hazards.		
<b>2019-PANYNJ-03</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Tropical Storms, Nor'Easter, Severe Weather, Geological Hazards, Earthquake	1, 2, 6	Greenville Yards: Natural Hazards: Repair shipping infrastructure damaged by Superstorm Sandy - including the replacement of seven barge mooring cells - and improve the resiliency/durability of flood-prone assets. We will also continue to develop plans and policies to mitigate other hazards that may be identified at Greenville Yards.	Natural Hazards: As a port facility, Greenville Yards is susceptible to flooding due to coastal storms and sea level rise. Particularly vulnerable are waterfront assets including, but not limited to: barge mooring cells, transfer bridges, piers, pilings, and railroad infrastructure such as embankments, signals, and switches. Seven barge mooring cells are slated for replacement under PANYNJ's most recent capital plan. Natural Hazards: Greenville Yards is the western	In Progress	Mooring cell replacements were completed in 2018.  Additional protections will be considered if identified by the agency Climate Risk Assessment.

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					terminus of PANYNJ's Carfloat system, a critical cross-harbor shipping link which allows railcars to be transported between East-of-Hudson and West-of-Hudson markets. Infrastructure resiliency improvements will reduce storm damage and minimize facility down-time post-disaster.		
<b>2019-PANYNJ-01</b>	PANYNJ	Earthquake , Geological Hazards, Severe Winter Weather, Nor'Easter, Tropical Storms, Hurricane, Severe Weather	1, 2, 4, 6	George Washington Bridge: Natural Hazards: PANYNJ's "Restoring the George" plan provides for numerous upgrades to the GW Bridge which generally will make the bridge more able to withstand storm events and other natural hazards. However, most hazard mitigation measures currently planned for the GW Bridge specifically address man-made hazards. (see below). We will continue to develop plans and policies to mitigate other hazards that may affect the George Washington Bridge.	Natural Hazards: Proper infrastructure maintenance is necessary to maintain bridge integrity in the face of adverse environmental conditions such as: extreme heat, water/saltwater, wind, snow/ice, and freeze/thaw cycles. Natural Hazards: The George Washington Bridge is the busiest bridge in the world . In 2017, the bridge handled 51.7 million vehicular and hundreds of thousands of bicycle and pedestrian trips, underscoring the importance of this regional link across the Hudson River. Mitigation actions will improve	In Progress	This multi-year program has progressed significantly since 2019. It is currently on track for completion in 2030.  Ongoing efforts by multiple agencies to mitigate flooding and icing in the Trans Manhattan Expressway.  Additional protections will be considered if identified by the agency Climate Risk Assessment.

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					operational bridge safety and the structure's ability to withstand adverse environmental conditions.		
<b>2019-PANYNJ-17</b>	PANYNJ	Terrorism	1, 2, 6	Port Newark and Elizabeth-Port Authority Marine Terminal: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to New Jersey Marine Terminals over the last 17 years. The Port Authority works with tenants to incorporate security design for redeveloped infrastructure.	Man-Made Hazards: To ensure survivability of terminal infrastructure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resilience for bi-state shipping and cargo movement as well as cruise operations.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-PANYNJ-15</b>	PANYNJ	Terrorism	1, 2, 6	Port Jersey Port Authority Marine Terminal: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to Port Jersey since it was acquired by the Agency in 2008. The Port Authority will work with tenants to incorporate security design for redeveloped infrastructure.	Man-Made Hazards: To ensure survivability of terminal infrastructure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resilience for bi-state shipping and cargo movement as well as cruise operations.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-PANYNJ-13</b>	PANYNJ	Terrorism	1, 2, 6	PATH: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements throughout the PATH System over the past 17 years. As systems, components, and infrastructure are replaced/upgraded,	Man-Made Hazards: To ensure survivability of the PATH system in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resilience for bi-state transportation.	In Progress	Multiple ongoing security projects and upgrades

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				security elements will be incorporated into the design.			
<b>2019-PANYNJ-12</b>	PANYNJ	Flood, Coastal Erosion, Sea Level Rise, Hurricane, Power Outage, Severe Winter Weather, Geological Hazards, Earthquake	1, 2, 6	PATH: Natural Hazards: PANYNJ's PATH Train system is undergoing extensive improvements over the next eight years. Pending hazard mitigation projects include flood protection enhancements at most PATH stations and key mechanical sites, improved stormwater management, rainwater storage systems, repairs to and relocation of critical electrical substations, installation of flood barriers at equipment storage sites and in tunnels, and Superstorm Sandy-related repairs to electrical, mechanical and ventilation equipment. We will also continue to develop plans and policies to mitigate other hazards that may affect the PATH system.	Natural Hazards: Much of the PATH Train system lies on or beneath land that is highly susceptible to coastal flooding. Proposed resiliency measures will protect valuable assets that are difficult to repair or replace quickly. Therefore, PANYNJ aims to reduce the risk that PATH will be non-operational for an extended period of time post- disaster. Natural Hazards: PANYNJ's PATH Train provides an important commuter rail link between New York City and Northern New Jersey. It transports roughly 225,000 people per day via its 13 stations in New York and New Jersey. The ability of the PATH system to withstand disasters and resume operations quickly is necessary for passenger safety and regional economic productivity.	In Progress	This multi-year program has progressed significantly since 2019, including multiple headhouse, substation, maintenance yard, and open-track flood mitigation measures that are complete or nearing completion.  Additional protections will be considered if identified by the agency Climate Risk Assessment.
<b>2019-PANYNJ-11</b>	PANYNJ	Terrorism	1, 2, 6	Outerbridge Crossing: Man-Made Hazards: The Port Authority has incorporated numerous security	Man-Made Hazards: To ensure survivability of the structure in the event of a man-made	In Progress	Multiple ongoing security projects and upgrades

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				enhancements to the Outerbridge Crossing over the past 17 years. As bridge components are replaced/upgraded, security elements will be incorporated into the design.	terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resiliency for bi-state vehicular travel as well as a navigable waterway for shipping.		
<b>2019-PANYNJ-10</b>	PANYNJ	Terrorism	1, 2, 6	Newark Liberty International Airport: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to Newark Liberty International Airport over the past 17 years. Security design criteria is incorporated into the new Terminal 1 Redevelopment Project. Mitigating strategies are built into the redesigned structure.	Man-Made Hazards: To ensure survivability of airport infrastructure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resiliency of one of the busiest airports in the world.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-PANYNJ-08</b>	PANYNJ	Terrorism	1, 2, 6	Lincoln Tunnel: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to the Lincoln Tunnel over the past 17 years. As tunnel infrastructure is replaced/upgraded, security elements are incorporated into the design.	Man-Made Hazards: To ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resiliency for bi-state vehicular travel.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-PANYNJ-06</b>	PANYNJ	Terrorism	1, 2, 6	Holland Tunnel: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to the Holland Tunnel over the past 17 years. As tunnel	Man-Made Hazards: To ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency. Man-	In Progress	Multiple ongoing security projects and upgrades

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				infrastructure is replaced/upgraded, security elements are incorporated into the design.	Made Hazards: Ensures resilience for bi-state vehicular travel.		
<b>2019-PANYNJ-04</b>	PANYNJ	Terrorism	1, 2, 6	Greenville Yards: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to Greenville Yards since it became operational.	Man-Made Hazards: To ensure survivability of supporting infrastructure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resilience for bi-state shipping and cargo movement.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-PANYNJ-02</b>	PANYNJ	Terrorism	1, 2, 6	George Washington Bridge: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to the George Washington Bridge over the past 17 years. As bridge components are replaced/upgraded, security elements are incorporated into the design.	Man-Made Hazards: To ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency. Man-Made Hazards: Ensures resilience for bi-state vehicular travel.	In Progress	Multiple ongoing security projects and upgrades
<b>2019-Rutgers-02</b>	Rutgers University - Bloustein School	Flood	3	Perform mobile LiDAR and digital imagery acquisition along an estimated 2,500 miles of residential and urban roads in ABFE Zones A and V.	Provide accurate visual models of current ground elevations of buildings and infrastructure located in ABFE Zones A and V. Development of 3D visualizations will help analyze geospatial risk data.	In Progress	The project is active, and 90% of the project area has been digitalized. The project is expected to complete by June of 2024.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
2019-ONJSC-03	ONJSC Rutgers	Severe Weather, Air Pollution, Climate Change, Coastal and Fluvial Flooding, Coastal Storm, Dam Failure, Drought, Extreme Temperature, Extreme Weather, Flood, Hail, High Winds, High Wind Storm, Hurricane, Tropical Storm, Ice Storm, Invasive Species, Nor'Easter, Precipitation Variability, Severe Storm, Severe Winter Storm, Severe Winter	3	Maintain and continually update the climate data and information warehouse and software library.	Source of weather/climate-related products that may be customized for State, county, or community assessments of hazards and risks. Permits public entities of any size to generate weather/climate products for use in event reports, mitigation proposals, and various planning documents.	In Progress	A never-ending effort of the state climate office to generate information for the hazard community's mitigation efforts as well as emergency operations to help with important decision making.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
		Weather, Storm, Tornado, Wildfire					
<b>2019-ONJSC-01</b>	ONJSC Rutgers	Severe Weather, Severe Winter Storm, Severe Storm, Severe Winter Weather, Storm, Wildfire, Climate Change, Coastal and Fluvial Flooding, Dam Failure, Drought, Flash Flooding, High Winds, Hurricane, Tropical Storm, Nor' Easter, Precipitation Variability, Tornado, Winter Weather	1, 2, 4	Maintain and potentially expand Rutgers New Jersey Weather Network (NJWxNet) operations (previously named NJ Weather & Climate Network)	Provides real-time weather monitoring to keep officials apprised of ongoing and changing conditions. Potential expansion to additional locations. Well-informed individuals who are cognizant of weather conditions can make decisions associated with life and property.	In Progress	The Office of the NJ State Climatologist continues to add weather/climate information to our website (njclimate.org). A recent addition was a webpage providing information on every tornado to touch down in NJ since 1950 ( <a href="http://climate.rutgers.edu/statecli m/climatologies/njtornado.html">http://climate.rutgers.edu/statecli m/climatologies/njtornado.html</a> ) . This is updated after each twister, most recently the daily record tying seven on April 1, 2023. We also are completing our first app that was commissioned by the NJDEP Dam Safety program. It will alert Dam Safety staff of observations of excessive precipitation over selected intervals (totals and intervals selected by NJDEP) in six river basin regions of the state.

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2019-NJDOT-08	NJ Department of Transportation	Flood	1, 2, 6	Anti-scouring measures to improve bridge and road longevity	Critical bridge/route for evacuation purposes. Reduces future road and bridge damage.	In Progress	Efforts continue to reduce scouring potential on bridges and roadways.
2019-NJDOT-04	NJ Department of Transportation	Flood	1, 2, 6	Upgrading highway drainage systems	Critical bridge/route for evacuation purposes. Reduces flood damage.	In Progress	This is a multi-year plan. The focus of the status is based on the Contraflow evacuation routes.
2019-NJDOT-03	NJ Department of Transportation	All Hazards	1, 2, 6	Hardening of draw bridges	Critical bridge/route for evacuation purposes. Reduces future moveable bridge damage.	In Progress	Part of overall work on drawbridges. Securing of access points to critical areas and flooding prevention of critical components also part of improvements.
2019-NJTreasury-03	NJ Treasury	All Hazards	2	2009 Action 344 Develop and maintain local government mitigation planning assistance/coordination web page.	Provide up to date reference for the development and updating of local hazard mitigation plans. This local information will be utilized in the updating of the State Hazard Mitigation Plan.	In Progress	This action is in progress. Meetings with Treasury Division of Revenue, Enterprises Services (DORES), and OIT are taking place to establish new lead and supporting roles.
2019-NJTreasury-02	NJ Treasury	All Hazards	2	Amend LBAM database to identify what critical facilities are vulnerable to potential hazards.	Identifying repetitive loss areas and properties helps communities develop a strategy to reduce future hazard losses. Retrofitting, elevating or removing repetitive loss properties from known hazard areas protect property and lives as well as preserve personal, and federal financial resources.	In Progress	This action is in progress. Meetings with the Treasury Division of Property Management and Construction (DPMC) are taking place to establish new lead and supporting roles.
2019-NJTreasury-01	NJ Treasury	All Hazards	2	2010 PSA 231 Inventory state owned or leased structures and identify repetitive loss properties.	Identifying repetitive loss areas and properties helps communities develop a strategy to reduce future hazard	In Progress	This action is in progress. Meetings with the Treasury Risk Management are taking place to establish new lead and supporting roles.

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					losses. Retrofitting, elevating or removing repetitive loss properties from known hazard areas protect property and lives as well as preserve personal, and federal financial resources.		
<b>No Progress Actions</b>							
<b>2019-NJDOC-02</b>	NJ Department of Corrections	Hurricane, Tropical Storms, Nor'Easter, Flood, Flash Flooding, Ice Jam, Tornado, High Wind Storm, Winter Storm, Utility Interruption	1, 2, 6	Purchase and install dual hook up (natural gas and diesel) generators and generator transfer switches at State Correction Facilities.	Enhances continuity of operations, protects life, and property of critical facilities during a power outage. Protects life and property. Will help State maintain operations.	No Progress	Due to the pandemic, some of our initiatives were put aside in order to respond to and mitigate the effects of COVID-19
<b>2019-NJDEP-44</b>	NJ Department of Environmental Protection	All Hazards	1, 2, 6	Implement an Energy Allocation Initiative that provides government units with financing for alternative energy projects to reduce demand on the power grid during an event and while the State recovers from any grid disruption	Provide energy resiliency to municipalities, counties and other government units to pursue creative and cost-effective alternatives to enhance statewide energy resilience. Provides energy resiliency. Refer to Appendix E for additional details (2013 New Jersey State Hazard	No Progress	No items related to this narrative are known to BPU.

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					Mitigation Plan Amendment).		
<b>2019-NJDEP-38</b>	NJ Department of Environmental Protection	All Hazards	4	2008 Action 443 Complete HAZUS loss estimation runs for the mostly likely damaging earthquakes for New Jersey	Part of a larger process to identify most at-risk areas, as basis to determine where State mitigation resources can best be used henceforth. Results in protecting both life and property.	No Progress	This project has not yet begun. Funding was not obtained at first and has not been pursued.
<b>2019-NJDEP-37</b>	NJ Department of Environmental Protection	All Hazards	4	2008 PSA 441 Overlay an inventory of State-owned critical facilities with the level of seismic hazard at each location, using the USGS national seismic hazard maps and the New Jersey Geological Survey maps of seismic soil classes	Serves as first step in a long term plan to reduce risks to the most critical State facilities. Results in protecting both life and property	No Progress	This project will obtain a GIS coverage of critical facilities in New Jersey, select out the State-owned ones, and then evaluate seismic hazard at each, assuming sufficient geologic data are available. This coverage is maintained by OHSP.
<b>2019-NJDEP-05</b>	NJ Department of Environmental Protection	Flood	2, 5	Develop a tracking system/database for floodplain managers to upload information on substantially damaged properties, flood permits, elevation certificates, and other information.	Better data management to track flood-related data critical for the CRS program. Supports continuity of operations for debris management and facilities rapid disaster recovery.	No Progress	Will continue to explore opportunities to meet this action.
<b>2019-NJDEP-39</b>	NJ Department of Environmental Protection	All Hazards	3	2008 PSA 321 Incorporate existing HAZUS/NYCEM earthquake studies into the SHMP and indicate completion schedule for other counties	HAZUS and NYCEM data will be invaluable in the development of mitigation planning, for both the State and local communities by providing a comprehensive database for mitigation planning. Assists in developing state and local mitigation plans with current information.	No Progress	New Jersey DEP has completed the HAZUS earthquake studies for Hudson, Bergen, Essex and Union Counties. Action on evaluating this for eight additional counties in northern New Jersey were put on hold due to funding constraints. As funds and personnel become available this work will proceed. As earthquakes are a low risk generally in New Jersey this project has a low priority.

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<b>2019-NJDEP-34</b>	NJ Department of Environmental Protection	All Hazards, Water Supply, Drought	1	Improve water supply resiliency by increasing interconnections amongst water supply systems throughout the State. Implementation will be facilitated by use of IBank funding and other relevant sources.	Existing water systems need to establish interconnections and alternate water supplies to sustain residential water service. Provides resiliency and long-term water supply.	No Progress	This the implementation of the results of an earlier study on what interconnections would increase the resiliency of New Jersey's water supply infrastructure. It cannot start until that earlier study is completed.
<b>2019-NJDEP-40</b>	NJ Department of Environmental Protection	Flood	1, 2	2008 Action 141 Integrate NFIP standards and FireWise into the uniform construction codes utilized by the State	Incorporate NFIP requirements into the New Jersey Uniform Construction Code to reduce fire losses.	No Progress	FFS continues to work with at-risk communities to create and establish Firewise principles and guidelines to support preparedness and prevention of wildfire risk. Adoption of NFPA standards for building codes have not been adopted.
<b>2019-NJOEM-36</b>	NJ Office of Emergency Management	All Hazards	2	2008 Action 241: Undertake cost effective wind retrofits and upgrades of the most critical state facilities	Protects key State resources. Part of possible eventual enhanced State plan status. Protects lives, property and essential State functions.	No Progress	Based on findings from the risk assessment, although there has been an increase of tornadic events, this action has lowered in priority and will be addressed when resources become available.
<b>2019-SJTA-08</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 5	Elevate above-ground storage tanks to be 2 feet above the base flood elevation.	Reduces losses from hazardous substance hazards caused by flood waters and supports continuity of operations. Protects property and helps support the continuity of operations pre-, during, and post-hazard events for the SJTPA.	No Progress	There has been no progress on this action.
<b>2019-SJTA-05</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor'Easter,	2, 6	Pleasantville Toll Plaza sanitary sewer system elevation.	During Hurricane Sandy the sanitary sewer system flooded and caused significant damage to the pumps	No Progress	There has been no progress on this action.

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		Severe Weather, Severe Winter Weather			and associated equipment causing the system to be shut down for an extended period of time. This project will elevate critical portions of the system to guard against a similar occurrence in the future. This project will elevate critical portions of the system. Elevation and/or floodproofing of toll plazas from potential inundation during a high-water event advances the Authority's mission of providing safe roadways and protects life, property and ensures the continuity of operations of government, non-government, commerce, private sector, and infrastructure.		
<b>2019-SJTA-03</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather, Economic Collapse	1, 2, 6	Raise portions of the Atlantic City Expressway Connector roadway. Portions of the Connector, which connects the end of the Atlantic City Expressway proper to the Brigantine Bridge, were under water during Hurricane Sandy. The Connector runs north/south along the back-bay area of Atlantic	The elevation and/or floodproofing of roadways from potential inundation during a high-water event advances the Authority's mission of providing safe roadways by protecting life, property and ensuring the continuity of operations of government, non-government, commerce, private sector, and	No Progress	There has been No Action taken to date, however, the SJTA is in the process of preparing a Resiliency Plan for all Authority Assets.

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				City and connects to the tunnel.	infrastructure. The continuity of operations pre-, during, and post-hazard events is particularly important for the Authority's roadway, as it serves as a coastal evacuation route. Lastly, providing a safe toll road system that is in a state of good repair helps ensure the success of the New Jersey economy.		
<b>2019-SJTA-02</b>	South Jersey Transportation Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather, Economic Collapse	1, 2, 6	Raise the last 4.5 miles of the Atlantic City Expressway: The Expressway is the only evacuation route for Absecon Island, which includes Atlantic City, Brigantine, Ventnor and Margate. During Hurricane Sandy, the last 4.5 miles of the Expressway flooded for the first time in its 50+ year history. This project would raise the elevation of the road surface 30 inches, which should guard against a similar occurrence in the future.	The elevation and/or floodproofing of roadways from potential inundation during a high-water event advances the Authority's mission of providing safe roadways by protecting life, property and ensuring the continuity of operations of government, non-government, commerce, private sector, and infrastructure. The continuity of operations pre-, during, and post-hazard events is particularly important for the Authority's roadway, as it serves as a coastal evacuation route. Lastly, providing a safe toll road system that is in a state of good repair helps ensure the success	No Progress	There has been No Action taken to date, however, the SJTA is in the process of preparing a Resiliency Plan for all Authority Assets.

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					of the New Jersey economy.		
<b>2019-SJTPO-03</b>	South Jersey Transportation Planning Organization	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	3	Review existing local and regional plans pertaining to hazard mitigation and resiliency and integrate principles with Regional Transportation Plan Update.	As this is a new area for the SJTPO, this will help inform staff on existing hazard mitigation initiatives and plans in place. Enhances SJTPO Central Staff knowledge and awareness of existing hazard mitigation and resiliency initiatives.	No Progress	This project has not yet been completed.
<b>2019-NJTA-01</b>	New Jersey Turnpike Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 6	Roadway and Bridge Elevations: Elevation of portions of existing roadway and bridges along the NJTP and/or GSP to reduce risk of storm surge and flood risk. The following locations along the Authority's Right of Way have the greatest risk for potential flooding during a high-water event. Portions of the NJTP roadway segments located from Woodbridge Township north to the Town of Secaucus, including the Eastern and Western Spurs. Southernmost section of NJTP at the Delaware River. GSP roadway in Cape May County and southern portion of Atlantic County. Portions of the GSP roadway and bridge segments that cross over	The Authority recently completed a Detailed Inundation Mapping Study that modeled coastal surge inundation areas along the Authority's Right of Way. At each inundation level, the study identified roadway segments, ramps, and bridges that have the greatest risk for potential inundation during a high-water event. The elevation and/or floodproofing of roadways and bridges from potential inundation during a high-water event advances the Authority's mission of providing safe roadways by protecting life, property and ensuring the continuity of operations of government, non-	No Progress	This is a NJTA action, not NJSEA.

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				and near the Mullica River in Bass River Township and the City of Port Republic. Portions of the GSP roadway and bridge segments that cross over and near the Raritan River in the Borough of Sayreville, Township of Woodbridge, and Township of Old Bridge.	government, commerce, private sector, and infrastructure. The continuity of operations pre-, during, and post-hazard events is particularly important for the Authority's roadway and bridges, as they serve as coastal evacuation routes. Lastly, providing a safe toll road system that is in a state of good repair helps ensure the success of the New Jersey economy.		
<b>2019-NJDBI-02</b>	NJ Department of Banking and Insurance	All Hazards	6	In coordination with NJOHSP, OEM and State Police, develop and maintain a system of credentialing insurance adjusters to manage access to disaster areas possible through the existing RDDB system.	This database will help first responders have priority in accessing disaster areas, while allowing adjusters to have secondary access once first responders have executed their duties. This action will increase resiliency by facilitating rapid disaster recovery.	No Progress	The system of credentialing insurance adjusters needs to be revamped. Has not occurred since 2020
<b>2019-NJDBI-01</b>	NJ Department of Banking and Insurance	All Hazards	6	Participate in tabletop exercises with State and Industry partners through the current Infrastructure Advisory Committee meetings	This system will help first responders and adjusters access damage and aid in rapid disaster recovery. This action will increase resiliency by facilitating rapid disaster recovery.	No Progress	No meetings have occurred since 2020
<b>2019-Rutgers-03</b>	Rutgers University - Bloustein School	All Hazards	2	Create a geospatial dataset for each of the 21 counties that include the IA, PA, and NFIP payouts for each	Data useful to local planners and emergency management personnel when preparing updates	No Progress	No progress has been made on this action.

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				major storm event where data is available, aggregated at the Census Block level	to their Hazard Mitigation and Disaster Recovery Plans, as well as identifying areas that should be evaluated for possible property buyouts and relocation of families and businesses. Data could help guide County planners and Emergency management personnel when preparing updates to Hazard Mitigation and Disaster Recovery Plans.		
<b>2019-ONJSC-02</b>	Office of the New Jersey State Climatologist	Severe Weather	4	Maintain and continually update the weather/climate hazards portal and dashboard	The portal continually provides a multitude of baseline information from the ONJSC and numerous other sources. The dashboard provides data and information customized for a specific significant event. Essential for planning, preparation, response, and recovery associated with weather and weather-related events.	No Progress	Support has never been received to complete the prototype for this dashboard.
<b>2019-NJOIT-01</b>	NJ Office of Information Technology	All Hazards	2	2008 Action 211 2009 Action 211 2010 Action 211 Generate State-owned critical facilities information and establish GIS-based repository for data on critical State facilities.	Establishes comprehensive GIS-based repository for data on critical State facilities. Data base will allow identification of critical state facilities so that they may be targeted for future mitigation projects.	No Progress	NJOIT has not completed work on this action. This project should be reassigned to NJDEP Bureau of GIS.

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<b>Ongoing Capability Actions</b>							
<b>2019-DVRPC-01</b>	Delaware Valley Regional Planning Commission	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	5	Provide planning assistance services to integrate FEMA hazard mitigation plans (HMPs) into county and municipal master plans.	As identified in DVRPC's Connections 2045 Plan for Greater Philadelphia, plan integration of climate change and HMPs with comprehensive plans helps prepare communities to mitigate the risk and vulnerabilities of flooding, storm surge and sea level rise. Integrates HMPs with other planning initiatives	Ongoing Capability	DVRPC staff have participated in the Sustainable Jersey Climate Adaptation Task Force for the past 18 months. The committee aims to help municipalities incorporate climate change into planning activities; however, no specific outcomes or accomplishments to report. DVRPC also continues to participate in hazard mitigation planning efforts throughout our region.
<b>2019-DVRPC-02</b>	Delaware Valley Regional Planning Commission	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe Weather, Severe Winter Weather	2	Evaluate critical transportation and community assets that are vulnerable to climate change within the New Jersey portion of the DVRPC region.	As identified in DVRPC's Connections 2045 Plan for Greater Philadelphia, the region's transportation infrastructure needs to evaluate when considering the impacts of climate change. This is first step in identifying future resiliency actions. Helps understand the risk and vulnerability of the region's transportation infrastructure from increases in the flooding and storm surge.	Ongoing Capability	DVRPC has conducted coastal vulnerability assessments for a few New Jersey communities in the past and could continue to do so in the future, depending on the needs of our counties and municipalities.  Additionally, many interactive resources have been developed by other organizations in recent years to help communities better understand their vulnerabilities to flood hazards, including NJFloodMapper: <a href="https://www.njfloodmapper.org/">https://www.njfloodmapper.org/</a> .
<b>2019-NJSEA-02</b>	New Jersey Sports and Exposition Authority	Flood, Hurricane, Tropical Storm, Nor'Easter, Severe	3	Host a Conference/Symposiums specific to resiliency and hazard mitigation planning for the region to enhance	Gathers subject matter experts to present on the region's resiliency progress and challenges. Enhances stakeholder education and training	Ongoing Capability	A conference has not yet been implemented, but outreach is ongoing to the District municipalities. During the preparation of the Meadowlands District Floodplain Management

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		Weather, Severe Winter Weather		stakeholder education and training.	and increases public preparedness and awareness.		Plan (2019-NJSEA-04), the NJSEA met virtually or in person with all of the District municipalities to discuss flooding and potential mitigation actions. The conference will remain as a potential mitigation action.
<b>2019-NJSEA-03</b>	New Jersey Sports and Exposition Authority	All Hazards	3	Update and enhance NJSEA's GIS databases to assist in identifying critical infrastructure and facilities within the Meadowlands District to assist with outreach, recovery and mitigation planning within the Meadowlands District.	NJSEA has established an existing GIS database for emergency response including data on hazardous materials stored in warehouse facilities, fire hydrant locations, incident reports, floor plans, turn-around space for firefighting equipment, and current & historical aerial imagery. Proposed updates would enhance any identified gaps in the data or needs of first responders. Improves hazard information databases and maps and increases accessibility to those resources.	Ongoing Capability	This action is ongoing and will continue. The GIS capabilities of the MRRRI (formerly MERI) division at NJSEA expand on a regular basis. Any new or improved data is available to be shared with Meadowlands municipalities, other agencies, and the public.
<b>2019-NJDOC-03</b>	NJ Department of Corrections	Flood, Flash Flooding, Hurricane, Tropical Storm, Nor'Easter	4	Conduct a facilities-wide resiliency study to evaluate the risk and vulnerability of the State's Correctional Facilities to natural and human-based hazards.	The Resiliency Action Plan develops and maintains an understanding of risks from hazards. It also establishes an action plan to increase capabilities to mitigate against future losses and vulnerability. It establishes an action	Ongoing Capability	NJDOC OEM continues to perform hazard assessments on all nine facilities and assist with mitigation strategies to strengthen the Departments resolve. Most recently we drafted a water emergency plan that protects against adverse outcomes when a facility is disconnected from its main water source. We continue to push out training on active shooter, drone intrusion, inclement weather

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					plan to increase capabilities to mitigate against future losses and vulnerability.		considerations through HDST, and more.
<b>2019-NJDOC-07</b>	NJ Department of Corrections	Terrorism	1, 2	Purchase and install counter-acting drone intrusion infrastructure and/ or devices for State Correctional Facilities.	Prevents drones from surveilling, bringing contraband in facilities, or acting as a destructive weapon causing loss to property and life. Protects life and property. Will help State maintain operations.	Ongoing Capability	This equipment was purchased and installed at one of our northern facilities, maintenance and subscription are ongoing.
<b>2019-NJDEP-06</b>	NJ Department of Environmental Protection	Coastal Erosion	5	Work with USACE and Stockton University to update shoreline mitigation tables.	Partnerships with the U.S. Army Corps of Engineers and Stockton University allow the State to leverage funding to better understand coastal vulnerability. Improves hazard information databases and maps and increase accessibility to those resources.	Ongoing Capability	The New Jersey Beach Profile Network biannually documents the conditions of 171 beach profile sites along New Jersey shoreline. The observations documented provides a means to determine both rapid seasonal changes and follow long-term trends in shoreline position or beach volume.
<b>2019-NJDEP-08</b>	NJ Department of Environmental Protection	Dam/Levee Failure	4	Inventory of Emergency Actions Plans for Dams outside and inside of New Jersey that have the potential to impact New Jersey.	Increases awareness and enhances the impact analysis for dam failure for all dams that could impact New Jersey. Improves hazard information databases and maps and increase accessibility to those resources.	Ongoing Capability	Emergency Action Plans are living documents that are frequently updated. Inventory exists but is constantly changing. New Emergency Action Plans are developed as new dam structures are built or hazard classifications of certain dam are raised based on updated analyses.
<b>2019-NJDEP-26</b>	NJ Department of Environmental Protection	All Hazards	2, 6	Generators and “quick connect” points for portable generators for dedicated Waste	Ensures waste management sites can continue to receive waste during disaster recovery. Supports	Ongoing Capability	It is NJDEP’s understanding that all solid waste and hazardous waste facilities have portable standby generators or other means of auxiliary power so as to enable

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				Management Sites that receive waste post	continuity of operations for debris management and facilities rapid disaster recovery.		them to continue operations after a storm event. There was a major initiative after Superstorm Sandy to have these facilities acquire portable stand-by generators or other dedicated auxiliary power sources. In addition, their respective O&M Manuals require them to address both short term (1 day or less) and long term (greater than 1 day) disruptions to facility operations. Note that with the widespread power outages that occurred during and then after Superstorm Sandy, the solid waste facilities were among the first parties to establish back up power sources in order to remain in operation should future storm events occur.
<b>2019-NJDEP-31</b>	NJ Department of Environmental Protection	Flood	2	2011 Action 240 Encourage greater municipal CRS participation through county and municipal educational programs.	Greater CRS participation will promote general flood hazard awareness, increase flood insurance coverage and reduce flood policy costs and decreases flood losses. Increase the awareness of flood hazards.	Ongoing Capability	Education outreach program through State NFIP coordinators office continues.
<b>2019-NJDEP-32</b>	NJ Department of Environmental Protection	Flood	2	2011 Action 241 Encourage regional authorities, with established land use regulatory authority to participate in the NFIP CRS program	Greater CRS participation will promote general flood hazard awareness, increase flood insurance coverage and reduce flood policy costs. Increase flood hazard awareness and provide	Ongoing Capability	At the end of the fourth quarter 2022, NJDEP appointed a State Floodplain Administrator (SFA). The SFA is tasked with developing and coordinating a more comprehensive approach to statewide flood plain management in collaboration with local floodplain managers across the state.

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					greater flood insurance coverage at lower costs.		
<b>2019-NJDEP-41</b>	NJ Department of Environmental Protection	All Hazards	1, 2	Update information technology and mapping systems	Mapping and measuring tools will help analyze future hazards. Facilitates a better understanding of natural systems.	Ongoing Capability	This is a continuous process to update various sources of GIS data (Ortho-Imagery, LiDAR, NearMap, etc.), acquire additional GIS licenses and services, acquire infrastructure and equipment, and to develop and update various GIS mapping tools and applications.
<b>2019-NJDEP-36</b>	NJ Department of Environmental Protection	All Hazards	3	2008 PSA 351 Enhance public education and outreach efforts to increase awareness of earthquake hazards and risk in New Jersey.	Protects life and property. Advances goals of protecting life and property.	Ongoing Capability	The New Jersey Geological and Water Survey maintains an active data base and GIS coverage of earthquakes in New Jersey ( <a href="https://gisdata-njdep.opendata.arcgis.com/datasets/earthquake-epicenters-in-new-jersey">https://gisdata-njdep.opendata.arcgis.com/datasets/earthquake-epicenters-in-new-jersey</a> ). In addition, there is an Information Circular "Predicting Earthquake Damage in New Jersey" ( <a href="https://nj.gov/dep/njgs/enviroed/infocirc/eqdamage.pdf">https://nj.gov/dep/njgs/enviroed/infocirc/eqdamage.pdf</a> ).
<b>2019-NJLOM-01</b>	NJ Department of Environmental Protection	Flood	1	2010 PSA 237 Continue NJDEP Green Acres, Blue Acres acquisition of repetitive loss and Severe repetitive loss structures.	Requested in local mitigation planning efforts to eliminate repetitive loss structures. Augments Federal funding to ensure that more structures will no longer be flooded thereby reducing repetitive loss claims.	Ongoing Capability	Progress continues to acquire repetitive loss and severe repetitive loss properties via numerous agencies and funding sources.
<b>2019-NJDEP-20</b>	NJ Department of Environmental Protection	Flood	4	Conduct data collection or refine current data to better understand risk and vulnerability to hazards. There are current data gaps in the following areas: coastal sedimentation	Data collection of coastal sedimentation loads/rates, use of multi-spectral imagery, and pre- and post-impact assessments helps refine risk and vulnerability	Ongoing Capability	The Division of Science and Research has ongoing efforts to better understand risks associated with coastal flood hazards. Between DSR scientists and the Department Science Advisory Board studies of coastal history, sea level

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
				loads/rates, use of multi-spectral imagery, and pre and post-impact assessments.	models of hazards. Improves hazard information databases and maps and increase accessibility to those resources.		rise projections, the use of multi spectral imagery for pre and post impact assessments have been commenced or are under consideration for future studies.  The 2019 action included gaps including "low tides" and "day time census information". These are not defined or clear in their intent and therefore removed from 2024 plan.
<b>2019-NJDEP-16</b>	NJ Department of Environmental Protection	All Hazards	5	Establish universal programmatic agreements for public assistance Project Worksheets	Agreement will bolster communication with NJDEP departments; facilitate closeout and next steps after joint field office leaves; and, to facilitate the capability to waive certain NJDEP requirements to expedite recovery after a disaster. Encourage the formation of partnerships to leverage and share mitigation resources.	Ongoing Capability	Continued ongoing coordination between NJDEP programs and established central NJDEP point of contact for all federally declared emergencies/disasters and FEMA recovery (excludes Blue Acres buy-outs). Programmatic agreements in place following Superstorm Sandy have since expired and will need to be renewed.
<b>2019-NJDEP-22</b>	NJ Department of Environmental Protection	Groundwater Contamination	1, 2, 4	Assess whether contaminated sites have additional discharges that occurred caused by a disaster.	Allows officials to assess threat levels to public health and the environment after an event and take actions to mitigate potential impacts.	Ongoing Capability	This action is an ongoing capability.
<b>2019-NJDEP-14</b>	NJ Department of Environmental Protection	All Hazards	4, 5	Coordinate and integrate emergency preparedness and historic preservation plans for cultural institutions including	Ensures historic preservation planning and regulations are a consideration in emergency and hazard mitigation planning.	Ongoing Capability	The New Jersey Cultural Alliance for Response continues to offer training and resources to improve disaster planning for cultural institutions. The New Jersey Historic Trust's (NJHT) updated Historic Structure

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
				libraries, museums, art institutes, etc.	Integrates mitigation planning with other State and regional planning initiatives.		Reports & Preservation Plans: A Preparation Guide specifically addresses hazard identification and emergency planning for historic properties (link below). Additionally, both NJHT and HPO have added emergency planning as an eligible grant activity under their respective grant programs. Links: <a href="https://www.nj.gov/dca/njht/resources/tools/">https://www.nj.gov/dca/njht/resources/tools/</a>
<b>2019-NJDEP-30</b>	NJ Department of Environmental Protection	Flood	2, 5	Elevation Program – This program continues to provide grants to help homeowners elevate their homes to provide increased flood protection	Enhance home protection during flood events. Reduce damage to homes.	Ongoing Capability	Ongoing coordination with DCA. Currently, DCA is drafting 12 county-wide Tier 1 HUD Community Development Block Grant-Disaster Recovery Environmental Assessments (EAs). The Tier 1 EAs will analyze the proposed program actions of providing housing assistance for properties that were impacted from Hurricane Ida or areas located within or near disaster-impacted communities. These actions include activities necessary to restore homeowners/landlords' storm-damaged homes, including rehabilitation, reconstruction, elevation and/or other mitigation activities. While the Tier 1 EAs will be a broad county-wide review of environmental impacts, the subsequent Tier 2s will be site-specific reviews of reconstruction, rehabilitation or new construction of housing structures. NJDEP has provided guidance on the proposed approach to prepare the NJ DCA Tier 1 Environmental Assessment as it

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
							related to environmental resource sections.
<b>2019-NJDEP-15</b>	NJ Department of Environmental Protection	All Hazards	5	Embed staff at Joint Field Office (JFO) to facilitate the permitting process	Allows more efficient coordination between NJDEP Staff and the JFO to help facilitate rapid recovery and projects. Encourage the formation of partnerships to leverage and share mitigation resources.	Ongoing Capability	Appropriate NJDEP personnel staff the JFO when activated in an effort to expedite communications, operations, and planning.
<b>2019-NJOEM-32</b>	NJ Office of Emergency Management	Flood	2	Encourage resolution of flooding issues on NFIP identified Repetitive and Severe Repetitive properties	Increases the level of protection from flooding throughout the state to a large segment of vulnerable population. Advances the goal of several mitigation programs.	Ongoing Capability	Repetitive and Severe Repetitive Loss properties are addressed through the implementation of the Repetitive Loss Strategy.
<b>2019-NJOEM-29</b>	NJ Office of Emergency Management	All Hazards	5	2011 Action 522 Publicize mitigation success stories by requiring project applicants to report on how the mitigation action affected the hazard issue	Increase level of awareness of natural hazards and a greater awareness of the relation between planning and project that relieve or prevent hazard results. Advances the goal of achieving 100% mitigation planning coverage and better mitigation projects.	Ongoing Capability	NJOEM will continue to utilize the ESRI database for storyboards on the NJOEM Mitigation Unit webpage for public outreach and education. The NJOEM Public Information Office can relay mitigation success stories to the media.
<b>2019-NJOEM-27</b>	NJ Office of Emergency Management	Flood	2	2009 Action 252 Undertake detailed vulnerability assessments and develop mitigation options for State-owned critical facilities in V and VE zones	Step in process of securing grant funds to mitigate risks to these sites. Contributes to goals of protecting property and life.	Ongoing Capability	NJOEM takes an all-hazards, universal approach using the Land and Building Asset Management System (LBAM) risk assessment process to identify timely, cost-effective opportunities to mitigate future risk.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
							This action should be revised to reflect an all-hazards approach.
<b>2019-NJOEM-26</b>	NJ Office of Emergency Management	All Hazards	2	2008 Action 215 Survey State agencies for their most critical State-owned facilities and use as the basis for prioritizing vulnerability assessments and mitigation grant funds.	Critical first step in identifying appropriate sites and operations for mitigation priorities. Protects life, property and continuity of operations.	Ongoing Capability	The 2024 SHMP update includes an updated Land and Building Asset Management System (LBAM) risk assessment that includes critical state-owned facilities.
<b>2019-NJOEM-25</b>	NJ Office of Emergency Management	Flood	1	2011 Action 133 Encourage resolution of flooding issues on NFIP identified Repetitive and Severe Repetitive properties	Increases the level of protection from flooding throughout the state to a large segment of vulnerable population. Advances the goal of several mitigation programs.	Ongoing Capability	A State-priority system was developed in 2019 to identify high risk Repetitive and Severe Repetitive Loss properties. This priority system is a significant factor into the allocation of HMGP dollars when they are available. The system allows the State to develop competitive FMA applications as well.
<b>2019-NJOEM-21</b>	NJ Office of Emergency Management	All Hazards	4	2008 PSA 431 Continuingly update repetitive loss and severe repetitive loss lists from the NFIP.	Essential to continuing the State's effort to reduce flood losses. Enables NJOEM to appropriately prioritize its actions to mitigate repetitive loss and severe repetitive loss properties, in accordance with FEMA requirements (and potentially qualifies the State and local jurisdictions for the 90-10 federal-local match under the SRL program. The State mitigation strategy has a focus on reducing losses to property by implementing	Ongoing Capability	The NFIP database for New Jersey was recently digitized to maintain relevant data. Updates to the database will be made to maintain relevance of the data.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
					appropriate flood mitigation activities. Keeping these lists up to date allows the State to prioritize assistance and funds.		
<b>2019-NJOEM-01</b>	NJ Office of Emergency Management	Flood	3, 4	Establish improved awareness, understanding, and application of all relevant insurance data sources, status, and values as it may apply throughout the State (public and private) for greater resilience and mitigation opportunities in the future.	Increases awareness of FEMA's NFIP policies. Increases public awareness and develops and maintains an understanding of risks from hazards.	Ongoing Capability	NJOEM distributes relevant insurance data upon request.
<b>2019-NJOEM-34</b>	NJ Office of Emergency Management	All Hazards	1, 2	Improve retail fuel stations' ability to provide fuel in the event of power disruptions through the Liquid Fuel Resilience Program, which provides funding for onsite generators and "quick connect" points for portable generators.	Builds resilience in fuel supply and distribution. Provides liquid fuel supply continuity during future hazards. Refer to Appendix E for additional details (2013 New Jersey State Hazard Mitigation Plan Amendment).	Ongoing Capability	The retail gas station fuel program involved 3 agencies: 1) NJOEM purchased and maintained the portable generators, 2) EDA approved grant money for gas stations for quick connects, 3) BPU was responsible for tracking the ESF-12 function - keeping track of what gas stations were installed, keeping up to date gas station contact information and making sure during an emergency that the gas stations received a NJOEM portable generator.  This action is nearing probable completion due to capabilities being developed and enhanced to the level where other needs exceed. Priority for this action will be dropped from high to medium.
<b>2019-NJOEM-33</b>	NJ Office of Emergency Management	Flood	2	Inventory flood damage structures	Identifying repetitive loss areas and properties helps communities	Ongoing Capability	Utilizing remote sensing resources, NJOEM is continuing to develop better quantitative data on risk and

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
					develop a strategy to reduce future hazard losses. Retrofitting, elevating or removing RL properties from known hazard areas protect property and lives as well as preserve personal, state, and federal financial resources.		risk to structures to formulate proper mitigation actions, considering a wide variety of stakeholders and a whole-systems approach to protecting the structures. This has included establishment of first flood elevations with Rutgers for development of applications.
<b>2019-NJOEM-31</b>	NJ Office of Emergency Management	Flood	1, 2, 4, 5	2009 PSA 235 Conduct community outreach, workshops and training to increase NFIP participation. (This action is part of the Repetitive Loss strategy – Section 8)	Encourages participation in the program so that losses will be covered and allows eligibility in the FMA program. Allows for people to receive flood insurance claims and maintains eligibility in the FMA program of which flood insurance is a requirement.	Ongoing Capability	NJOEM continues to stress the importance of insurance in furthering mitigation opportunities and lessening the reliance on recovery dollars. It is understood that the lack of insurance is a separate form of risk, therefore, NJOEM is trying to educate the public. NJOEM offers floodplain manager training to increase the distribution of information to the public.
<b>2019-NJOEM-30</b>	NJ Office of Emergency Management	All Hazards	2	2010 Action 221 Inventory non-State-owned critical assets that are vulnerable to natural hazards	Establishes comprehensive GIS-based repository for data on critical non-State-owned facilities. Database will allow identification of non-State-owned critical facilities so that they may be targeted for future mitigation projects.	Ongoing Capability	NJOEM is constantly endeavoring to create a more complete picture of risk to the societal system in NJ. It is encouraged local entities identify their own critical facilities and advise NJOEM of their locations.
<b>2019-NJOEM-24</b>	NJ Office of Emergency Management	All Hazards	5	Promote the integration of findings and actions of local mitigation plans into other local planning mechanisms.	Coordination of efforts. Supports resiliency.	Ongoing Capability	This action is being facilitated by streamlining gathered data, through GIS, Rutgers's HAZadapt, and other means, to provide localities with information to integrate into their

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
							planning efforts, including mitigation planning.
<b>2019-NJOEM-22</b>	NJ Office of Emergency Management	Flood	4	2008 PSA 432 Continue working with local and regional jurisdictions to encourage their cooperation in making repetitive property mitigation a high priority, and to offer technical support in carrying out the requirements of FEMA mitigation programs.	Basic requirement to initiate and sustain momentum. Initiates a long-term process to protect property from effects of repetitive flooding.	Ongoing Capability	NJOEM has offered robust technical support in the last two planning cycles, with a focus on repetitive loss structures in socially vulnerable areas. NJOEM anticipates developing or advancing relations with academic institutions to further NJOEM's ability to provide necessary technical assistance. NJOEM is utilizing contractor support strategically to develop strategies, actions, and applications.
<b>2019-NJOEM-18</b>	NJ Office of Emergency Management	All Hazards	3	2008 PSA 311 Educate the public through NJOEM and NJFS outreach programs and hazard mitigation workshops.	To increase participation in hazard mitigation programs for the prevention of potential loss of life and damage to structures. Encourages the development of Pre Disaster Mitigation plans and participation in mitigation grant programs	Ongoing Capability	NJOEM continues to provide technical assistance and public outreach pre- and post-disaster.
<b>2019-NJOEM-23</b>	NJ Office of Emergency Management	All Hazards	5	2008 PSA 513 Continually update and enhance the State plan. Begin by incorporating recommended FEMA revisions. Institute stronger plan maintenance procedures, such as having agencies responsible for mitigation actions provide annual progress reports to the SHMO	Required to ensure that the plan is a current document, and remains useful to the State, as well as to local and regional planners. The plan is the basis for prioritizing all actions.	Ongoing Capability	NJOEM is overseeing the update and enhancement of the NJ SHMP in 2023. The plan is being updated to meet new FEMA standards and maintenance has improved through the use of the BATool <sup>SM</sup> .

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
2019-NJOEM-19	NJ Office of Emergency Management	All Hazards	3	2008 PSA 312 Participate in the Emergency Preparedness Conference with workshops	The Emergency Preparedness Conference is an important venue to promote and increase participation in hazard mitigation programs and reaches a wide variety of people and interests. Encourages the development of Pre Disaster Mitigation plans and participation in mitigation grant programs.	Ongoing Capability	NJOEM regularly participates in the conference and provides trainings.
2019-NJOEM-04	NJ Office of Emergency Management	All Hazards	4	2008 Action 411 Continuously update the State Hazard Mitigation Plan to ensure that it includes the most current technical information, serves as a reference and guidance document for local and regional planners, and reflects current State policies, practices and priorities.	Federal requirement. In order to maximize the utility of the plan, it must be constantly updated to include most recent information. Basis for most of the State's decisions about mitigation actions and strategies.	Ongoing Capability	Technical information continues to be updated. Tools such as HazAdapt provided the best available technical information for local and regional planners.
2019-NJOEM-02	NJ Office of Emergency Management	Flood	3, 4	Establish improved awareness, understanding, and application of all relevant insurance data sources, status, and values as it may apply throughout the State (public and private) for greater resilience and mitigation opportunities in the future.	Increases awareness of FEMA's NFIP policies. Increases public awareness and develops and maintains an understanding of risks from hazards.	Ongoing Capability	Continued outreach and maintenance/update of the HMP has occurred.
2019-NJOEM-15	NJ Office of Emergency Management	Flood	2	2008 PSA 232 Develop and implement a detailed	First step in the State implementing a clear, long-term program of	Ongoing Capability	Completed and part of standard operating procedures. Implementation is ongoing.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
				severe repetitive loss mitigation strategy	mitigating properties that constitute the most significant losses to the National Flood Insurance Program. Protects property. See Appendix F of 2008 version of State plan – Severe Repetitive Loss Mitigation Strategy.		
<b>2019-NJOEM-14</b>	NJ Office of Emergency Management	All Hazards	3	2008 Action 154 Ensure Incident Command System use, qualifications, and standards during all incident response and event planning.	Provide up to date reference for the development and updating of local hazard mitigation plans. This local information will be utilized in the updating of the State Hazard Mitigation Plan.	Ongoing Capability	Ongoing capability with updates to the directives. Require ICS to be utilized throughout counties and municipalities.
<b>2019-NJOEM-13</b>	NJ Office of Emergency Management	All Hazards	1, 2, 3, 4, 5	Planning Grant Program – This program continues to provide eligible counties with grants to develop hazard mitigation plans.	Support local government entities in mitigation actions. Funds local mitigation projects.	Ongoing Capability	Through integration of all available funding sources, NJOEM has been able to continue to fund the development and funding of all 21 county HMPs in NJ. First priority is to fund planning grants to ensure counties remain eligible.
<b>2019-NJOEM-11</b>	NJ Office of Emergency Management	Flood	1, 2, 4, 5	Provide updated SRL and RL lists to communities in advance of grant application windows. Included FEMA-calculated avoided damages for SRL properties and any state-calculated avoided damages for RL properties (This action is part of the Repetitive Loss Strategy – Section 8)	Eliminating repetitive loss structures. Contacting local community partners including but not limited to emergency management directors, floodplain managers, local officials, floodplain administrators regularly to provide updated technical information and advice of opportunities/funding to acquire or elevate	Ongoing Capability	RL and SRL lists are available upon request. NJOEM is able to provide direct technical assistance upon request.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
					properties. Structures will no longer be flooded thereby reducing RL claims. Contact local community partners including but not limited to emergency management directors, floodplain managers, local officials, floodplain administrators regularly to provide updated technical information and advice of opportunities/funding to acquire or elevate properties.		
<b>2019-NJOEM-08</b>	NJ Office of Emergency Management	All Hazards	2	2011 Action 362 Encourage plan participation by non-participating local governments.	Step in process of securing grant funds to mitigate risks to these sites. Contributes to goals of protecting property and life.	Ongoing Capability	Through efforts, the state has reduced the number of non-participating local governments. Efforts continue.
<b>2019-NJOEM-07</b>	NJ Office of Emergency Management	All Hazards	5	2011 Action 132 Encouraging College/university participation in the mitigation planning process.	Increases technical quality of HMP and abilities of State, local and regional planners. Ensures that technical aspects of the plan and mitigation activities are based on best available technology and data.	Ongoing Capability	Enhancing relationship with NJIT, long term relationship with Rutgers, early warning system in Elizabeth, decision support tool for floodprone areas for acquisition areas. Working to expand relationships where possible with colleges and universities.
<b>2019-NJTA-05</b>	New Jersey Turnpike Authority	Terrorism	1, 2, 6	Target Hardening of infrastructure within the Authority's Right of Way against potential terrorist attacks.	The Authority recently completed an Authority-wide security vulnerability assessment and improvement program that includes targeted hardening of critical facilities,	Ongoing Capability	The NJ Turnpike Authority reviews hardening of critical assets on an ongoing basis.

Action Number	Responsible Agency	Hazards Addressed	Goals Supported	Action Description	Specific Problem Mitigated	Action Status	Additional Comments
					installation of cameras, and installation/upgrade of fencing. Target hardening of the Authority's infrastructure against Terrorist attack, protects life, property, and ensures the continuity of operations of government, non-government, commerce, private sector, and infrastructure.		
<b>2019-Rutgers-01</b>	Rutgers University - Bloustein School	All Hazards	5	Develop geospatial and analytical tools to support community engagement, policy reform, and State and regional planning efforts.	To make local officials and emergency management coordinators aware of possible hazards and potential actions that may help to reduce hazards and vulnerabilities within their community. Geospatial and analytical tool development will help to inform community members throughout New Jersey, as well as help to guide possible additions to State, county, and local mitigation plans.	Ongoing Capability	Work to develop tools continues.

## Coastal Engineering Projects

The NJDEP Office of Coastal Engineering was not a participant in the mitigation strategy of the 2019 SHMP. The following table reports out on completed projects that the Office has completed in the past five years, either solely or in a support role for USACE led projects.

**Table X.X Completed Office of Coastal Engineering Led Projects.**

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Liberty State Park Transfer Bridge Demolition</b>	Hudson	Jersey City	Demolition/Removal	Removal	Emergency demolition of the existing transfer bridge, portions standing and/or collapsed, and full removal of all generated debris to a legal contractor obtained disposal site.	\$240,000	0/100	100/0
<b>Manasquan Inlet Bulkhead Replacement</b>	Ocean	Point Pleasant Beach Borough	Bulkhead	Repair/Replace/Reconstruct	Replace approximately 202 linear feet of deteriorated aluminum bulkhead on the Point Pleasant Beach side of the Manasquan Inlet with a new steel sheet bulkhead within 18" of the existing bulkhead.	\$672,091.95	0/100	75/25
<b>Heislerville Dike Repair</b>	Cumberland	Maurice River Township	Dike	Repair/Replace/Reconstruct	Reconstruct approximately 4000 linear feet of dike within an existing dike in the Heislerville Wildlife Management Area along the Maurice River.	\$297,267.53	75/25	100/0
<b>2017 Holgate and Beach Haven Beachfill</b>	Ocean	Long Beach Township, Beach Haven Borough	Beachfill-Hydraulic	Renourishment	Beach nourishment project, with a maximum of 1,500,00 cubic yards of sand to be pumped hydraulically via a cutter-head pipeline dredge to the beach from the offshore borrow site (Little Egg Inlet).	\$18,363,238.75	0/100	100/0
<b>Wesley Lake Stormwater Outfall Repair</b>	Monmouth	Asbury Park City	Drainage Improvements-Outfall	Repair/Replace/Reconstruct	Repair of gap between the outshore manhole and oceanside outfall pipe at	\$14,100	0/100	75/25

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
					Wesley Lake that causes beach sand to accumulate within the outfall.			
<b>Seawall Repair and Construction Project</b>	Monmouth	Sea Bright Borough, Monmouth Beach Borough	Seawall	Repair/Replace/Reconstruct, Initial Construction	Repair areas of damaged seawall as needed and install approximately 1,077 feet of new seawall in three areas, in order to close up gaps between the existing seawall.	\$28,301,731.23	90/10	100/0
<b>Holgate Terminal Groin - Phase I</b>	Ocean	Long Beach Township	Groin	Repair/Replace/Reconstruct	Install steel sheeting next to existing dilapidated timber/stone terminal groin.	\$537,458	0/100	75/25
<b>Harrison Avenue Landfill Closure and Shoreline Restoration</b>	Camden	Camden City	Shoreline Stabilization	Initial Construction	This project consists of shoreline stabilization, a landfill closure and natural restoration on a 62-acre parcel at the confluence of the Cooper River and Delaware River, Zone 3, in the Cramer Hill section of Camden, NJ. Once the existing landfill is capped and the construction activities are completed, the Delaware River shoreline will be stabilized, tidally flushed wetlands will be enhanced/expanded and ultimately a water front park will be built for public use.	\$36,705,572.39	0/100	100/0
<b>Tuckerton Stone Revetment Project</b>	Ocean	Tuckerton Borough	Revetment	Repair/Replace/Reconstruct	Construction of a stone revetment along the Tuckerton Bay.	\$329,647.55	0/100	75/25
<b>Caspian Ave - Gardeners Basin Bulkhead and Bike Path</b>	Atlantic	Atlantic City	Bulkhead	Initial Construction	Construction of approximately 1577 linear feet of shore protection structure along the city owned portion of Caspian Point.	\$4,123,746.86	0/100	75/25

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Bayshore Floodgate Shoal Dredging</b>	Monmouth	Keansburg Borough	Navigational Dredging	Other	Mechanical dredging of the shoal accruing at the mouth of the channel in front of the Bayshore Floodgate Facility located in Union Beach, New Jersey.	\$39,969	0/100	100/0
<b>East Point Shoreline Scour Protection</b>	Cumberland	Maurice River Township	Revetment	Repair/Replace/Reconstruct	Installation of ACB mats and stone to reduce scour and dissipate wave energy impacting the Geotube Revetment structure recently placed to protect the East Point Lighthouse.	\$39,844	0/100	100/0
<b>Absecon Inlet Jetty Repair Project</b>	Atlantic	Atlantic City	Jetty	Repair/Replace/Reconstruct	Repair and reconstruct approximately 1,200 linear feet of the south Absecon Inlet Jetty located in Atlantic City.	\$2,953,296	90/10	100/0
<b>East Point Shoreline Stabilization</b>	Cumberland	Maurice River	Beachfill-Geotube	Initial Construction	Shore stabilization and habitat enhancement project consisting of 570 linear feet of tencate sand-filled geotube revetment buried in the beach sand to create a dune feature.	\$520,190	100/0	0/0
<b>Money Island Debris Removal (Phase 1)</b>	Cumberland	Downe Township	Demolition/Removal	Removal	Remove and legally dispose of all non-natural debris scattered along 1,300 LF of shoreline adjacent to Bayview Rd in Money Island, Downe Twp, Cumberland County, NJ. Materials to be removed include but are not limited to concrete, rock, brick, asphalt, timber, tires, metal, plastics, carpeting and crushed concrete. This work is the first phase of a Shoreline Restoration project which is being funded using FEMA	\$116,300	100/0	0/0

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
					HMGP Sandy funds and coordinated through the Blue Acres Program.			
<b>Spicers Creek Gabion Construction</b>	Cape May	Lower Township	Gabion Baskets	Initial Construction	Gabion basket shoreline stabilization at Cape May Canal/Spicers Creek junction.	\$499,505.73	0/100	100/0
<b>Seabreeze Shore Remediation Project</b>	Cumberland	Fairfield Township	Demolition/Removal	Removal	Shore remediation including the removal of approximately 2650 linear feet of existing, pre-authorized revetment system, including concrete cap, cable mattresses and concrete rubble. Project also includes backfilling excavated area with suitable material and vegetation. **Change order added to contract to demo/remove 2 remaining dwellings that were recently bought out by BA.	\$521,000	0/100	100/0
<b>Wreck Pond Tower Modifications</b>	Monmouth	Spring Lake Borough	Other	Repair/Replace/Reconstruct	"Modify an Aid to Navigation (ATON) Obstruction Light Tower located at the end of the Wreck Pond outfall pipe in Spring Lake, New Jersey. Modifications to the ATON	\$21,690	0/100	100/0
<b>Money Island Shoreline Restoration (Phase 2)</b>	Cumberland	Downe Township	Breakwater, Groin, Beachfill-Truckfill	Initial Construction, Repair/Replace/Reconstruct	Obstruction Light Tower include the removal of the bottom ladder rungs, installation of new signage, and replacement of the marine light."	\$1,521,856.55	100/0	0/0

**Table X.X Completed USACE Led Projects.**

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Minish Park - CONTRACT 3A</b>	Essex	Newark City	Bulkhead	Initial Construction	Unavailable	\$12,919,300	100/0	0/0
<b>Port Monmouth - PHASE II, CONTRACT 3: Initial construction - Floodwall and Road Closure Gate</b>	Monmouth	Middletown Township	Floodwall	Initial Construction	Unavailable	\$13,687,687	100/0	0/0
<b>Port Monmouth - PHASE II, CONTRACT 2: Initial construction - Pump Station/Tide Gate</b>	Monmouth	Middletown Township	Tide Gate, Pump Station	Initial Construction	Unavailable	\$23,392,120	100/0	0/0
<b>Port Monmouth - PHASE II, CONTRACT 4A: Initial construction - Road Raising and Electric Work</b>	Monmouth	Middletown Township	Road Raising	Initial Construction	Unavailable	\$1,816,842	100/0	0/0
<b>Renourishment Contract #5, South End Monmouth Beach, South End of Sea Bright, South End of Long</b>	Monmouth	Sea Bright Borough, Monmouth Beach Borough, Long Brach City	Beachfill-Hydraulic	Renourishment	Renourishment of beach berm	\$55,107,500	65/35	75/25

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Branch &amp; Elberon</b>								
<b>Renourishment Contract #6, Deal, Allenhurst, Loch Arbour, Elberon</b>	Monmouth	Deal Borough, Allenhurst Borough, Loch Arbour Village, Long Branch City	Beachfill-Hydraulic	Renourishment	Renourishment of beach berm in Elberon, Deal, Allenhurst, and Loch Arbour. Sea Girt and Manasquan originally included as option areas but were ultimately not awarded.	\$24,300,000	65/35	75/25
<b>Manasquan Inlet to Barnegat Inlet, Initial Construction</b>	Ocean	Point Pleasant Beach Borough, Bay Head Borough, Mantaloking Borough, Brick Township, Toms River Township, Lavallette Borough, Seaside Heights Borough, Seaside Park Borough, Berkeley Township	Beachfill-Hydraulic	Initial Construction	Initial construction of berm and dune from Point Pleasant to Berkeley	\$123,468,939.70	65/35	75/25
<b>Section 1122 Beneficial Reuse Pilot Project (Phase</b>	Ocean	Berkeley Township	Beachfill-Hydraulic	Renourishment	Unavailable	\$750,000	100/0	0/0

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>2) - Barnegat Inlet Island Creation</b>								
<b>Section 1122 Beneficial Reuse Pilot Project (Phase 1) - Harvey Cedars</b>	Ocean	Harvey Cedars Borough	Beachfill-Hydraulic	Renourishment	Unavailable	\$750,000	100/0	0/0
<b>Barnegat Inlet to Little Egg Inlet FCCE and 2nd Periodic Nourishment, Harvey Cedars, Surf City, and Brant Beach</b>	Ocean	Surf City Borough, Long Beach Township, Harvey Cedars Borough	Beachfill-Hydraulic	FCCE Renourishment	FCCE and CG Beachfill project from Harvey Cedars to Brant Beach, approximately 28,664 feet and 1,803,689 CY.	\$37,108,622	83/17	75/25
<b>Brigantine Inlet to Great Egg Harbor Inlet Brigantine Island FCCE and 3rd PN</b>	Atlantic	Brigantine City	Beachfill-Hydraulic	FCCE Renourishment, Renourishment	FCCE and 3rd PN at Brigantine Island along the shore of approximately 730,000 CY of beachfill.	\$9,559,381	92/8	75/25
<b>Brigantine Inlet to Great Egg Harbor Inlet, Absecon Island, Atlantic City and Ventnor Fourth Renourishment Cycle and Initial Construction of Margate and Longport</b>	Atlantic	Atlantic City, Ventnor City, Margate City, Longport Borough	Beachfill-Hydraulic	Initial Construction, Renourishment	Atlantic City and Ventnor Fourth Renourishment Cycle and Initial Construction of Margate and Longport.	\$76,120,255	65/35 (Renourishment), 100/0 (Initial Construction)	75/25 (Renourishment), 0/0 (Initial Construction)

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Brigantine Inlet to Great Egg Harbor Inlet, Absecon Island, Absecon Inlet Seawall Improvements</b>	Atlantic	Atlantic City	Seawall	Initial Construction	Construction of a seawall and boardwalk at the Absecon Inlet.	\$39,324,446.09	100/0	0/0 (City paid 100% for mod to add boardwalk)
<b>Brigantine Inlet to Great Egg Harbor Inlet, Absecon Island Periodic Nourishment</b>	Atlantic	Atlantic City, Ventnor City, Margate City, Longport Borough	Beachfill-Hydraulic	Renourishment	Unavailable	\$28,647,327.89	65/35	75/25
<b>Great Egg Harbor Inlet and Peck Beach Ninth Cycle of Periodic Nourishment</b>	Cape May	Ocean City	Beachfill-Hydraulic	Renourishment	Unavailable	\$17,100,563	65/35	75/25
<b>Great Egg Harbor Inlet and Peck Beach Tenth Cycle of Periodic Nourishment</b>	Cape May	Ocean City	Beachfill-Hydraulic	Renourishment	Unavailable	\$27,298,500	65/35	75/25
<b>Great Egg Harbor Inlet to Townsends Inlet, South End Ocean City, Upper Twp, Sea Isle City Renourishment #1</b>	Cape May	Ocean City, Upper Township, Sea Isle City	Beachfill-Hydraulic	Renourishment	Unavailable	\$26,460,089	65/35	75/25
<b>Townsends Inlet to Cape May Inlet FY19</b>	Cape May	Avalon Borough	Beachfill-Hydraulic	Renourishment	Fourth Periodic Nourishment cycle from an offshore source in	\$12,411,050	65/35	75/25

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share
<b>Periodic Nourishment</b>					Avalon and Stone Harbor of approximately 675,000 CY of beachfill. **Not enough money so Stone Harbor dropped from contract			
<b>Townsend Inlet to Cape May Inlet, Hereford Seawall Repair</b>	Cape May	North Wildwood City	Seawall	Repair/Replace/Reconstruct	Unavailable	\$19,191,307		
<b>Cape May Inlet to Lower Township Twelfth Cycle of Periodic Nourishment</b>	Cape May	Cape May City	Beachfill-Hydraulic	Renourishment	Twelfth cycle of periodic nourishment in Cape May City including approximately 240,000 CY of beachfill.	\$9,777,000	90/10	75/25
<b>Cape May Inlet to Lower Township Thirteenth Cycle of Periodic Nourishment</b>	Cape May	Cape May City	Beachfill-Hydraulic	Renourishment	Thirteenth cycle of periodic nourishment in Cape May City.	\$14,804,978.78		
<b>Lower Cape May Meadows to Cape May Point Fourth Cycle of Periodic Nourishment</b>	Cape May	Cape May Point Borough, Cape May City	Beachfill-Hydraulic	Renourishment	Unavailable	\$9,400,000	80.5/19.5	75/25

The following USACE led, or Office of Coastal Engineering led coastal protection projects are currently in the planning/design stage or are under construction.

**Table X.X In Progress and Proposed USACE Led Projects.**

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>Minish Park - CONTRACT 4B</b>	Essex	Newark City	Bulkhead	Initial Construction	Unavailable	TBD	100/0	0/0	Planned/ In Design
<b>Minish Park - CONTRACT 3B</b>	Essex	Newark City	Bulkhead	Initial Construction	Unavailable	\$43,080,700	100/0	0/0	Planned/ In Design
<b>Union Beach - CONTRACT 1: Beachfill and Groin</b>	Monmouth	Union Beach Borough	Beachfill-Hydraulic, Groin	Initial Construction	Unavailable	\$50,185,435	65/35	75/25	Under Construction
<b>Union Beach - CONTRACT 5: Wetland Mitigation</b>	Monmouth	Union Beach Borough	Wetland Restoration	Initial Construction	Unavailable	\$22,067,000	65/35	75/25	Planned/ In Design
<b>Union Beach - CONTRACT 4: Chingarora Levee and Floodwall</b>	Monmouth	Union Beach Borough	Floodwall, Levee	Initial Construction	Unavailable	\$135,703,000	65/35	75/25	Planned/ In Design
<b>Union Beach - CONTRACT 3: East Creek Levee (East of East Creek Only)</b>	Monmouth	Union Beach Borough	Levee	Initial Construction	Unavailable	\$8,579,000	65/35	75/25	Planned/ In Design
<b>Union Beach - CONTRACT 2: Flat Creek to East Creek Levee and Floodwall and Interior Levee</b>	Monmouth	Union Beach Borough	Floodwall, Levee	Initial Construction	Unavailable	\$62,828,000	65/35	75/25	Planned/ In Design
<b>Port Monmouth - PHASE II,</b>	Monmouth	Middletown Township	Wetland Restoration	Initial Construction	Unavailable	\$6,412,200	100/0	0/0	Under Construction

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>CONTRACT 1: Initial construction - Mitigation</b>									
<b>Port Monmouth - PHASE II, CONTRACT 5: Initial construction - Floodwall, Levee, Pump Station, Road Raising</b>	Monmouth	Middletown Township	Floodwall, Levee, Pump Station, Road Raising	Initial Construction	Unavailable	\$51,959,901	100/0	0/0	Planned/ In Design
<b>Port Monmouth - PHASE II, CONTRACT 4B: Initial construction - Floodwall, Levee, Road Closure Gate</b>	Monmouth	Middletown Township	Floodwall, Levee, Road Closure Gate	Initial Construction	Unavailable	TBD	100/0	0/0	Planned/ In Design
<b>Highlands Coastal Storm Risk Management Project</b>	Monmouth	Highlands Borough	Floodwall	Initial Construction	Bulkhead construction along Highlands waterfront. **No local commitment from borough as of 11/2022.	\$198,000,000	65/35	75/25	Planned/ In Design
<b>Renourishment Contract #7, Elberon, Monmouth Beach (option), Sea Girt (option),</b>	Monmouth	Long Branch City, Monmouth Beach Borough, Sea Girt Borough,	Beachfill-Hydraulic	Renourishment	Renourishment of beach berm	\$33,112,700	65/35	75/25	Under Construction

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>Manasquan (option)</b>		Manasquan Borough							
<b>Manasquan Inlet to Barnegat Inlet, Renourishment #1</b>	Ocean	Point Pleasant Beach Borough, Bay Head Borough, Mataloking Borough, Brick Township, Toms River Township, Lavallette Borough, Seaside Heights Borough, Seaside Park Borough, Berkeley Township	Beachfill-Hydraulic	Renourishment	First cycle of renourishment	\$60,400,000	50/50	75/25	Planned/ In Design
<b>Barnegat Inlet to Little Egg Inlet FY24 Renourishment</b>	Ocean	Long Beach Township	Beachfill-Hydraulic	Renourishment	FY24 Renourishment	\$49,000,000	TBD	TBD	Planned/ In Design
<b>Brigantine Inlet to Great Egg Harbor Inlet Brigantine FY23 Beach Nourishment</b>	Atlantic	Brigantine City	Beachfill-Hydraulic	Renourishment	Unavailable	\$11,240,000	65/35	75/25	Under Construction
<b>Brigantine Inlet to Great Egg Harbor Inlet, Absecon Island</b>	Atlantic	Atlantic City, Ventnor City, Margate	Beachfill-Hydraulic	Renourishment	FY25 renourishment	TBD	TBD	TBD	Planned/ In Design

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>Periodic Nourishment</b>		City, Longport Borough							
<b>Great Egg Harbor Inlet and Peck Beach Eleventh Cycle of Periodic Nourishment</b>	Cape May	Ocean City	Beachfill-Hydraulic	Renourishment	Unavailable	TBD	TBD	TBD	Planned/ In Design
<b>Great Egg Harbor Inlet to Townsends Inlet, South End Ocean City, Upper Twp, Sea Isle City Renourishment #2</b>	Cape May	Ocean City, Upper Township, Sea Isle City	Beachfill-Hydraulic	Renourishment	Unavailable	\$31,500,000	65/35	75/25	Planned/ In Design
<b>Townsends Inlet to Cape May Inlet, Periodic Nourishment</b>	Cape May	Avalon Borough, Stone Harbor Borough	Beachfill-Hydraulic	Renourishment	Unavailable	\$25,500,000	65/35	75/25	Under Construction
<b>Townsends Inlet to Cape May Inlet, Periodic Nourishment</b>	Cape May	Avalon Borough, Stone Harbor Borough	Beachfill-Hydraulic	Renourishment	Unavailable	TBD	TBD	TBD	Planned/ In Design
<b>Hereford Inlet to Cape May Inlet, Wildwoods Initial Construction</b>	Cape May	North Wildwood City, Wildwood City, Wildwood Crest Borough,	Beachfill-Hydraulic	Initial Construction	Unavailable	\$21,600,000	65/35	75/25	Planned/ In Design

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
		Lower Township							
<b>Cape May Inlet to Lower Township Fourteenth Cycle of Periodic Nourishment</b>	Cape May	Cape May City	Beachfill-Hydraulic	Renourishment	Unavailable	\$25,400,000	TBD	TBD	Currently in Bid/Award Process
<b>Lower Cape May Meadows to Cape May Point Fifth Cycle of Periodic Nourishment</b>	Cape May	Cape May Point Borough, Cape May City	Beachfill-Hydraulic	Renourishment	Unavailable	TBD	TBD	TBD	Planned/ In Design
<b>Delaware Bay Coastline, Oakwood Beach Renourishment #1</b>	Salem	Elsinboro Township	Beachfill-Hydraulic	Renourishment	First cycle of renourishment	\$8,570,000	65/35	75/25	Planned/ In Design
<b>Heislerville Dike Berm Repair</b>	Cumberland	Maurice River Township	Beachfill-Hydraulic	Repair/Replace/Reconstruct	Beneficial reuse of dredge material by USACE and/or NJDOT. The USACE plans to pump beneficial reuse material from the mouth of the Maurice River into the Northwest Reach (the eroded marshes in front of the dike). Dredged material from	TBD	TBD	TBD	Planned/ In Design

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
					this project will be placed between the breakwaters (separate contract) and the dike. Vegetation will then be planted in the area to create the living shoreline.				

**Table X.X** *In Progress and Proposed Office of Coastal Engineering Led Projects*

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>Bay Point Shoreline Restoration</b>	Cumberland	Lawrence Township	Breakwater, Groin, Beachfill-Truckfill	Initial Construction, Repair/Replace/Reconstruct	Debris removal and shoreline stabilization to create habitat for horseshoe crab spawning and red knot foraging.	\$2,000,000	Varies	Varies	Planned/ In Design
<b>Higbee Beach Restoration Project</b>	Cape May	Lower Township	Wetland Restoration	Initial Construction	Reestablish self-sustaining tidal inundation to a portion of Pond Creek marsh and/or the Higbee Beach State Wildlife Management Area for the restoration (rehabilitation) and enhancement of the existing marsh habitat,	\$26,000,000	0/100	100/0	Planned/ In Design

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
					and the upland habitat on the former Harbison Walker Magnesite Plant.				
<b>REPI Island Beach State Park T-Groins and Living Shoreline</b>	Ocean	Berkeley Township	Living Shoreline, Groin	Initial Construction	This project consists of construction of T-groins, as well as living shoreline to reduce erosion to the kayak launch and surrounding area at IBSP.	\$750,000	100/0	0/0	Planned/ In Design
<b>Heislerville Dike Repair</b>	Cumberland	Maurice River Township	Dike	Repair/Replace/Reconstruct	Repair damage to dike from recent storm events.	\$657,758	75/25	100/0	Planned/ In Design
<b>Shark River Inlet Jetty Repair</b>	Monmouth	Avon-by-the-Sea Borough, Belmar Borough	Jetty	Repair/Replace/Reconstruct	Repair and reconstruction of Shark River Inlet north and south jetties.	\$5,000,000	75/25	100/0	Planned/ In Design
<b>North Wildwood Seawall Extension</b>	Cape May	North Wildwood City	Seawall	Initial Construction, Repair/Replace/Reconstruct	Construct a steel bulkhead between 5th and 7th Avenues; construct a vinyl bulkhead between 4th and 5th Avenues; construct a new seawall between 3rd and 7th Avenues; reinforce the existing USACE seawall between 2nd and 3rd avenues; construct a beach vehicle access drive at the end of 8th Avenue.	\$9,022,950	0/100	75/25	Planned/ In Design
<b>Holgate Terminal</b>	Ocean	Long Beach Township	Groin	Repair/Replace/Reconstruct	Reconstruct terminal groin with stone.	TBD	TBD	TBD	Planned/ In Design

Action Name	County	Municipality	Project Type	Work Type	Project Description	Cost	Federal/Non Federal Cost Share	State/Local Cost Share	Status
<b>Groin - Phase II</b>									

*Note: These projects have been incorporated into the NJ SHMP 2024 mitigation strategy*