APPENDIX D. 2024 SHMP MITIGATION ACTION PLAN

This appendix houses the 2024 SHMP Mitigation Action Plan. Each mitigation action included in the 2024 SHMP Mitigation Action Plan includes narrative to describe the problem and solution and identifies various information that will support the planned implementation of the hazard mitigation actions, including lead and supporting agencies, hazards of concern addressed, estimated cost, potential funding sources, timeline for implementation, association with NJSHMP 2024 goals, anticipated benefits, impact on socially vulnerable populations, impact on future development, impact on critical facilities, impact on hazard mitigation related capabilities, and how the action considers or addresses future conditions related to climate change. N/A (not applicable) is listed when the details associated with the action do not specifically apply to the impacts on socially vulnerable populations, impact on future development, impact on critical facilities, impact on hazard mitigation related capabilities, or how the action considers or addresses future conditions related to climate change.

NJSHMP Mitigation Strategy	
Action Name:	State of New Jersey Substantial Damage Management Strategy
Action Number:	2024-NJOEM-01
Lead Agency:	NJOEM
Supporting Agencies:	NJDCA, NJDEP
Hazard(s) of Concern:	All hazards
Description of the Problem:	Severe hazard events resulting in widespread substantial damages require coordinated efforts between State agencies. The State requires an established strategy to address substantial damage events to ensure all substantial damage determinations are conducted the same way across all agencies.
Description of the Solution:	NJOEM will develop a State of New Jersey substantial damage management strategy to coordinate efforts to address substantial damages between NJDCA, NJDEP, and NJOEM. This will include distribution of a Survey123 damage assessment form to provide to counties and municipalities following disaster events for consistent documentation.
Estimated Cost:	$150,000
Funding Sources:	HMGP BRIC
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years
Goals Met:	1, 3, 5
Benefits:	This action will establish a coordination between different State agencies on how to assess substantial damages and expedite the recovery process.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase disaster response and post-disaster capabilities.
Climate Change Considerations:	Climate change is likely to result in more severe weather-related events that may result in substantial damages. This action allows the State to have mechanisms in place to respond to these events.

NJSHMP Mitigation Strategy	
Action Name:	Local Substantial Damage Management Plan Template
Action Number:	2024-NJOEM-02
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	Local municipalities that participate in the NFIP are required to establish procedures to make necessary substantial damage determinations. Official substantial damage procedures are not well established at the municipal level in New Jersey.
Description of the Solution:	NJOEM will develop a substantial damage management plan template for local municipalities to use and encourage development of local substantial damage management plans.
Estimated Cost:	$150,000
Funding Sources:	HMGP BRIC
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 4
Benefits:	The action will allow local municipalities to develop substantial damage management plans.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase disaster response and post-disaster capabilities.
Climate Change Considerations:	Climate change is likely to result in more severe weather-related events that may result in substantial damages.

NJSHMP Mitigation Strategy	
Action Name:	Potential Substantial Damage Area Mapping
Action Number:	2024-NJOEM-03
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	There is a concern that there is an underreporting of substantial damages in New Jersey.
Description of the Solution:	To better understand where substantial damages have taken place or are likely to take place, substantial damage potential areas will be mapped based on the 500-year floodplain or the newly established NJDEP flood zone (BFE plus 2-3 that reaches about the 500-year floodplain) and elevation of structures within the floodplain area.
Estimated Cost:	$150,000
Funding Sources:	HMGP BRIC
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	Areas likely to experience substantial damages mapped to inform substantial damage management planning.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase disaster response and post-disaster capabilities.
Climate Change Considerations:	Climate change is likely to result in more severe weather-related events that may result in substantial damages.

NJSHMP Mitigation Strategy	
Action Name:	Wetland Restoration of Acquired Properties
Action Number:	2024-NJOEM-04
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Acquired properties have structures removed but natural floodplain function is often not restored. As mitigation of infrastructure takes place in low lying areas of the State, there is likely to be disturbance to wetlands that will result in need for wetlands mitigation banking.
Description of the Solution:	NJOEM will implement a program to restore floodplain functions of acquired properties. The ultimate goal is to restore functions to maximize ecosystem services. These areas will be restored to serve as wetland restoration and stream encroachment credits – remove fill, restore hydrology, remove invasive species, plant native vegetation, and restore natural wetlands. For infrastructure projects with unavoidable wetland impacts that need to offset the impacts, they can purchase credits from this mitigation bank, resulting in no net loss to the wetlands in New Jersey. NJOEM will spearhead a pilot program using NJOEM-owned properties. This will allow municipalities to see the program and follow the lead. Municipalities will become the 'bank' holders and part of the sale of land will be put back into funds for future mitigation projects, focusing on natural restoration. The overall benefits of this program include restored wetlands and floodplains, funding for future mitigation efforts, little to no loss tax base from acquired properties, more credits for CRS communities, and a more resilient New Jersey.
Estimated Cost:	High
Funding Sources:	Municipalities will become the 'bank' holders and part of the sale of land will be put back into funds for future mitigation projects, focusing on natural restoration. Blue Acres Program Open Space and Farmland Preservation Programs NJCF
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years. The program will be established and become an ongoing capability.
Goals Met:	1, 2, 3, 5
Benefits:	This action will result in natural floodplain function restoration.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	Future development will be prevented on acquired properties.
Impact on Critical Facilities:	N/A
Impact on Capabilities:	The establishment of the program will become an ongoing capability.
Climate Change Considerations:	Climate change is likely to increase flood risk, necessitating restoration of natural floodplain function.

NJSHMP Mitigation Strategy	
Action Name:	Establish Funding Partners in Natural Floodplain Restoration of Acquired Properties
Action Number:	2024-NJOEM-05
Lead Agency:	NJOEM
Supporting Agencies:	FEMA, NJDEP, other potential federal, state, NGO, academic, and private partners
Hazard(s) of Concern:	Flood
Description of the Problem:	FEMA acquired flood prone properties have structures removed but natural floodplain function is often not restored to the site. As mitigation of infrastructure takes place in low lying areas of the State, there is likely to be disturbance to wetlands that will result in need for wetlands mitigation banking. NJOEM plans to implement a program to marry these two problems to establish a banking program that will allow for acquired flood prone properties to have natural floodplain function restored using credits/funding from mitigation banking. These areas will be restored to serve as wetland restoration and stream encroachment credits – remove fill, restore hydrology, remove invasive species, plant native vegetation, and restore natural wetlands. For infrastructure projects with unavoidable wetland impacts that need to offset the impacts, they can purchase credits from this mitigation bank, resulting in no net loss to the wetlands in New Jersey.
Description of the Solution:	NJOEM will conduct outreach and discussions with federal, state, NGO, academic, and private partners to explore various banking options that would allow for the natural floodplain restoration of FEMA acquired flood prone properties. As opportunities are identified, NJOEM will lead discussions aimed at permanent establishment of funding mechanisms for a new mitigation banking program for natural floodplain restoration of acquired properties.
Estimated Cost:	High
Funding Sources:	NJOEM staff time will fund outreach efforts to FEMA, NJDEP, other potential federal, state, and private partners.
Implementation Timeline:	Short-Term—Implementation can begin within 1 year.
Goals Met:	1, 2, 3, 5
Benefits:	The ultimate goal is to restore functions to a level with no net losses and maximizes ecosystem services. This action will provide funding to support natural floodplain function restoration of acquired properties. The overall benefits of this program include restored wetlands and floodplains, funding for future mitigation efforts, little to no loss tax base from acquired properties, more credits for CRS communities, and a more resilient New Jersey.
Impact on Socially Vulnerable Populations:	This action could provide potential funding support for wetlands restoration work in and near overly burdened communities that would be less likely to receive restoration support.
Impact on Future Development:	This action will only support acquired flood prone properties which bar future development from taking place.
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase funding capabilities to support natural floodplain function restoration of acquired properties.
Climate Change Considerations:	Climate change is likely to increase flood risk, necessitating restoration of natural floodplain function.

NJSHMP Mitigation Strategy	
Action Name:	NJIT Technical Assistance
Action Number:	2024-NJOEM-06
Lead Agency:	NJOEM
Supporting Agencies:	NJIT
Hazard(s) of Concern:	All hazards
Description of the Problem:	There is a need for expansion of technical assistance offerings in the greater Newark region.
Description of the Solution:	NJOEM will work with NJIT to secure funding to expand technical assistance to be provided in the greater Newark region.
Estimated Cost:	Medium
Funding Sources:	NJOEM NJRA NJDCA
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 5, 7
Benefits:	This action will expand available technical assistance.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action expands technical assistance offerings in the greater Newark region.
Climate Change Considerations:	Technical assistance will include resilience and climate change considerations.

NJSHMP Mitigation Strategy	
Action Name:	GIS Based Monitoring System for Mitigation
Action Number:	2024-NJOEM-07
Lead Agency:	NJOEM
Supporting Agencies:	NJDEP, NJDCA, Governor's Disaster Recovery Office, Department of Transportation, New Jersey Office of the Attorney General
Hazard(s) of Concern:	All Hazards
Description of the Problem:	Tracking of mitigation efforts in New Jersey is necessary to coordinate mitigation implementation, identify mitigation gaps, and prevent duplicative efforts.
Description of the Solution:	Establish a GIS based monitoring system for mitigation to track known local, state, federal, and NGO/academia mitigation projects.
Estimated Cost:	$100,000
Funding Sources:	NJOEM HMGP BRIC N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	3, 5
Benefits:	The action will allow for consistent tracking of mitigation progress in the State.
Impact on Socially Vulnerable Populations:	The system will allow for mapping of mitigation progress which can be overlayed with social vulnerability mapping to identify gaps in support.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	The action will increase the State's capabilities for mitigation tracking and the State's mitigation planning maintenance activities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	LIDAR to Support Home Elevation Mitigation Planning
Action Number:	2024-NJOEM-08
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	While the State tracks HMA funded home elevations, data on home elevations that are funded by other funding sources, including by the homeowner, is not readily available.
Description of the Solution:	The State will analyze available LIDAR data to determine structures that have been elevated based on rooftop elevation changes.
Estimated Cost:	$150,000
Funding Sources:	HMGP BRIC NJOEM
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 4, 5
Benefits:	The action will identify progress in elevation of structures in floodplains and allow for awareness on remaining elevation needs in low lying areas.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	The action will increase the State's capability to plan for elevation needs.
Climate Change Considerations:	Sea level rise and increasing heavy precipitation events are resulting in increase frequency and severity of flooding events. This action will support continued efforts to reduce flood risk to structures in the floodplain.

NJSHMP Mitigation Strategy	
Action Name:	Develop Long-Term Critical Infrastructure Hierarchy
Action Number:	2024-NJOEM-09
Lead Agency:	NJOEM
Supporting Agencies:	NJDEP, NJDCA, Governor's Disaster Recovery Office, Department of Transportation, New Jersey Office of the Attorney General
Hazard(s) of Concern:	Flood
Description of the Problem:	Habitable structure in a risk prone area relies on infrastructure and other FEMA lifelines. Mitigation of certain infrastructure that provide access and services to high risk areas can result in unintended consequences. Property owners may feel they are better protected and be less inclined to consider mitigation options such as elevations and buyouts in communities that are likely to see increasing risks due to climate change. Benefits need to justify the investment and be at the community level (as opposed to individual structures) to prevent overinvestment of infrastructure not informed by long-term risk.
Description of the Solution:	NJOEM will develop a hierarchy of criticality of infrastructure support to prevent perverse incentives of mitigation efforts. Before investing in infrastructure and FEMA lifelines, NJOEM will use the hierarchy as a base of developing a high level of understanding of the interrelationships and costs associated with the long-term maintenance of structures, critical infrastructure, and lifelines in floodprone areas.
Estimated Cost:	Low
Funding Sources:	NJOEM
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 4, 5
Benefits:	The action will inform proper investment in flood mitigation that provides long term benefits.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	Investments in mitigation of critical infrastructure will guide future development practices.
Impact on Critical Facilities:	This action will inform investments in mitigation of critical infrastructure and lifelines.
Impact on Capabilities:	This action will guide investments.
Climate Change Considerations:	Increasing risk from severe weather and flooding due to climate change requires mitigation investments based on long-term forecasts.

NJSHMP Mitigation Strategy	
Action Name:	Temporary Housing Location Guidance
Action Number:	2024-NJOEM-10
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	Temporary housing locations are not consistently identified throughout the State. Temporary housing is needed to provide long term housing
Description of the Solution:	NJOEM will develop guidance for counties to identify potential locations for temporary housing.
Estimated Cost:	$10,000
Funding Sources:	NJOEM NJDCA NJ Small Cities Communities Development Block Grants
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 5, 6, 7
Benefits:	The action will result in the establishment of guidance for counties to use in identifying temporary housing locations.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often the first to need sheltering and temporary housing following a hazard event. This action will result in establishment of temporary housing opportunities for these populations.
Impact on Future Development:	N/a
Impact on Critical Facilities:	Facilities and locations that can provide temporary housing will be identified and determined to be critical.
Impact on Capabilities:	This action increases post-disaster capabilities.
Climate Change Considerations:	Climate change is likely to increase the severity of some weather events, resulting in increased damage to residential structures that necessitates use of temporary housing.

NJSHMP Mitigation Strategy	
Action Name:	Disaster Recovery Center Guidance
Action Number:	2024-NJOEM-11
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	FEMA is requesting the establishment of disaster recovery centers in each county for deployment. Counties require guidance on the selection of these disaster recovery centers.
Description of the Solution:	NJOEM will work with counties to provide guidance on designated sites for disaster recovery centers.
Estimated Cost:	$10,000
Funding Sources:	NJOEM
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3,5 6
Benefits:	This action will provide counties with guidance to establish disaster recovery centers.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations are often the first to need disaster recovery support following a hazard event. This action will result in establishment of disaster recovery centers to serve these populations.
Impact on Future Development:	N/a
Impact on Critical Facilities:	Facilities and locations that will serve as disaster recovery centers will be identified and determined to be critical.
Impact on Capabilities:	This action increases post-disaster capabilities.
Climate Change Considerations:	Climate change is likely to increase the severity of some weather events, resulting in increased need for disaster recovery support centers.

NJSHMP Mitigation Strategy	
Action Name:	Academic Partnerships for Technical Assistance
Action Number:	2024-NJOEM-12
Lead Agency:	NJOEM
Supporting Agencies:	Academic partners
Hazard(s) of Concern:	All hazards
Description of the Problem:	Capacity and technical development is lacking statewide in the realm of hazard mitigation project scoping and application development.
Description of the Solution:	NJOEM will seek out and enter into strategic partnerships with academic partners to develop capacity to assist underserved municipalities in the scoping, application process for funding support, and implementation of hazard mitigation projects.
Estimated Cost:	$200,000
Funding Sources:	NJOEM NJDCA NJ Small Cities Communities Development Block Grants
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 5, 7
Benefits:	This action will result in stronger hazard mitigation development and successful implementation in underserved municipalities.
Impact on Socially Vulnerable Populations:	This action will result in capacity building for underserved municipalities.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will provide capacity and technical development for scoping and application developments by municipalities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Improved Flood Risk Communication
Action Number:	2024-NJOEM-13
Lead Agency:	NJOEM
Supporting Agencies:	NJDEP, NJDCA
Hazard(s) of Concern:	Flood
Description of the Problem:	As flood risk increases in the State, expanding flood outreach efforts are needed.
Description of the Solution:	NJOEM will increase flood outreach efforts through data distribution, development of GIS data sets, signage, media, and integration of outreach requirements within local hazard mitigation planning
Estimated Cost:	Low
Funding Sources:	NJOEM N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	3, 4, 5
Benefits:	This action will result in a better informed, more risk aware public that will make better decisions regarding flood risk.
Impact on Socially Vulnerable Populations:	This action will include outreach to socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase NJOEM's outreach capabilities.
Climate Change Considerations:	This action will include outreach regarding changes in flood risk due to climate change.

NJSHMP Mitigation Strategy	
Action Name:	Continue to Develop GIS Program and Web Based Tools for Incorporation into Planning
Action Number:	2024-NJOEM-14
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	The hazard mitigation action development, BCA development, and funding application process often exceeds the capabilities of some State and local mitigation partners, preventing the development and implementation of important mitigation actions that could reduce risk in the State.
Description of the Solution:	NJOEM will further develop existing GIS based data to include decision support tools for application and BCA support, with the intent of supporting hazard mitigation planning, project scoping, application development, and broad coordination between State and local partners.
Estimated Cost:	$100,000
Funding Sources:	NJOEM NJDCA
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 4, 5
Benefits:	This action will build capacity for hazard mitigation planning and lead to greater success in funding applications and implementation of mitigation actions.
Impact on Socially Vulnerable Populations:	This action will build hazard mitigation action development and application process capacity for underserved municipalities.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will build hazard mitigation action development and application process capacity for municipalities throughout the State.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	State Police Facility Retrofits and Mitigation
Action Number:	2024-NJOEM-15
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	State facilities within the Division of State Police face natural hazards and resilience challenges.
Description of the Solution:	A survey of State Police facilities will be conducted to determine needs not identified through the risk assessment. NJOEM will acquire funding to mitigate risks to State Police facilities and oversee implementation of mitigation efforts.
Estimated Cost:	High
Funding Sources:	NJOEM HMGP BRIC PDM NJDCA
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action will ensure continuity of operations and limit disruption of services/capabilities.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	State Police facilities will be mitigated.
Impact on Capabilities:	The action will limit disruption of important capabilities and services during and after hazard events.
Climate Change Considerations:	Protections for facilities will be designed to account for changes in frequency/severity due to climate change.

NJSHMP Mitigation Strategy	
Action Name:	Plan Maintenance Training Courses
Action Number:	2024-NJOEM-16
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All hazards
Description of the Problem:	Plan maintenance of county led local hazard mitigation plans sometimes falls below expectations. Counties require training on best management practices for plan maintenance to make sure that this important part of the hazard mitigation process is carried out.
Description of the Solution:	NJOEM will encourage greater active county involvement in plan updates and local project development through establishing "Plan Update" training courses to assist counties in fulfilling the plan maintenance sections of their plans. This action will be incorporated in pending Local Plan Guidance that is currently in development at the time of this plan update.
Estimated Cost:	High (> $100,000)
Funding Sources:	Existing NJOEM Resources
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	3, 4, 5
Benefits:	This action will result in a greater degree of coordination between state, county, and local emergency managers in plan maintenance. The action advances the goal of full awareness of all hazards on all levels (> $100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/a
Impact on Capabilities:	This action will result in an increase in county capabilities to effectively carry out plan maintenance procedures for local plans.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Annual FEMA HMA Workshops
Action Number:	2024-NJOEM-17
Lead Agency:	NJOEM
Supporting Agencies:	NJIT
Hazard(s) of Concern:	All hazards
Description of the Problem:	Increased outreach and education on the concepts of hazard mitigation are needed for municipal and county officials, citizens, and law and policymakers to build support and participation for hazard mitigation planning and implementation.
Description of the Solution:	NJOEM will conduct yearly workshops related to FEMA hazard mitigation grant programs. NJOEM has made outreach progress recently 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.
Estimated Cost:	High (> $100,000)
Funding Sources:	Existing NJOEM resources and NJSP Public Information Office. NJDEP Grant and Loan Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4, 5
Benefits:	This action advances all of the goals of the plan by increasing preparedness and knowledge of municipal and county officials, citizens, and law and policymakers.
Impact on Socially Vulnerable Populations:	This action will result in educational support for underserved municipalities.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase NJOEM's outreach capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Repetitive Loss Mitigation
Action Number:	2024-NJOEM-18
Lead Agency:	NJOEM
Supporting Agencies:	NJDEP, NJDCA, GDRO
Hazard(s) of Concern:	Flood
Description of the Problem:	The State of New Jersey has high flood risk. Extensive development in floodplains and increasing frequency of flooding events has resulted in repeated flood damages and the thousands of repetitive loss properties. As of June 2023, the State had over 17,000 NFIP repetitive loss properties and 3,800 severe repetitive loss properties. Nearly 3,000 of these properties have been mitigated but much work remains to reduce flood risk to the State's most vulnerable structure. Mitigation of properties must be strategic and ensure that investments are aligned with long term plans for sustainable communities. Coordination of repetitive loss mitigation investments among State agencies is needed to provide for collaboration, community-based mitigation approaches, and prevent perverse mitigation investments that increase long term exposure to risk.
Description of the Solution:	NJOEM will coordinate repetitive loss mitigation efforts by State agencies that have historically participated in the mitigation of repetitive loss properties including NJDEP and NJDCA, and will coordinate with NJOEM. NJOEM will lead outreach efforts to county and local governments to identify repetitive loss areas in need for mitigation investments. The State will promote acquisition and elevation of repetitive loss structures through community partnerships and outreach through organizations and non-profits such as the New Jersey League of municipalities. As areas are identified, NJOEM will maintain an inventory of repetitive loss properties targeted for mitigation. The State will use a community-based approach to mitigation to identify whether elevation or acquisition is the best approach for each individual property for the long-term protection of communities from evolving flood risks. Elevations will meet State height requirements for new construction. Acquisitions will result in removal of structures and the return of lots to a natural state that encourages natural floodplain function and natural flood storage.
Estimated Cost:	High (> $100,000)
Funding Sources:	FMA HMGP BRIC PDM Open Space and Farmland Preservation Programs NJRA NJCF CDBG-DR New Jersey Department of Community Affairs Green Acres Program Blue Acres Program Open Space and Farmland Preservation Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. Implementation will be a ongoing effort.
Goals Met:	1, 2, 3
Benefits:	Elevated structures will have flood risk greatly reduced. The acquisition of large tracts of land vulnerable to flooding-related hazards prevents impacts to life and property and encourages cost-effective and environmentally-sound land use that reduces losses from flood- related hazards. High (> $100,000)
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A

NJSHMP Mitigation Strategy	
Impact on Critical Facilities:	This action will reduce the need for emergency response and recovery due to flood damages..
Impact on Capabilities:	This action will result in the coordination and strengthening of the State's repetitive loss mitigation capabilities.
Climate Change Considerations:	This action will consider long-term flood risk changes to select appropriate mitigation actions.

NJSHMP Mitigation Strategy	
Action Name:	Hazard Event GIS Database
Action Number:	2024-NJOEM-19
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	All Hazards
Description of the Problem:	The current NJOEM GIS database to capture and organize the volume of information generated by research of the best available science and records of hazard events needs to be expanded.
Description of the Solution:	NJOEM will develop a hazard event GIS database to help State and local emergency managers with hazard mitigation and other planning initiatives. This will include a comprehensive ESRI dashboard system to aid in all phases of hazard mitigation.
Estimated Cost:	High (> $100,000)
Funding Sources:	NJOEM HMGP BRIC
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 4, 5
Benefits:	This action will improve knowledge of hazards and hazard events, improving mitigation and other planning designs to reduce the impact of hazard events on the State and local economies. (> $100,000)
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action will provide valuable GIS data to guide future development decisions.
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will improve hazard mitigation planning capabilities in the State
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Critical State Facilities Wind Retrofits
Action Number:	2024-NJOEM-20
Lead Agency:	NJOEM
Supporting Agencies:	
Hazard(s) of Concern:	Severe Weather, Hurricane/Nor'easter/Tropical Storm
Description of the Problem:	A recent increase in tornadic events has elevated concerns that critical state facilities may be at risk for damage in severe wind and tornadic events.
Description of the Solution:	NJOEM will oversee cost-effective wind retrofits and upgrades of the most critical state facilities.
Estimated Cost:	High (> $100,000)
Funding Sources:	HMGP BRIC PDM NJ Small Cities Communities Development Block Grants
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action protects key State resources, resulting in the protection of lives, property, and essential State functions (> $100,000).
Impact on Socially Vulnerable Populations:	This action will help protect critical facilities that provide services for socially vulnerable populations.
Impact on Future Development:	N/a
Impact on Critical Facilities:	This action will protect the most critical state facilities.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action accounts for potential increases in severity of severe wind events that may be driven by climate change.

NJSHMP Mitigation Strategy	
Action Name:	Incorporate Dialysis Needs into Emergency Shelter Planning
Action Number:	2024-NJOEM-21
Lead Agency:	NJOEM
Supporting Agencies:	Department of Health
Hazard(s) of Concern:	All Hazards
Description of the Problem:	The coronavirus pandemic resulted in a greater shift towards the use of at-home dialysis treatment. Instead of individuals traveling to medical facilities, dialysis is often able to be administered at home. This has increased the ease of dialysis treatment but also increased the risk to the population that is reliant on dialysis. Current emergency shelter planning is unlikely to account for the needs for space and power requirements of at-home dialysis patients.
Description of the Solution:	NJOEM will work with the Department of Health to determine the changes necessary in emergency sheltering planning to account for the evolving need of at-home dialysis treatment. NJOEM will use this analysis to update emergency sheltering guidance.
Estimated Cost:	Staff time
Funding Sources:	Operating budgets
Implementation Timeline:	Medium-Term—Implementation can begin within 1-2 years.
Goals Met:	1
Benefits:	Emergency sheltering planning will expand to include guidance on dialysis needs to ensure individuals using at-home dialysis will have medical needs met in an emergency sheltering situation.
Impact on Socially Vulnerable Populations:	Individuals on dialysis are a socially vulnerable population. This action will increase the emergency sheltering support for these populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will provide guidance on identification, stocking, and upkeep of emergency shelters.
Impact on Capabilities:	This action will increase emergency sheltering planning capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	All Hazards Risk Assessment for Emergency Management Operations
Action Number:	2024-NJTransit-01
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure, Drought, Earthquake, Extreme Temperatures, Flood, Geological Hazards, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildlife, Civil Unrest, Economic Collapse, Hazardous Substances, Power Failure, Terrorism
Description of the Problem:	Public transportation systems are a highly visible, heavily trafficked public spaces that power local and regional economies. When damaged by natural or man-made disasters, outages have a significant economic, public health, and public safety implications for the populations that depend on the system. Further, due to their high passenger volumes and economic implications, public transit systems are prime targets for terrorist attacks.
Description of the Solution:	NJ Transit is procuring an All-Hazards Risk Assessment to evaluate potential man-made and natural hazards across the transit system. This comprehensive assessment would build upon the 2014 Terrorism Risk study to identify and prioritize current risks, which identified threats and cost benefit analysis to remedy those threats and mitigate risks. The Assessment would include, but is not limited to, studying terrorist threats (bombings, shootings, arson/fire), power outages, grid disruptions, and damage to or failure of critical infrastructure. It would also evaluate operations-related vulnerability to natural hazards such as hurricanes, earthquakes, severe weather, flooding, landslides, and other events. The goal of the assessment is to inform risk management and future decision making.
Estimated Cost:	$1.25 million
Funding Sources:	State Funds (Transportation Trust Fund) NJDOT Local Aid and Economic Development NJ Turnpike Authority: Capital Program NJTIB
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 5, 6
Benefits:	Strengthened continuity of operations, strengthened public safety. Operational preparedness efforts will include expanded emergency training, contingency planning, and weather scenario procedures. The risk assessment will inform strategic investments to build an all-hazards resilient transit system. It will provide NJ Transit as a whole agency with awareness and analysis of all-hazard vulnerabilities, allowing the agency to respond to, plan for, and mitigate those risks. The process will also provide NJ TRANSIT with a method to analyze the cost benefits of mitigation versus accepting certain risks through an evaluation of these hazards and associated NJ TRANSIT assets and locations. Ultimately, improvements to facilities, operations and infrastructure are the anticipated goals and outcomes of the project. All these outcomes will enhance safety to the general commuting public through the knowledge and improvements.
Impact on Socially Vulnerable Populations:	As a service-wide analysis, the Assessment will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	The assessment will provide insight on all areas / regions NJ Transit services, including those under intense development pressure.
Impact on Critical Facilities:	The goal of the assessment is to inform risk management and future decision making. Consequently, this action will reduce risk for the critical facilities and services the New York Metro area depends on.
Impact on Capabilities:	This action increases capabilities and capacity for risk reduction in New Jersey. It supports both pre- and post-disaster capabilities.
Climate Change Considerations:	This action will consider how future weather patterns and events will change due to climate change, and how this might impact NJ Transit's emergency operations.

NJSHMP Mitigation Strategy	
Action Name:	Develop and Implement Agency-Wide Climate Change Adaptation, Resiliency, and Mitigation Guidance, Policies, and Strategies
Action Number:	2024-NJTransit-02
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Geological Hazards, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	Historically, much of NJ Transit infrastructure was constructed to maximize the efficiency of operations, and to minimize the grades encountered by trains. Therefore, much of the infrastructure and right-of-way is located adjacent to waterways and in low-lying areas. To date, NJ Transit has implemented climate resiliency and adaptation measures on a piecemeal, project-specific basis. However, this approach leaves much of NJ Transit's services vulnerable to climate change impacts. To protect its assets and infrastructure long-term, the Agency needs a holistic, science-driven resiliency strategy to guide its service, operations, and capital investment decisions. Further, to ensure capital investments remain safe and reliable long-term, NJ Transit staff must build "climate literacy" to ensure all decisions incorporate future climate conditions and projections.
Description of the Solution:	NJ Transit (NJT) will establish standards, processes, and guidance to institutionalize climate change adaptation and resiliency measures in all decision-making across the Agency. NJT will leverage its relationships with academic partners, non-profit organizations, local stakeholders, and subject-matter experts to develop processes to assess NJT assets' exposure to various climate change impacts, quantify risk and vulnerability, and develop strategies that reduce and/or mitigate anticipated impacts. Activities encompassed in this Action may include but are not limited to: creating Agency-wide climate resiliency and adaptation plans; resiliency design guidelines development; drafting regulations, plans, and policies that reduce identified risks; creating climate change impact-related educational programs and trainings for employees; etc.
Estimated Cost:	Project-dependent cost, can range from $500,000 for an overarching resiliency study to $3 million for risk identification tools or educational programs.
Funding Sources:	FEMA BRIC NOAA NJTIB NJDOT Local Aid and Economic Development
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 4
Benefits:	Overarching resiliency guidance documents, standards, and plans will provide a consistent reference for NJ Transit staff and consultants. It will create organizational consistency in project development, ensuring all capital investments account for climate change impacts.
Impact on Socially Vulnerable Populations:	Solutions and strategies may be applied across NJ Transit's system. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk to public transportation services.
Impact on Capabilities:	This action will support both pre- and post-disaster capabilities.
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available.

NJSHMP Mitigation Strategy	
Action Name:	Conduct Regional/Service-Based Climate Change Impact & Resiliency Studies, and Develop Resiliency Investment Plans
Action Number:	2024-NJTransit-03
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Geological Hazards, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	Since 2019, extreme weather vulnerability and risk assessments have been conducted on a project-specific basis. However, the rail, bus, and surface transit networks NJ Transit operates are not isolated projects—they are complex, interconnected systems that can be affected by small issues impacting a single site. To date, NJ Transit has not had capacity to evaluate long-term weather- and climate-related risks on a systematic, service-wide scale across its full transportation network. This understanding is critical to addressing vulnerabilities to future weather events, extreme storms, and intermittent and gradual climate change-related impacts.
Description of the Solution:	To enhance resilience, New Jersey Transit will conduct systematic resiliency studies to study extreme weather and climate change impacts on service infrastructure and facilities over short- and long-term planning horizons. Assessments will identify current and future risks, vulnerabilities, and consequences of climate hazards; evaluate exposure to each risk; and then quantify or measure vulnerability to these risks. The Scope of each study will be based upon available funding and agency needs and may be focused on individual lines or summations of regions. Regardless of scale, each study will be structured to: evaluate existing conditions; identify climate change exposure, risks, and vulnerabilities based on sea level rise, precipitation, and heat projections; and identify and propose capital improvements, policies, and other strategies that can mitigate and/or reduce identified risks and impacts with a focus on natural/nature-based or green infrastructure mitigation strategies. These studies may also identify potential funding opportunities to finance proposed adaptation and mitigation efforts. In addition, these studies will evaluate how socially vulnerable populations and ecologically sensitive areas may be affected by climate impacts and potential mitigation strategies. Thorough climate impact analysis will allow New Jersey Transit to pinpoint vulnerabilities across its transit systems and develop targeted strategies to prepare for future challenges. This Action may include but is not limited to: regional bus garage resiliency assessments; commuter rail line-specific and location-specific resiliency studies; power infrastructure network resiliency assessments; flood modeling of flood-prone rail alignments and stations; site-specific solar PV feasibility studies; service-specific resiliency investment plans; etc.
Estimated Cost:	$2 million per commuter rail line (NJ Transit has 11 lines), $2 million per bus operations regions (NJ TRANSIT has 3 regions that utilize over 16 facilities), $1 million per light rail line (NJ TRANSIT has 3 Light Rail Systems).
Funding Sources:	HMGP FMA BRIC USDOT NJ Turnpike Authority: Capital Program NJDOT Local Aid and Economic Development NJTIB
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 3, 4, 5, 7
Benefits:	Improved management of life-cycle costs/capital improvement budgets.
Impact on Socially Vulnerable Populations:	NJ Transit's transportation network serves underserved and socially vulnerable communities in New Jersey, New York, and Pennsylvania. These resiliency studies will provide a holistic understanding of how these communities may be impacted by climate change-related public transit disruptions in mid- and long-term planning horizons.
Impact on Future Development:	This action will identify opportunities to reduce risk for areas under intense development pressures. It will allow for NJ Transit to identify system vulnerabilities that would amplify under increased demand for public transportation. Additionally, this action will identify funding gaps and opportunities NJ Transit can utilize to address identified needs.

Impact on Critical Facilities:	The studies will identify opportunities to reduce risk for critical facilities and community lifelines, as well as identify funding needs by identifying system vulnerabilities. This information will tell NJ Transit what investments need to be made to address those vulnerabilities.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will consider future conditions associated with climate change. Studies will evaluate both current and future conditions (under IPCC Moderate- to High-emissions scenarios) in 2050, 2070, and 2100.

NJSHMP Mitigation Strategy	
Action Name:	Research, Evaluate, and Update Design Standards and Guidance to Account for Anticipated Climate Change Impacts and Risks
Action Number:	2024-NJTransit-04
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Geological Hazards, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	Since the 2019 update, storm, flood, and climate models have changed as scientists' understanding of climate change impacts have evolved. Additionally, changes in human behavior since the Paris Climate Agreement have changed the trajectory of future greenhouse gas emissions. As a result, Design Flood Elevation standards, storm-resistant design standards, heat-mitigation standards, and other design standards are changing and will need to continue to change. To protect critical infrastructure, it is vital that NJ Transit update its design standards and guidelines to accommodate changing impacts.
Description of the Solution:	Research, evaluate, and update NJ Transit's building and infrastructure design guidelines and standards based on the most recent and accurate sea level rise projections, storm surge estimates, climate models, and other related environmental data or projections available, and provide options for safe havens as needed. Standard/guideline updates will also account for findings from NJ Transit's system/service-specific resiliency studies and risk assessments. Standards/guidelines evaluated and updated may include but are not limited to Design Flood Elevation (D.F.E.), storm-resistant design standards, hurricane-resistant standards, heat-mitigation standards, energy efficiency standards, and other infrastructure-related design standards.
Estimated Cost:	$1 million
Funding Sources:	FEMA USDOT NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 3, 4, 5
Benefits:	Flexible design guidelines that integrate evolving climate projections will guide engineers, architects, planners, project managers, and other professionals designing and building capital improvements. This guidance will ensure all capital investments withstand future flooding, heat events, more frequent and intense precipitation, and other climate impacts. These guidelines will ensure the system's long-term resiliency as climate change impacts escalate across the region. Adapting facilities and infrastructure to intensifying risks advances New Jersey Transit's mission of providing the community with safe, reliable transportation despite climate change impacts.
Impact on Socially Vulnerable Populations:	These standards must apply to facilities and assets system wide. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This Action will reduce climate-related risks such as flooding, track buckling, catenary line damage, and storm damage to key transit facilities, assets, and infrastructure.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available.

NJSHMP Mitigation Strategy	
Action Name:	Explore, Identify, and Implement Innovative Technologies to Adapt to or Mitigate Climate Change Impacts
Action Number:	2024-NJTransit-05
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Geological Hazards, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	New solutions and technologies that address flood exposure, corrosion, debris impacts, malfunctions, and drainage limitations are constantly being developed. Further, technology advances in climate mitigation strategies like carbon capture and sequestration, bioretention practices, storm monitoring, and solar PV systems have proven to be more efficient and cost-effective than older technologies and strategies.
Description of the Solution:	Research, identify, and apply innovative technologies, policies, and strategies into NJ Transit systems, services, and infrastructure to adapt to or mitigate climate change impacts. NJ Transit will leverage its relationships with academic partners, non-profit organizations, local stakeholders, and subject-matter experts to research and identify these innovative practices and implement them as necessary. Strategies included in this Action may include but are not limited to: installing flood and/or heat sensors at stations, MOWs, yards, and critical facilities to monitor flooding and/or extreme heat; expanding existing storm surge early warning systems and flood dashboards to additional facilities throughout NJ Transit systems; installing high-efficiency solar photovoltaic systems on bus facilities; developing risk-identification tools and datasets; piloting drone-based vegetation monitoring processes to identify dead or dying trees along rights-of-way; etc.
Estimated Cost:	Project-dependent cost, can range from $500,000 to $3 million.
Funding Sources:	FEMA BRIC NOAA NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 5, 6
Benefits:	Technology improvements and new, innovative strategies may prove to be more effective, long-term sustainable solutions than those NJ Transit currently employs. Identifying and implementing these technologies and strategies will allow NJ Transit's capital investments to become more efficient, sustainable, and cost-effective long-term.
Impact on Socially Vulnerable Populations:	Solutions and strategies may be applied across NJ Transit's system. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk to public transportation services.
Impact on Capabilities:	This action will support both pre- and post-disaster capabilities.
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available.

NJSHMP Mitigation Strategy	
Action Name:	Implement Green, Gray, and Hybrid Infrastructure Resiliency Strategies to Protect Capital Assets
Action Number:	2024-NJTransit-06
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	Climate change threatens NJ TRANSIT operations through extreme events and gradual impacts, which damage infrastructure, disrupt service, and undermine reliability. Risks include flooding, storm surge, extreme heat, wildfires, and high winds. Without adaptation and resiliency measures, these impacts may intensify with accelerating climate change. Climate adaptation planning, hazard mitigation upgrades, and increased infrastructure hardening can bolster NJ TRANSIT's climate preparedness and ability to provide reliable transportation despite rising threats.
Description of the Solution:	Identify, design, and implement green, gray, and hybrid capital improvements across NJ TRANSIT facilities and infrastructure that can mitigate intermittent and gradual climate change impacts, while allowing uninterrupted continuity in operations. These "gray" and "green" infrastructure investments will protect infrastructure, ensure service continuity, minimize passenger disruptions, and reduce post-disaster costs. Potential solutions involved in this Action may include but are not limited to: improving stormwater drainage system capacity; installing/upgrading stormwater pumping stations; installing new floodwalls, small berms, or barriers; building bioswales, rain gardens, and green strips to absorb stormwater and reduce stormwater runoff; retrofitting culverts and updating storm drainage systems; updating catenary, signal, and track systems; replacing railroad bridges; modernizing rail stations, bus shelters and facilities for customer safety and comfort; stabilizing erosion areas using sloping or grading using a combination of riprap boulders, geotextile fabric, and vegetation; etc.
Estimated Cost:	Project-dependent cost, can range from $200,000 to $1 billion+
Funding Sources:	HMGP FMA BRIC EPA USDA NOAA USDOT NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program Environmental Infrastructure Financing Program NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	2, 4, 6
Benefits:	Making these critical infrastructure investments will enhance the system's ability to withstand gradual and intermittent climate change impacts, ensuring long-term continuity of operations. Overall, enhancing NJ Transit's ability to operate continuously through gradual climate change impacts will allow NJ TRANSIT to uphold its duties around safety, reliability, fiscal responsibility, and mobility provision despite escalating climate disruptions now and in the future.
Impact on Socially Vulnerable Populations:	These site-specific investments will be made system wide. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	These investments will reduce risk for areas under intense development pressures.
Impact on Critical Facilities:	As site-specific and regional physical investments are developed and built, these investments will reduce risk for critical facilities/community lifelines, including rail yards, bus depots, rail alignments, transit corridors and ROWs, stations, parking lots, transit hubs, substations, power infrastructure, bridges, and other critical facilities.

Impact on Capabilities:	This action will increase capabilities/capacity for risk reduction in the State by ensuring fortified components of the system withstand stressors imposed by gradual and intermittent climate events. This will help post- disaster operations begin sooner to get transit systems up and running faster after disaster strikes.
Climate Change Considerations:	The action will consider climate change conditions as all future design and construction activities will be designed based on the most up-to-date climate projections (flood, precipitation, sea level rise, heat, etc.)

NJSHMP Mitigation Strategy	
Action Name:	Implement Natural Infrastructure to Protect Capital Assets and Restore Environments
Action Number:	2024-NJTransit-07
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Power Failure
Description of the Problem:	Nature and "nature-based infrastructure" (also referred to as "low-impact development") can protect critical infrastructure, while also providing vital habitats, environmental services, wetlands, riparian buffers, floodplain protection, and other ecosystem services. Nature-based investments like wetland restoration, native plantings, and reforestation offer infrastructure protection abilities, while also restoring habitats, reducing heat and greenhouse gas emissions, mitigating flood risks, and lessening environmental justice gaps.
Description of the Solution:	Research, identify, and, as applicable, implement nature-based climate adaptation strategies to protect NJ Transit assets, facilities, and infrastructure. Potential solutions included in this Action may include but are not limited to: enhancing landscaping and design measures to incorporate native plant species; utilizing drought-tolerate landscape design; stabilizing erosion hazard areas by planting vegetation on slopes; tree trimming, removal, and prevention in areas with overhead catenary wire or signal power lines; protecting and restoring natural flood hazard mitigation features and natural buffers; preserving floodplains as open space; creating reforestation/planting programs to prevent tall tree growth directly along transit corridors; creating tree reforestation programs to replace trees removed from the ROW; upgrading bus facilities with water catchment basins; etc.
Estimated Cost:	Project-dependent cost, can range from $500,000 to $55 million depending on size and scale of project.
Funding Sources:	FEMA USDOT NJTIB NJDEP Natural Climate Solutions grant program NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program Environmental Infrastructure Financing Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2
Benefits:	Nature-based infrastructure provides key protective benefits for physical infrastructure, while also mitigating climate change impacts for surrounding communities. Strategies like wetland restoration, native plantings, and reforestation offer infrastructure protection, while also restoring habitats and biodiversity, reducing greenhouse gas emissions, sequestering carbon, mitigating flood risks, and lessening environmental justice gaps. In addition, these solutions often improve public health by reducing sensible heat, filtering air pollutants, and improving air quality. These approaches can buffer communities from climate impacts by absorbing stormwater, mitigating heat, filtering air pollutants, and sequestering carbon.
Impact on Socially Vulnerable Populations:	These site-specific investments will be made system wide. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk for key transit facilities such as rail stations in floodplains, bus depots with large parking lots, coastal rail lines, urban transit hubs, aging waterway bridges, rail yards, bus stops in underserved areas, ROW, and power substations.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available during the full project design and development

	lifecycle. These investments will also be informed by plant hardiness zone maps, tree selection guidelines, and other landscape resources that may change as climate factors shift.

NJSHMP Mitigation Strategy	
Action Name:	Elevate or Retrofit Structures and Utilities based on Updated Guidance
Action Number:	2024-NJTransit-08
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane and Tropical Storm, Nor'easters, Severe Weather, Severe Winter Weather
Description of the Problem:	Significant portions of NJ Transit's facilities, alignments, ROWs, and other key assets are vulnerable to coastal, riverine, nuisance, and stormwater flooding, which endangers assets, strains budgets from repairs, disrupts service, risks public safety, and requires extensive post-storm recovery efforts. In addition, areas that have not historically flooded will experience new flooding as rainfall volumes increase, storms become more frequent and intense, and sea levels continue to rise. In some instances, it is most practical and cost-effective to raise flood-prone critical infrastructure to protect it from flooding. Since the 2019 Hazard Mitigation Plan update, NJ Transit has applied flood mitigation measures on a project-specific basis.
Description of the Solution:	Elevate or retrofit structures and utilities that can be elevated based on updated Design Flood Guidance to reduce flood risk to infrastructure in a manner that allows for continuity in operations. Solutions may include but are not limited to: raising tracks; elevating the flood-prone portion of a building; elevating a building boiler; add additional elevation for freeboard as needed based on storm surge/coastal flooding models; etc.
Estimated Cost:	Project-dependent cost, can range from $500,000 to $10 million.
Funding Sources:	NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program Coastal Engineering and Restoration Projects
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	Elevating and/or retrofitting key structures and assets floodproofs this infrastructure from potential inundation during high-water events. This advances NJ Transit's mission of providing safe and reliable travel for all customers. These investments will minimize disruptions, water damage, and costly repairs to constrained yet essential assets as climate change exacerbates flooding across the region.
Impact on Socially Vulnerable Populations:	These site-specific investments will be made system wide. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk for flood prone critical equipment and sites.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available throughout project design and construction/implementation efforts.

NJSHMP Mitigation Strategy	
Action Name:	Wet and Dry Floodproofing Investments
Action Number:	2024-NJTransit-09
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane and Tropical Storm, Nor'easters, Severe Weather, Severe Winter Weather
Description of the Problem:	Significant portions of NJ Transit's facilities, alignments, ROWs, and other key assets are vulnerable to coastal, riverine, nuisance, and stormwater flooding, which endangers assets, strains budgets from repairs, disrupts service, risks public safety, and requires extensive post-storm cleanup. In some cases, infrastructure is movable and can be relocated or elevated. However, there also many cases where it is not possible or cost-effective to elevate, move, or relocate critical assets and infrastructure.
Description of the Solution:	Where elevation or relocation is not practical or feasible, implement site-specific wet and dry floodproofing techniques to enhance resilience along coastal, riverine, and stormwater flood-prone areas especially exposed to intensifying flood risks driven by climate change. Solutions may include but are not limited to: dry floodproofing structures by strengthening walls, sealing openings, or using waterproof compounds or plastic sheeting on walls to keep water out; using water-resistant paints or other materials to allow for easy cleanup after floodwater exposure; installing flood barricades, flood walls, pumping stations, and stormwater storage/retention basins in a manner that does not hinder present or future operations; etc.
Estimated Cost:	Project-dependent cost, can range from $10 million to $27 million.
Funding Sources:	FEMA USDOT NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program Coastal Engineering and Restoration Projects
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 4
Benefits:	Adapting vulnerable infrastructure through floodproofing safeguards transit operations during flooding and ensures the continuity of operations post-hazard-event. This targeted approach to risk reduction will allow NJ Transit to provide continuous, reliable, and safe transportation that withstands climate change impacts.
Impact on Socially Vulnerable Populations:	These site-specific investments will be made system wide. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk for key transit facilities such as rail stations in floodplains, bus depots, yard and maintenance buildings/facilities, and power substations.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available throughout project design and construction/implementation efforts.

NJSHMP Mitigation Strategy	
Action Name:	Resiliency Improvements to Facilitate Continuity of Operations
Action Number:	2024-NJTransit-10
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Drought, Earthquake, Extreme Temperature, Flood, Geological Hazards, Hurricane/Nor'easter/Tropical Storm; Severe Weather; Severe Winter Weather; Wildfire; Hazardous Substances, Power Failure, Terrorism
Description of the Problem:	Natural disasters and climate change impacts can disrupt transit services, as well as endanger infrastructure and jeopardize public safety.
Description of the Solution:	Make additional improvements to facilitate the continuity of operations. These may include the Lifeline Critical Infrastructure Sectors before, during, and after extreme weather events, and other man-made or natural disaster events. Sectors include, but are not limited to transportation systems, energy, communications, and water/wastewater. Strategies encompassed in this Action may include but are not limited to: updating Comprehensive Emergency Management Plans; installing back-up power generators at bus garages, rail facilities, interlockings, and rail stations; running emergency bus services to replace flooded rail lines; relocating critical equipment out of flood-prone sites to alternate facilities; installing new water retention basins to absorb floodwaters and allow continuity of operations; etc.
Estimated Cost:	Project/program dependent. Can range from $500,000 to $10 million.
Funding Sources:	FEMA USDOT NJTIB NJEIT NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program N.J.A.C.7:22 Drinking Water State Revolving Fund New Jersey Water Bank (NJWB) NJDEP Grant and Loan Programs
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 4, 6
Benefits:	Making these investments will ensure protection of life and property, as well as the continuity of operations and transit service both pre- and post-disaster. Enhancing infrastructure resilience protects lives, assets, and mobility while upholding NJ Transit's critical transportation role through extreme weather, man-made hazards, and other crises. Flood mitigation projects will also improve continuity of operations. May also identify cascading effects of events on cyber infrastructure.
Impact on Socially Vulnerable Populations:	Solutions and strategies may be applied across NJ Transit's system. As such, these investments will reduce risk for all public transit users, including underserved communities and socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will protect critical public transit services across the region.
Impact on Capabilities:	This action increases capabilities/capacity for risk reduction in New Jersey. It supports both pre- and post-disaster capabilities.
Climate Change Considerations:	This action will consider future conditions associated with climate change by using the most recent, up-to date climate and flood projections available throughout program design and implementation efforts.

NJSHMP Mitigation Strategy	
Action Name:	Partner, Coordinate, and Implement Resiliency Improvement Projects with Local Stakeholders
Action Number:	2024-NJTransit-11
Lead Agency:	NJ Transit
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, dam/levee failure, drought, extreme temperature, flood, geologic hazards, hurricane/nor'easter/tropical storm, severe weather, severe winter weather, wildfire
Description of the Problem:	Successful implementation of risk-reduction strategies requires thorough, detailed, and consistent coordination between NJ Transit, State Agencies, and the communities the agency serves. However, coordination gaps, chronic underfunding, resource misalignments, understaffing, high attrition, and subsequent limited knowledge exchange undermine NJ Transit's to do this effectively.
Description of the Solution:	NJ Transit will build partnerships with local governments, regional councils, non-profit organizations, educational centers, and other community groups to create and implement resiliency investments that mutually benefit all parties. Strategies included in this action may include but are not limited to: technical capacity building; conducting outreach to communities with a focus on creating landscaping, reforestation, and planting programs along transit corridors and ROW (including those to minimize tree growth along railroad rights of way); tree replacement/reforestation programs to plant new trees in replacement of those removed from the ROW; funding and coordinating naïve planting programs, etc.
Estimated Cost:	Project/Program-dependent. Can range from $100,000 to $50 million.
Funding Sources:	BRIC HMP NOAA NJTIB NJDOT Local Aid and Economic Development NJ Turnpike Authority Capital Program Environmental Infrastructure Financing Program N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	2, 3, 4, 5
Benefits:	Building capacity with municipalities, community partners, and regional stakeholders will enable NJ Transit to cooperatively optimize preparedness through aligned priorities, integrated strategies, inclusive engagement, knowledge sharing, and harnessing synergies. This drives equitable, efficient, and innovative climate adaptation across the transit ecosystem.
Impact on Socially Vulnerable Populations:	NJ Transit will work with communities across New Jersey to build capacity and implement resiliency capabilities, but will prioritize working with Justice40 communities, underserved communities, areas of persistent poverty, and other socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will reduce risk for rail, light rail, bus, and surface transit services, as these partnerships would reduce issues that cause delays or outages to public transit services. It will also speed up implementation of solutions.
Impact on Capabilities:	This action will increase capabilities/capacity for risk reduction in New Jersey. It will support both pre- and post-disaster capabilities.
Climate Change Considerations:	It will consider areas that will be impacted by various climate change impacts, including extreme storms, sea level rise, stormwater runoff and flooding, extreme heat events, etc.

NJSHMP Mitigation Strategy	
Action Name:	Joseph Kohn Training Center and the Commission for the Blind and Visually Impaired Chillers
Action Number:	2024-NJDHS-01
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Extreme Temperatures
Description of the Problem:	The chillers at the Joseph Kohn Training Center and the Commission for the Blind and Visually Impaired are outdated and in danger of failure. Increasing risk of extreme heat events require functional air conditioning systems at these facilities to allow for continuity of operations.
Description of the Solution:	The Department of Human Services will oversee the upgrade and replacement of chillers and necessary electrical components at each facility.
Estimated Cost:	$300,000
Funding Sources:	HMGP BRIC PDM New Jersey Small Cities Communities Development Block Grants New Jersey Board of Public Utilities (BPU)
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 6
Benefits:	These chillers need to be upgraded and this funding would allow that project to occur
Impact on Socially Vulnerable Populations:	This action supports vulnerable populations and underserved communities that rely on the Joseph Kohn Training Center and the Commission for the Blind and Visually Impaired.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action provides continuity of operations at the Joseph Kohn Training Center and the Commission for the Blind and Visually Impaired.
Impact on Capabilities:	The action maintains the services provided by the Joseph Kohn Training Center and the Commission for the Blind and Visually Impaired.
Climate Change Considerations:	Climate change is likely to result in an increase in extreme temperatures. This action will provide for continuity of operations.

NJSHMP Mitigation Strategy	
Action Name:	Underground Utility Resiliency Upgrades for Critical Facilities
Action Number:	2024-NJDHS-02
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Weather, Power Failure
Description of the Problem:	The Department of Human Services' Division of Developmental Disabilities (Division) operates five developmental centers (Green Brook Regional Center, Hunterdon Developmental Center, New Lisbon Development Center, Vineland Developmental Center, Woodbine Developmental Center) that serve individuals with intellectual and developmental disabilities. The underground utility systems at these facilities, including steam, chilled water, domestic water, and sanitary systems, have become degraded and require replacement. Failure of these systems will result in loss of continuity of operations of critical facilities.
Description of the Solution:	The Department will oversee replacement and upgrade of underground utilities at each facility, including steam, chilled water, domestic water, and sanitary systems.
Estimated Cost:	$1,000,000
Funding Sources:	HMGP BRIC PDM NJDEP Grant and Loan Programs New Jersey Water Bank (NJWB) New Jersey Board of Public Utilities (BPU) NJEIT Drinking Water State Revolving Fund N.J.A.C.7:22
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 6
Benefits:	This action will result in the upgrade of failing underground utility systems to support the continuity of operations for critical facilities.
Impact on Socially Vulnerable Populations:	The Department of Human Services' Division of Developmental Disabilities (Division) operates five developmental centers (centers) that serve individuals with intellectual and developmental disabilities. Center residents have intensive needs related to their intellectual and developmental disabilities, and many also have co-occurring mental health, behavioral health and/or medical needs. The total cumulative census of all five centers is 1,051 as of December 2022.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action supports critical infrastructure.
Impact on Capabilities:	This action allows for the continuity of operations for maintained capabilities.
Climate Change Considerations:	Increased frequency of severe weather events due to climate change will increase the likelihood of utility failures, particularly with outdated or failing utility systems. This action will increase the resiliency of the underground utilities system.

NJSHMP Mitigation Strategy	
Action Name:	Statewide Mass Care Warehouse
Action Number:	2024-NJDHS-03
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Pandemic
Description of the Problem:	There is no mass care warehouse for the State of New Jersey. In order to store mass care supplies, a location is needed to efficiently and easily manage the items and transport and/or have pick up of same at a central location.
Description of the Solution:	Construction of a mass care warehouse with enough space to store mass care supplies and resources and have the appropriate number of loading bays and docks to transport items during times of crisis to areas of need
Estimated Cost:	$300,000
Funding Sources:	HMGP funds would be used for this project in addition to any approved Homeland Security funds that may be allocated to support this project.
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 6, 7
Benefits:	A storage facility for mass care logistical operations will be available to include those resources that make a difference in providing sheltering, feeding, distribution of emergency supplies and family reunification
Impact on Socially Vulnerable Populations:	This action provides for the needs and support for underserved communities and those vulnerable populations statewide in need of mass care assistance
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will establish a new critical facility.
Impact on Capabilities:	This action strengthens capabilities for emergency response.
Climate Change Considerations:	Yes - by addressing the need to have mass care items in place

NJSHMP Mitigation Strategy	
Action Name:	Flooding Mitigation for Community Foodbank of NJ
Action Number:	2024-NJDHS-04
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	The Community Foodbank of New Jersey has an area of poor drainage that results in flooding. When flooded, trucks are unable to access the Community Foodbank to pick up and deliver needed food to impacted areas.
Description of the Solution:	The NJ Department of Human Services will correct the drainage and construct proper flood mitigation measures to the facility in order to address the flooding that occurs after severe rainstorms and impacts the operation of the State's key feeding partner. New Jersey Small Cities Communities Development Block Grants
Estimated Cost:	$200,000
Funding Sources:	HMGP and other funding that may be received from other grants applied for from the Non-Profit community
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 6, 7
Benefits:	No flooding of the facility means trucks are able to approach loading docks and pick up the necessary food items to be delivered to impacted areas.
Impact on Socially Vulnerable Populations:	The State's feeding plan and associated partners ensure that the most vulnerable communities are serves during a crisis.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Community Foodbank of NJ is the main feeding hub to support feeding operations in the State.
Impact on Capabilities:	The action addresses both pre and post disaster capabilities specifically as it relates to feeding operations.
Climate Change Considerations:	Due to changing weather patterns, flooding is occurring more regularly at this particular location. This action addresses issues caused by this increased flooding frequency.

NJSHMP Mitigation Strategy	
Action Name:	Generator Support for the Salvation Army
Action Number:	2024-NJDHS-05
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Extreme Temperatures
Description of the Problem:	The Salvation Army is the State's key feeding partner. The Salvation Army's facilities do not have consistent backup power sources.
Description of the Solution:	The NJ Department of Human Services will install backup generators and necessary electrical components at the Salvation Army key feeding locations throughout the State of NJ.
Estimated Cost:	$300,000
Funding Sources:	HMGP and other funding sources to be acquired though the Salvation Army and their partners. New Jersey Small Cities Communities Development Block Grants New Jersey Department of Community Affairs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 6, 7
Benefits:	The Salvation Army is the State's key feeding partner and responds to support those that may be impacted by a disaster in order to conduct feeding operations
Impact on Socially Vulnerable Populations:	The Salvation Army consistently supports the most vulnerable populations in the State, especially those in underserved communities.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action will support mass care feeding lifelines in the State.
Impact on Capabilities:	The action increases pre- and post-disaster capabilities for feeding services.
Climate Change Considerations:	Increased frequency of severe weather and extreme temperature events are likely to result in increased power outages. This action addresses the cascading impacts of increased power outages.

NJSHMP Mitigation Strategy	
Action Name:	Community Foodbank of New Jersey Egg Harbor Location
Action Number:	2024-NJDHS-06
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Extreme Temperatures
Description of the Problem:	The Egg Harbor Foodbank facility lacks a backup power source. A backup power source is needed to allow for continuity of operations in the event of a disaster with power outages in order to support southern feeding operations, including potential charging of electric vehicles needed for delivery and distribution.
Description of the Solution:	The NJ Department of Human Services will oversee installation of a generator and necessary electrical components at the Egg Harbor Foodbank property.
Estimated Cost:	$300,000
Funding Sources:	HMGP and other grants that can be applied for by Community Foodbank of NJ. New Jersey Small Cities Communities Development Block Grants New Jersey Department of Community Affairs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	2, 6, 7
Benefits:	This action provides continuity of operations for the Egg Harbor Foodbank facility to allow continued feeding operations during a power outage and the ability to keep food fresh and preserved for distribution to those in need.
Impact on Socially Vulnerable Populations:	This action would allow the Foodbank operation to continue and preserve the support for those in need of food - especially the most vulnerable populations and underserved communities.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will protect continuity of operations for the Egg Harbor Foodbank facility.
Impact on Capabilities:	This action supports gaps already identified in the State's SPR/THIRA report.
Climate Change Considerations:	Increased frequency of severe weather and extreme temperature events are likely to result in increased power outages. This action addresses the cascading impacts of increased power outages.

NJSHMP Mitigation Strategy	
Action Name:	Mass Care Truck Acquisition
Action Number:	2024-NJDHS-07
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	All natural hazards
Description of the Problem:	Human Services serves as the Mass Care lead for the State and it is imperative to have the necessary mass care items in place in order to be transported to critical areas impacted by a disaster or other event. Currently, the Department of Human Services solely relies on utility trailers which are difficult to load and limited in the amount of items to be picked up and delivered The Department requires proper vehicles (trucks) to pick up and transport needed mass care supplies to impacted areas in our State.
Description of the Solution:	The NJ Department of Human Services will acquire trucks to transport mass care items.
Estimated Cost:	$300,000
Funding Sources:	HMGP and Homeland Security funds if they become available for use. New Jersey Small Cities Communities Development Block Grants New Jersey Department of Community Affairs
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years. Implementation will take place when HMGP and Homeland Security funds become available for use.
Goals Met:	1, 2, 6, 7
Benefits:	Mass Care trucks will allow the mass care team to efficiently transport needed mass care items to an impacted location.
Impact on Socially Vulnerable Populations:	This action connects mass care services and assistance to the most vulnerable and underserved communities in the State.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action provides support for Mass Care Services – Logistics.
Impact on Capabilities:	This action meets the need for Mass Care to be able to transport pallets of items to locations throughout the State.
Climate Change Considerations:	Climate change is likely to increase the frequency of severe events that require Mass Care. This action will increase the Department's ability to meet these increased needs. If possible, the Department could consider electric vehicles for future truck purchases.

NJSHMP Mitigation Strategy	
Action Name:	Department Generator Upgrades
Action Number:	2024-NJDHS-08
Lead Agency:	NJ Department of Human Services
Supporting Agencies:	
Hazard(s) of Concern:	Severe Weather, Severe Winter Weather, Extreme Temperatures
Description of the Problem:	The Department of Human Services' Division of Developmental Disabilities (Division) operates five developmental centers (Green Brook Regional Center, Hunterdon Developmental Center, New Lisbon Development Center, Vineland Developmental Center, Woodbine Developmental Center) that serve individuals with intellectual and developmental disabilities. These facilities require upgrade and replacement of generators to support continuity of operations and protect the residents from unsafe conditions.
Description of the Solution:	The Department of Human Services will oversee the replacement and upgrade of generators and electrical feeder systems in place at the Developmental Centers as well as key locations to serve the population
Estimated Cost:	$1,000,000 for generators, $1,000,000 for electrical feeder systems.
Funding Sources:	HMGP BRIC New Jersey Small Cities Communities Development Block Grants New Jersey Department of Community Affairs
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 6, 7
Benefits:	The new or upgraded generators will allow the Developmental Centers' facilities to continue to provide support
Impact on Socially Vulnerable Populations:	The Department of Human Services' Division of Developmental Disabilities (Division) operates five developmental centers (centers) that serve individuals with intellectual and developmental disabilities. Center residents have intensive needs related to their intellectual and developmental disabilities, and many also have co-occurring mental health, behavioral health and/or medical needs. The total cumulative census of all five centers is 1,051 as of December 2022. This action ensures continuity of operations at the Developmental Centers.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Department facilities for this project are all critical facilities that provide critical services to the most vulnerable residents of the State.
Impact on Capabilities:	The action provides for continuity of operations at the Developmental Centers, allowing for capabilities to be sustained during and after hazard events.
Climate Change Considerations:	Increased frequency of severe weather and extreme temperature events are likely to result in increased power outages. This action addresses the cascading impacts of increased power outages.

NJSHMP Mitigation Strategy	
Action Name:	Coordinate Cross-Jurisdictional Transportation Agency Hazard Mitigation and Resilience Initiatives to Improve Network Resilience
Action Number:	2024-NJTA-01
Lead Agency:	New Jersey Turnpike Authority
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Dam/Levee Failure
Description of the Problem:	The New Jersey Climate Change Resilience Strategy outlines goals surrounding safety and mobility. Transportation networks are interconnected and span multiple jurisdictions. In order to meet goals in the Strategy, coordination of State and regional entities will be needed to align mitigation and resilience strategies to reduce overall risk.
Description of the Solution:	The Turnpike Authority will coordinate resilience initiatives with State and regional entities to meet State goals around safety and mobility, including those outlined in the New Jersey Climate Change Resilience Strategy.
Estimated Cost:	High (>$100,000)
Funding Sources:	NJTA
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 4, 5, 6
Benefits:	This action allows the Turnpike Authority to stay informed on state-wide climate change science and initiatives, and to provide actionable information to decision-makers to protect the Authority's people, assets, and advance resilient infrastructure.
Impact on Socially Vulnerable Populations:	Coordinating with other agencies and determining the areas in need of mitigation can help target areas where underserved communities/socially vulnerable populations are located.
Impact on Future Development:	N/A
Impact on Critical Facilities:	Coordinating with other agencies and determining the areas in need of mitigation can help target areas where critical facilities/community lifelines are located.
Impact on Capabilities:	Increased coordination increases state capabilities pre-disaster by sharing information about vulnerable areas and coordinating investment strategies, and post-disaster can streamline communications to assess the damage and restore service.
Climate Change Considerations:	This action includes increased coordination around future climate projections and how to incorporate a risk based approach into project delivery.

NJSHMP Mitigation Strategy	
Action Name:	Resilience Plan and Framework to Address Climate Risk and Impacts to NJ Turnpike Authority Assets
Action Number:	2024-NJTA-02
Lead Agency:	New Jersey Turnpike Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Dam/Levee Failure, Severe Weather, Severe Winter Weather, Hurricane/Nor'easter/Tropical Storm, Extreme Temperatures
Description of the Problem:	Climate change is resulting in multifaceted impacts across the NJ Turnpike Authority's assets and system. A plan to allow for the coordinated mitigation of these impacts on the Turnpike Authority's assets is needed to support safe and reliable travel into the future.
Description of the Solution:	The action involves the creation of a comprehensive resilience plan and actionable framework for the NJ Turnpike Authority. The plan will be informed by results from the exposure assessment and vulnerability pilots and include risk metrics and measurable goals. The plan will align with State goals and identify strategies to support the NJ Turnpike Authority in advancing resilience across its assets and system.
Estimated Cost:	High (>$100,000)
Funding Sources:	NJTA
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4, 5, 6
Benefits:	The action will provide actionable information to decision-makers to protect people, assets, and advance resilient infrastructure.
Impact on Socially Vulnerable Populations:	The resilience plan focuses on identifying strategies to reduce risk to the NJ Turnpike Authority assets and system, making it safer for the traveling public and providing improved access to socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The resilience plan focuses on identifying strategies to reduce risk to the NJ Turnpike Authority assets and system, including the NJ Turnpike and Garden State Parkway, which serve as transportation community lifelines.
Impact on Capabilities:	The resilience plan focuses on identifying strategies to reduce risk to the NJ Turnpike Authority assets and system and supports planning for disasters.
Climate Change Considerations:	The resilience plan will incorporate exposure assessment findings that include future conditions.

NJSHMP Mitigation Strategy	
Action Name:	Integrate Dam Failure Inundation Mapping into Flood Models
Action Number:	2024-NJTA-03
Lead Agency:	New Jersey Turnpike Authority
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Flood, Dam/Levee Failure
Description of the Problem:	The Turnpike Authority's flood risk model does not currently include the potential for dam failure events. The Authority does not have dam failure inundation mapping.
Description of the Solution:	This action involves collaborating with the New Jersey Department of Environmental Protection (NJDEP) to include the potential for dam failure events in the Turnpike Authority's flood risk model to understand the potential impacts of such events.
Estimated Cost:	High (> $100,000)
Funding Sources:	NJTA NJDEP Dam Restoration and Inland Water Projects Loan Program
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 5, 6
Benefits:	The action will provide actionable information to decision-makers to protect people, assets, and advance resilient infrastructure.
Impact on Socially Vulnerable Populations:	The model identifies flood risks to the NJ Turnpike and Garden State Parkway, which could include flood-prone areas in underserved communities/in areas where socially vulnerable populations are located.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The model identifies flood risks to the NJ Turnpike and Garden State Parkway, which are critical transportation lifelines.
Impact on Capabilities:	N/A
Climate Change Considerations:	Changing precipitation patterns as a result of climate change can result in changes to the hydrographs used to design dams, increasing the potential of dam failure events. This action will allow the Turnpike Authority to plan for these potential events.

NJSHMP Mitigation Strategy	
Action Name:	System-wide Assessment to Determine Vulnerability to Inland, Stormwater, and Coastal Flooding
Action Number:	2024-NJTA-04
Lead Agency:	New Jersey Turnpike Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Dam/Levee Failure, Severe Weather, Severe Winter Weather, Hurricane/Nor'easter/Tropical Storm
Description of the Problem:	The NJ Turnpike Authority's assets and system are vulnerable to flooding. A thorough assessment of a variety of flooding types, including inland/fluvial, stormwater/urban, and coastal/storm surge flooding, is needed to determine vulnerabilities and identify appropriate flood mitigation and resilience strategies.
Description of the Solution:	The assessment will involve a detailed analysis of the NJ Turnpike's assets and system for their vulnerability to flooding. This assessment will be conducted to understand the specific risks and vulnerabilities which can inform larger-scale resilience planning efforts.
Estimated Cost:	High (> $100,000)
Funding Sources:	NJTA
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4, 5, 6
Benefits:	The action will provide actionable information to decision-makers to protect people, assets, and advance resilient infrastructure.
Impact on Socially Vulnerable Populations:	The vulnerability assessment will inform investment decisions across the NJ Turnpike and Garden State Parkway which could benefit areas where underserved communities/socially vulnerable populations are located.
Impact on Future Development:	The vulnerability assessment will inform investment decisions across the NJ Turnpike and Garden State Parkway in densely populated areas.
Impact on Critical Facilities:	The vulnerability assessment will inform investment and mitigation strategies of critical infrastructure in flood-prone areas.
Impact on Capabilities:	Increases capabilities pre-disaster by improving the resilience of the NJ Turnpike and Garden State Parkway.
Climate Change Considerations:	The vulnerability assessment will consider the 10-year flood event and the 100-year flood event for current conditions and three planning horizons: 2050, 2070, and 2100.

NJSHMP Mitigation Strategy	
Action Name:	Integrate Climate Risk and Future Conditions into the NJ Turnpike Authority Project Delivery Process to Advance Resilience
Action Number:	2024-NJTA-05
Lead Agency:	New Jersey Turnpike Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Dam/Levee Failure, Severe Weather, Severe Winter Weather, Hurricane/Nor'easter/Tropical Storm, Extreme Temperature
Description of the Problem:	The Turnpike Authority's existing procedures and design manuals require update to increase the consideration of climate change and resilience.
Description of the Solution:	The Turnpike Authority will review and update existing design manuals, project delivery procedures, and guidelines to incorporate considerations for resilience, climate change, and future conditions. The update will integrate resilience considerations into project delivery to advance climate resilience.
Estimated Cost:	High (> $100,000)
Funding Sources:	NJTA
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 4, 6
Benefits:	This action will provide actionable information to decision-makers to protect people, assets, and advance resilient infrastructure.
Impact on Socially Vulnerable Populations:	This action will provides guidelines to reduce risk and support more resilient NJ Turnpike and Garden State Parkway design, where underserved communities/socially vulnerable populations are located.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action provides guidelines to reduce risk and support more resilient NJ Turnpike and Garden State Parkway design. Both roadways are critical transportation lifelines.
Impact on Capabilities:	Increases capabilities pre-disaster by improving the resilience of the NJ Turnpike and Garden State Parkway.
Climate Change Considerations:	The action focuses on incorporation of climate risk and future conditions into NJ Turnpike procedures.

NJSHMP Mitigation Strategy	
Action Name:	Increase Storage Capacity of Stormwater Lagoons at Sports Complex
Action Number:	2024-NJSEA-01
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Stormwater lagoons at the Sports Complex provide flood protection. However, due to degradation and loss of storage capacity, the stormwater lagoons are in need of urgent attention. Changes in precipitation patterns and an increase in coastal flooding risks due to climate change poses increased flooding risks for the Sports Complex.
Description of the Solution:	NJSEA will oversee increasing of storage capability of the stormwater lagoons (1-4) at the Sports Complex. The underwater portion of the dam between Lagoon 1 and Lagoon 2 will be replaced.
Estimated Cost:	$2,000,000
Funding Sources:	EDA Coastal Engineering and Restoration Projects N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 4, 6
Benefits:	This action will result in reduced property damages and strengthened continuity of operations.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action will provide increased flood protection at the Sports Complex site, including for any future development at the site.
Impact on Critical Facilities:	This action will protect critical facilities at the Sports Complex site.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action addresses sea level rise and increased number of and severity of heavy precipitation and storm surge events.

NJSHMP Mitigation Strategy	
Action Name:	Raise Flood Control Berms at West Side of Sports Complex
Action Number:	2024-NJSEA-02
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Flood control berms on the west side of the Sports Complex currently function as intended, but are at risk for overtopping as sea level rise and increasing severity of coastal flood events takes place.
Description of the Solution:	NJSEA will oversee adding additional height to the flood control berms at the west side of the Sports Complex site to provide a greater level of coastal flood protection.
Estimated Cost:	$5,000,000
Funding Sources:	EDA Small Flood Control Program (USACE) Coastal Engineering and Restoration Projects
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action will result in reduced property damages and strengthened continuity of operations.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action will provide increased flood protection at the Sports Complex site, including for any future development at the site.
Impact on Critical Facilities:	This action will protect critical facilities at the Sports Complex site.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action addresses sea level rise and increased frequency and severity of storm surge events driven by climate change.

NJSHMP Mitigation Strategy	
Action Name:	MRRI GIS Updates
Action Number:	2024-NJSEA-03
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Flood, Extreme Temperature, Drought, Hurricane/Nor'Easter/Tropical Storm, Geological Hazards, Severe Weather, Severe Winter Weather, Wildfire, Power Failure, Earthquake, Dam/Levee Failure
Description of the Problem:	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. Updates are needed to fill identified gaps in data needs for first responders and planners.
Description of the Solution:	NJSEA will update and enhance NJSEA's GIS databases to assist in identifying critical infrastructure and facilities within the Meadowlands District to increase outreach, recovery, and mitigation planning capabilities within the Meadowlands District.
Estimated Cost:	$100,000
Funding Sources:	EMPG BRIC NJDEP Grant and Loan Programs New Jersey Small Cities Communities Development Block Grants
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 4, 5
Benefits:	This action improves hazard information databases and maps and increases accessibility to those resources. The proposed updates would enhance any identified gaps in the data or needs of first responders.
Impact on Socially Vulnerable Populations:	The action will increase first responders' ability to respond to underserved communities in residential, commercial, and industrial areas of the District.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action will provide important data for first responders in the Meadowlands District.
Impact on Capabilities:	The action increases outreach, recovery, and mitigation planning capabilities within the Meadowlands District.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Update the Tide Gate Monitoring Network
Action Number:	2024-NJSEA-04
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Ninety percent of the Meadowlands District is within two feet of the District's high water mark. The District has a tide gate monitoring network and flood alert system. A flood alert is issued when water levels in the Meadowlands District are above 5 feet asl. Most of the Legacy berms in the District are overtopped with water levels above 5 feet. Updates to the monitoring network and flood alert system is needed to provide timely and accurate alerts about high water events.
Description of the Solution:	NJSEA will oversee updates to the tide gate monitoring network to increase the coverage and quality of the flood alert system. The action will include the identification of other coastal defense structures that need monitoring in real-time and inclusion into the flood alert system. These structures will have solar powered water level measuring hardware and communication systems installed back via the Internet to a central post where data is managed in a database and visualized over a District map in real time.
Estimated Cost:	$200,000
Funding Sources:	BRIC Coastal Engineering and Restoration Projects N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3
Benefits:	This action will increase the coverage and quality of flood alerts for the population in the Meadowlands District.
Impact on Socially Vulnerable Populations:	The action will provide flood alerts for socially vulnerable and underserved populations located in the Meadowlands District.
Impact on Future Development:	This action will provide increased coverage of the flood alert system that can service redeveloped and newly developed areas within the Meadowlands District.
Impact on Critical Facilities:	This action will provide flood alerts to critical facilities located in the Meadowlands District.
Impact on Capabilities:	This action will increase the accuracy of flood alerts for high water events.
Climate Change Considerations:	Climate change is resulting in increased flooding risk due to sea level rise and increased frequency and severity of storm surge events driven by climate change. This action will address the need for a better quality alert system for these flooding events.

NJSHMP Mitigation Strategy	
Action Name:	Curb Inlet Modification
Action Number:	2024-NJSEA-05
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Trash and floatables moving downstream cause decreased positive flow to the East Rutherford and Rutherford tide gates, increasing flood risk.
Description of the Solution:	NJSEA will oversee modification of curb inlets including the addition of face plates, in the District upstream of the East Rutherford and Rutherford tide gates in order to reduce floatables entering this drainage system. This action will limit trash at the tide gate trash racks and will increase positive flow to the tide gates.
Estimated Cost:	$100,000
Funding Sources:	BRIC N.J.A.C.7:22 NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1
Benefits:	The reduction of floatables from upstream of the tide gates will mitigate flooding caused by the trash racks being clogged and restricting flow to the regional tide gates.
Impact on Socially Vulnerable Populations:	Socially vulnerable populations protected by the East Rutherford and Rutherford tide gates will experience less flooding events.
Impact on Future Development:	The action will reduce the frequency of flooding for future development in areas protected by the East Rutherford and Rutherford tide gates.
Impact on Critical Facilities:	In addition to protecting private properties, the East Rutherford tide also protects sections of Route 17.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is resulting in increased flooding risk due to sea level rise and increased frequency and severity of heavy rainfall and storm surge events. This action will help to maintain the flood protection provided by the East Rutherford and Rutherford tide gates.

NJSHMP Mitigation Strategy	
Action Name:	Meadowlands District Berm Enhancement
Action Number:	2024-NJSEA-06
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm, Dam/Levee Failure
Description of the Problem:	Fifty percent of the area encompassing the 30.3-square-mile Meadowlands District is located at elevations within two feet of the District's high water mark. Most of the legacy berms in the District are overtopped with water levels above 5 feet. Sea level rise and increasing frequency and severity of storm surge events and heavy precipitation events is increasing the risk of berms being overtopped during flood events.
Description of the Solution:	NJSEA will oversee the upgrade and repair of legacy berms and add additional berms in the District to meet increasing flood risk.
Estimated Cost:	$10,000,000+
Funding Sources:	HMGP FMA CDBG Coastal Engineering and Restoration Projects
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action will reduce flood risk in the Meadowlands District by increasing the current height of the protective flood berms.
Impact on Socially Vulnerable Populations:	This action protects socially vulnerable low-lying communities from flood damage.
Impact on Future Development:	Yes
Impact on Critical Facilities:	This action will provide flood protection to electrical substations, wastewater treatment facilities, and data back-up centers in the Meadowlands District.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is resulting in increased flooding risk due to sea level rise and increased frequency and severity of heavy rainfall and storm surge events. This action will upgrade the legacy berm system to meet the changing flood characteristics of the Meadowlands District.

NJSHMP Mitigation Strategy	
Action Name:	Obtain Flood Control/Maintenance Equipment
Action Number:	2024-NJSEA-07
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm
Description of the Problem:	Drainage infrastructure in the Meadowlands District is frequently obstructed, which can lead to flooding. Maintenance equipment is needed to identify and clear these obstructions.
Description of the Solution:	NJSEA will obtain flood control/maintenance equipment, specifically a Camera Truck to service the entirety of the Meadowlands District.
Estimated Cost:	$350,000
Funding Sources:	EMPG PA NJDEP Grant and Loan Programs New Jersey Small Cities Communities Development Block Grants N.J.A.C.7:22 N.J.A.C.7:15 NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3
Benefits:	The action will provide the capability to inspect underground drainage infrastructure to aid in the ability to mitigate the risk of flooding in vulnerable areas.
Impact on Socially Vulnerable Populations:	All residents in the Meadowlands District will benefit from increased maintenance of the drainage infrastructure, resulting in a reduction in flooding events.
Impact on Future Development:	All areas of the Meadowlands District, including areas of new development, will benefit from increased maintenance of the drainage infrastructure.
Impact on Critical Facilities:	This action will allow proper maintenance of the drainage infrastructure in the Meadowlands District, providing protection to electrical substations, wastewater treatment facilities, and data back-up centers in the Meadowlands District.
Impact on Capabilities:	This action will increase the stormwater maintenance capabilities of the NJSEA.
Climate Change Considerations:	Climate change is resulting in increased frequency and severity of heavy events. This action allows for the maintaining of critical drainage infrastructure to reduce flooding risk that continues to increase in the Meadowlands District.

NJSHMP Mitigation Strategy	
Action Name:	Incorporate Extreme Heat Risk and Opportunities into NJSEA Strategic Plans
Action Number:	2024-NJSEA-08
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Extreme Temperature, Severe Weather, Animal Disease
Description of the Problem:	Extreme heat events are increasing in frequency and severity in the Meadowlands District, necessitating the need for research and planning to develop updated regulations and guidelines for site design in the District.
Description of the Solution:	NJSEA will integrate best practices developed by federal and state agencies into Strategic Plan updates/site design.
Estimated Cost:	$10,000
Funding Sources:	BRIC New Jersey Small Cities Communities Development Block Grants NJDEP Grant and Loan Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 5
Benefits:	The action will help to mitigate risks from increasing extreme temperature events.
Impact on Socially Vulnerable Populations:	Extreme temperature events can have severe impacts on socially vulnerable populations. The action will help to reduce the impacts of extreme temperature events on these populations.
Impact on Future Development:	The action will guide design of future development to account for increasing extreme temperature risk.
Impact on Critical Facilities:	The action will provide updated designs for critical facilities to maintain continuity of operations in extreme temperature events.
Impact on Capabilities:	The action will increase NJSEA's strategic plans and site design capabilities.
Climate Change Considerations:	Climate change is increasing the frequency and occurrence of extreme temperature events. The action addresses future needs.

NJSHMP Mitigation Strategy	
Action Name:	Review and Updating of Plans, Regulations, and Guidelines to Improve Resiliency Practices in the District
Action Number:	2024-NJSEA-09
Lead Agency:	New Jersey Sports and Exposition Authority
Supporting Agencies:	
Hazard(s) of Concern:	Drought, Flood, Hurricane/Nor'Easter/Tropical Storm, Extreme Temperature
Description of the Problem:	Rising temperatures and sea levels and increases in the frequency and severity of severe weather events require an analysis of current Meadowlands District regulations and guidelines to increase resiliency in development.
Description of the Solution:	NJSEA will review and update NJSEA's Master Plan, Hackensack Meadowlands District Zoning Regulations, and Landscape and Open Space Design Guidelines to incentivize resilient practices throughout the District, enhance landscaping and design practices within agency parks and open spaces to protect existing canopy and vegetation, and increase cover throughout the District.
Estimated Cost:	$50,000
Funding Sources:	BRIC Urban Waters Small Grants WPDG Green Acres Program Blue Acres Program Open Space and Farmland Preservation Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 5
Benefits:	The action will provide a variety of benefits including protecting open space and vegetation, encouraging appropriate plantings that can reduce energy and water usage, improving public health and air quality, reducing stormwater runoff, and protecting against flooding.
Impact on Socially Vulnerable Populations:	The action will benefit all populations within the Meadowlands District.
Impact on Future Development:	The action will provide updated design practices for resilient new development.
Impact on Critical Facilities:	The action will provide updated resiliency practices.
Impact on Capabilities:	The action will increase regulatory capabilities within the Meadowlands District to improve resiliency.
Climate Change Considerations:	Enhancement of landscape guidelines and zoning regulations

NJSHMP Mitigation Strategy	
Action Name:	Bay Point Shoreline Restoration
Action Number:	2024-NJDEP-01
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion
Description of the Problem:	The Delaware Bay shoreline in Lawrence Township, Cumberland County is experiencing erosion. Continued erosion will result in threats to the built environment landward of the shoreline. This erosion also results in loss of critical habitat for horseshoe crab spawning and red knot foraging.
Description of the Solution:	The Office of Coastal Engineering will restore the beach profile using trucked-in beach fill. Debris will be removed. The Office will install a series of nearshore breakwaters and groin to reduce future erosion. The action is currently in the solicitation, contracting, and construction phase.
Estimated Cost:	$2,000,000
Funding Sources:	Green Acres Fund, $3,000,000 NOAA Coastal Zone Management Habitat Protection and Restoration, IIJA, $3,500,137, federal
Implementation Timeline:	Short-Term—Implementation can begin within 3-5 months.
Goals Met:	2
Benefits:	This action will restore the beach profile and stabilize the shoreline. The action will create habitat for horseshoe crab spawning and red knot foraging.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering has incorporated sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	Higbee Beach Restoration Project
Action Number:	2024-NJDEP-02
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Flood
Description of the Problem:	The Pond Creek Marsh Restoration Project is a 428-acre site fully encompassed by the Higbee Beach WMA in Lower Township and the Borough of West Cape May, Cape May County. The project site consists of the former Harbison-Walker magnesite facility and associated landfill, Davey's Lake, and the majority of Pond Creek marsh. There is a need to reestablish tidal inundation to a large portion of Pond Creek Marsh without increasing the flood risk to the upper watershed or inundating the eastern freshwater marsh area and allowing for habitat management of the northern marsh area.
Description of the Solution:	The Office of Coastal Engineering will 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, and the upland habitat on the former Harbison Walker Magnesite Plant.
Estimated Cost:	$26,000,000
Funding Sources:	Natural Resource Damage funds
Implementation Timeline:	Short-Term—Implementation can begin within 3-6 months.
Goals Met:	2
Benefits:	The action will restore the natural habitat and increase flood protections to the surrounding area.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering has incorporated sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	REPI Island Beach State Park T-Groins and Living Shoreline
Action Number:	2024-NJDEP-03
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	Barnegat Bay Partnership
Hazard(s) of Concern:	Coastal Erosion
Description of the Problem:	Kayak launch site A-15 is one of two heavily utilized launch sites at Island Beach State Park in Ocean County. There is erosion occurring at the site and most of the wetland fringe has been lost. Park personnel attempted to address the issue by filling the eroded area with clam bags but were unsuccessful. Due to the popularity of kayaking at the park, stabilizing the shoreline at this site is a top priority for the park.
Description of the Solution:	The Office of Coastal Engineering will oversee the construction of T-groins and a living shoreline to reduce erosion at the kayak launch.
Estimated Cost:	$750,000
Funding Sources:	Shore Protection Fund Department of Defense Readiness and Environmental Protection Integration funds
Implementation Timeline:	Short-Term—Implementation can begin within 4-8 months.
Goals Met:	2
Benefits:	This action will reduce erosion to the kayak launch and surrounding area at Island Beach State Park to maintain water access.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering has incorporated sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	Heislerville Dike Repair
Action Number:	2024-NJDEP-04
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	
Description of the Problem:	The Heislerville Dike in Maurice River Township, Cumberland County has been damaged in recent storm events. The Dike protects the critical impoundments and habitat located in the Heislerville WMA.
Description of the Solution:	The Office of Coastal Engineering will repair damages to the Dike.
Estimated Cost:	$657,758
Funding Sources:	Shore Protection Fund, local match FEMA Disaster Recovery Funds
Implementation Timeline:	Medium-Term—Implementation can begin within 1-2 years.
Goals Met:	1, 2, 6
Benefits:	The action will protect critical habitat.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering will incorporate sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	Shark River Inlet Jetty Repair
Action Number:	2024-NJDEP-05
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Fishing Failure
Description of the Problem:	The Shark River Inlet in Monmouth County is a navigable waterway that is relied on by various commercial and recreational boaters docked in the Shark River tidal basin. The jetties bordering the inlet have been damaged over time, resulting in increased fill of sediment in the inlet and hazardous boating conditions. Loss of the jetties could threaten the Ocean Avenue bridge that crosses Shark River inlet at the western end of the jetties.
Description of the Solution:	The Office of Coastal Engineering will oversee the repair and reconstruction of the Shark River Inlet north jetty in Avon-by-the-Sea and south jetty in Belmar.
Estimated Cost:	$5,000,000
Funding Sources:	Shore Protection Fund FEMA Disaster Recovery Funds
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	The action will result in the restoration of protective jetties, reduction in erosion, and reduction in accretion into the inlet to maintain the navigable channel.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action will protect the Ocean Avenue bridge that connects Avon-by-the-Sea and Belmar.
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering will incorporate sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	North Wildwood Seawall Extension
Action Number:	2024-NJDEP-06
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Coastal Erosion, Flood
Description of the Problem:	North Wildwood City in Cape May County is threatened by erosion. Continued erosion will result in damage to the built environment landward of the shoreline and increased risk of overwash during coastal storm events.
Description of the Solution:	The Office of Coastal Engineering will oversee the construction of a steel bulkhead between 5th and 7th Avenues; construction of a vinyl bulkhead between 4th and 5th Avenues; construction of a new seawall between 3rd and 7th Avenues; reinforcement of the existing USACE seawall between 2nd and 3rd avenues; and construction of a beach vehicle access drive at the end of 8th Avenue in North Wildwood City.
Estimated Cost:	$12,500,950
Funding Sources:	Shore Protection Fund, local match Shore Protection Fund FEMA Pre-Disaster Mitigation Funds
Implementation Timeline:	Medium-Term—Implementation can begin within 1-2 years.
Goals Met:	1, 2, 6
Benefits:	The action will result in the protection of properties landward of the shoreline from 2nd Avenue to 8th Avenue in North Wildwood.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering will incorporate sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	Holgate Terminal Groin - Phase II
Action Number:	2024-NJDEP-07
Lead Agency:	NJDEP Office of Coastal Engineering
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion
Description of the Problem:	The Holgate neighborhood in Long Beach Township is located on the border of the Holgate Wildlife Refuge. The refuge has been allowed to migrate west with erosional trends, increasing the erosional forces on the Holgate oceanfront. The area has received renourishment and reinforcement of the existing terminal groin with steel sheeting but continues to experience high erosional rates.
Description of the Solution:	The Office of Coastal Engineering will oversee the reinforcement of the terminal groin with stone and explore additional methods to reduce erosion. Cost-effective measures identified will be implemented, based on available funding.
Estimated Cost:	$8,000,000
Funding Sources:	Shore Protection Fund, local match Natural Resource Damage funds Coastal Engineering and Restoration Projects N.J.A.C.7:5
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2
Benefits:	The action will result in the protection of the Holgate neighborhood from erosion and overwash.
Impact on Socially Vulnerable Populations:	The Office of Coastal Engineering will incorporate socially vulnerable population considerations into the feasibility assessment and public outreach efforts in coordination with the action implementation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	The Office of Coastal Engineering will incorporate sea level rise and climate change projections during project design using a variety of projections including the USACE, International Panel on Climate Change (IPCC), and the Rutgers University Science and Technical Advisory Panel (STAP) on Sea-Level Rise and Changing Coastal Storms.

NJSHMP Mitigation Strategy	
Action Name:	Historic Resources Windshield Survey Update/Expansion (Green Zones)
Action Number:	2024-NJDEP-08
Lead Agency:	NJDEP New Jersey Historic Preservation Office (NJHPO)
Supporting Agencies:	Federal Emergency Management Agency (FEMA), the New Jersey Office of Emergency Management (NJOEM), and the New Jersey Historic Preservation Office (NJHPO)
Hazard(s) of Concern:	Coastal Erosion, Earthquake, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Wildfire, Terrorism, Hazardous Substances, Dam/Levee Failure
Description of the Problem:	Implementation of federal hazard mitigation programs and disaster recovery funding requires consultation under Section 106 of the National Historic Preservation Act (NHPA). In order to more effectively administer this consultation, the FEMA, the NJOEM, and the NJHPO have executed a Programmatic Agreement (PA) outlining a project consultation process, programmatic allowances, and treatment measures to ensure consistency and predictability in the review of mitigation and disaster recovery projects. Identification of historic and archaeological resources is a key provision of the Section 106 process, and the PA outlines a joint FEMA/HPO process, within the context of a declared disaster, to establish areas of low potential for above ground historic resources ("Green Zones"). This technique was first implemented after the Hurricane Sandy disaster declaration, and successfully streamlined consultation for FEMA and other agencies (Housing and Urban Development (HUD), NJ Department of Community Affairs (DCA), etc.) that signed on to the programmatic agreements in place at that time. However, the time constraints and need for rapid response during initial disaster recovery phases does not allow for adequate research, mission planning, and due consideration of the resulting Green Zone delineations. For instance, during the Sandy windshield survey, target areas were wholly dictated by evolving FEMA priorities, which led to inadequate data gathering and inefficiencies in fieldwork operations. In general, a more deliberative and methodological approach would be desirable. Additionally, windshield survey was focused only on architectural considerations, which may not account for alternative areas of significance. Finally, the previously generated Green Zones are now expired as per the general guidance of the PA which dictates a 10 year sunset for these delineations. NJHPO contends that a more effective approach to defining and managing these Green Zones is to operate outside the context of a specific disaster declaration in order to: • periodically review existing Green Zone delineations, • expand Green Zone coverage to other areas within the coastal zone and special flood hazard areas, and • highlight particular areas/properties that will require more intensive evaluation should they be included in a mitigation or recovery project's Area of Potential Effects (APE).
Description of the Solution:	HPO proposes a mitigation action to initiate a joint program of windshield survey, Green Zone management that will undertake the following: • Evaluate the prior green zone delineations and re-establish them as current and valid for the next 10 year cycle as appropriate; • Expand windshield survey to previously un-surveyed areas within the coastal zone and special flood hazard areas statewide; • Set priorities for more intensive level survey of areas excluded from Green Zone's within in the defined study areas; • Establish new documentation techniques, workflows, and data repositories to maximize the utility of resulting documentation for all participating agencies and the public. Participants in this joint program would include the HPO, FEMA, NJ OEM, and others as appropriate and necessary to best develop and manage this program.
Estimated Cost:	Preliminary estimates of cost for this action are to be determined, but would include the following: • Supplemental contractual staff to perform research and fieldwork in conjunction with participating agency staff (4 FTE) • Upgrades of field survey equipment • Application development and data repository costs • Transportation costs • Office equipment and network access fees

Commented [R1]: Expedite the effort by having first right to purchase; loan through STORM And reimburse through HMGP dollars
Developing GIS tool leveraging LiDAR to spot places that cost-effective

NJSHMP Mitigation Strategy	
Funding Sources:	NPS Historic Preservation Fund Historic Preservation mitigation funding (various projects/sources) FEMA Emergency Management Performance Grants (EMPG) National Center for Preservation Technology and Training (NCPTT) grants (for data acquisition and field survey techniques). NJ Historic Trust Preserve New Jersey Historic Preservation Fund, Municipal, County, and Regional Planning NJDEP Grant and Loan Programs
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3, 5
Benefits:	Managing Green Zone delineation programmatically rather than reflexively based on specific disaster events has the following benefits: • A deliberative and methodological approach allows for adequate background research, mission planning, and due consideration of the resulting Green Zone delineations. • Data collected during Green Zone fieldwork can be hosted and shared in a collaborative repository that is more accessible to multiple participating agencies, and is more stable than the systems mobilized and de-mobilized for specific recovery events. • Predictability in the ageing of Green Zone delineations allows for better planning of future fieldwork and necessary resources. • Climate change scenarios can be incorporated over time as climate science evolves. • Meets the following New Jersey Comprehensive Statewide Historic Preservation Plan 2023-2028 goals: Goal 3, Goal 4, Goal 5 • Use of Green Zone delineations for historic preservation compliance by other agencies can be better enabled with a programmatic approach. • A more comprehensive geographic scope for the resulting datasets provides more consistent utility across affected areas than a fragmented coverage. • Public participation and feedback, a key component of the Section 106 process, can be better integrated into the delineation and management of the Green Zone data, including solicitation of local input on resources of concern.
Impact on Socially Vulnerable Populations:	This action has the potential to benefit socially vulnerable populations by improving understanding of the cultural resources landscape within areas that have likely never been comprehensively surveyed, or for which cultural resources survey is extremely outdated. This is particularly true for both densely urbanized areas and extremely rural areas, which have historically been difficult to cover through traditional architectural survey techniques. Additionally, cultural resources associated with underrepresented communities tends to relate to areas of significance other than purely architectural, which are more likely to be revealed with adequate planning and research ahead of program fieldwork.
Impact on Future Development:	This action has the potential to improve the understanding of the cultural resources landscape in areas under intense development pressures, which ensures consistency and predictability in the review of hazard mitigation and disaster recovery projects in such areas.
Impact on Critical Facilities:	This action has the potential to improve the understanding of the cultural resources landscape in areas around critical facilities, which ensures consistency and predictability in the review of hazard mitigation and disaster recovery projects in such areas.
Impact on Capabilities:	This action increases pre- and post-disaster capabilities by streamlining compliance and enabling more efficient and effective implementation of hazard mitigation and disaster recovery projects.
Climate Change Considerations:	This action will enable consideration of target survey areas based on likely future conditions resulting from climate change. Such considerations are not possible when implementing windshield survey during a post-disaster recovery scenario. Utilizing tools such as the NJ Adapt suite of climate change prediction modeling, target survey areas can be established to best account for future flooding scenarios. This action also enables better general preservation planning for cultural resources facing climate change/sea-level rise impacts.

NJSHMP Mitigation Strategy	
Action Name:	Flood Risk Awareness Signage (FRAS) Campaign to Promote Flood Resilient Decision Making and Buyout Awareness
Action Number:	2024-NJDEP-09
Lead Agency:	NJDEP Office of Climate Resilience & Blue Acres
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm
Description of the Problem:	Flooding is a growing threat throughout New Jersey. Sea level rise, more intense storm events, and increases in precipitation are making flood events more frequent and more impactful. Flooding threatens lives, disrupts services, results in property loss, harms business revenue, drives displacement, and influences the social and emotional health of individuals and communities. As climate change impacts are felt across the state, flood waters are spilling over into developed and residential areas that are not documented as being vulnerable to flooding, i.e., areas that have not historically flooded or areas not found on FEMA Flood Insurance Rate Maps (FIRMs). These maps and the associated GIS layers have been the foundation of local risk-based decision-making for decades, but now floods are affecting areas that do not have a history of floods. As such, the accuracy of the prevailing flood maps and their usefulness for decision-making are not adequate. While a long-overdue flood disclosure law was enacted on July 3, 2023, this legislation benefits prospective renters and buyers in the SFHA, but not the residents who have already moved in and invested themselves in flood-vulnerable areas. It is time that climate-adjusted flood projection be incorporated into local flood risk awareness, along with available inundation data, so that residents as well as potential residents are aware of mounting risk and where long-standing flood issues persist. To achieve this, the State must arm NJ residents with on-the-ground data so they can make more informed decisions about how to mitigate and reduce their personal flood risk. One way to do this is through a Flood Risk Awareness Signage (FRAS) campaign. Similar flood awareness sign campaigns have been undertaken across the Country. Roughly 37 communities completed similar sign campaigns many via the National Flood Insurance Program's High-Water Mark (HWM) Initiative. HWM is a federally supported, community-based awareness program that helped develop signs and educational, resources, opportunities, and tools to increases local communities' awareness of flood risk and encourages action to mitigate that risk. Building upon a similar campaign framework, New Jersey hopes to be one of the first states to create a statewide flood risk awareness sign campaign.
Description of the Solution:	To help NJ residents better understand flood risk, NJDEP proposes a flood risk awareness signage campaign that defines flood vulnerable areas and highlights where buyouts have been used to reduce risk. The sign campaign will have tiers. In some areas the signs will indicate where state-led buyouts have occurred and as feasible link to QR codes that illustrate on the ground inundation. In other areas where larger swath of open space exists as a result of buyouts, signage will be used to demonstrate past flood heights, link to information about past storms, images of flooding, restoration efforts that are in process, etc. These signs will create enduring visual reminders that flood risk is present in certain neighborhoods even on sunny days and that this risk needs to be a consideration for residents, potential homebuyers, and tenants. The result of this signage campaign, if done effectively, will be more informed individual decision making about flood risk. It will influence where people choose to live and buy homes, hopefully it will spur greater participation in the National Flood Insurance Program from existing residents (homeowners and tenants) and it will document past flood mitigation efforts. According to 2021 data from the National Resource Defense Council, after Tropical Storm Ida impacted Central NJ, nearly 8,000 previously flooded homes changed ownership. Many of these new owners are unaware of the real risk associated with these properties. According to FEMA's Risk Rating 2.0, NJ has less than 22,000 NFIP policies in force and there are three million vulnerable, uninsured homes. This makes it difficult to leverage FEMA funding resources to address flooding in many areas. Information is power. A flood risk signage campaign would be a strong communications tool in helping build NJ's flood resilience, in helping make people more informed, to document past buyout work and to expand awareness about where buyouts have occurred and perhaps even to inform consensus on where future buyouts are needed. NJDEP hopes that the FRAS campaign can

NJSHMP Mitigation Strategy	
	complement existing social media campaigns and art-based flood awareness efforts funded by NOAA that are ongoing.
Estimated Cost:	Exact costs are not defined at this time, but the following expenses are anticipated: • Design signs and campaign messaging/information. • Plan where to locate, place and install signs. • Fabrication of the signs. • Materials and Labor to install them.
Funding Sources:	BRIC HMGP HUD CDBG-DR grants New Jersey Department of Community Affairs NOAA NSF Local matches as part of local mitigation planning or municipal oversight. State Blue Acres CBT matching funds NGO in-kind contributions
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3
Benefits:	A flood risk awareness signage campaign is a risk reduction tool. It will communicate risk and encourage buyouts and strategic retreat by discouraging home investment, rentals, and private purchases in repetitive flood-loss neighborhoods. If fewer homes remain in the floodplain, the costs to service and protect these residential areas should decrease, and property damage costs will follow suit.
Impact on Socially Vulnerable Populations:	Data from the Union of Concerned Scientists suggests that approximately $9.6B of New Jersey's residential properties are at risk of chronic flooding by 2035. Many of these properties are affordably priced housing units that if left unmitigated will further disenfranchise socially vulnerable residents including minorities, the elderly, ESOL/non-English speakers, individuals with a disability, and low-socioeconomic status individuals or households. Signage and accessible flood risk information will help many of New Jersey's socially vulnerable residents, who are less likely to understand/be aware of key flood information (such as online flood mapping resources, or flood insurance coverage requirements, or floodplain management compliance requirements), and consequently are less likely to make fully informed decisions about where they live and work. To the extent feasible, information about how to protect yourself and property from climate driven flooding will be included in the campaign information as well.
Impact on Future Development:	While a FRAS campaign alone won't remove people from living in NJ's floodplains, it may help discourage re-investment in areas at the greatest risk for climate change-driven flooding. This can help the Blue Acres program effectuate buyouts in the most flood-vulnerable locations. Greater awareness and completion of buyouts in flood risk neighborhoods may also help Blue Acres create larger areas where meaningful flood storage and restoration efforts can use nature-based solutions to reduce future, mounting flood impacts.
Impact on Critical Facilities:	As the FRAS Campaign is oriented towards private homeowner decision-making, critical facilities are not expected to be significantly or directly impacted by the campaign; meanwhile, decision-making for planning & siting these public and quasi-public facilities is already subject to floodproofing and other requirements per 44 CFR § 60.22(c)(8). Similarly, the Campaign itself is expected to have little impact on Community Lifelines since the FRAS is essentially a low-tech, risk/hazard communications effort during non-emergency "blue skies" times, based on physical signs and signposts. Nevertheless, if the FRAS Campaign increases owner receptivity to / acceptance of buyouts (whether directly or indirectly), then the existing critical facilities in or near flood-prone areas, and the Community Lifelines of "Safety and Security: Search and Rescue" and "Food, Water, and Shelter: Shelter" serving those same areas during flood event emergencies may be expected to have lower burdens during evacuation and emergency response operations.
Impact on Capabilities:	Buyouts and risk reduction are mitigation tools that can reduce exposure to flooding and that reduce first responder exposure during extreme weather events.
Climate Change Considerations:	This action is meant to encourage residents and other members of the general public to consider extreme flood events, and the losses resulting from such events, as having a real likelihood to occur in the future (a likelihood that is increasing due to climate change). While the Campaign's signage

NJSHMP Mitigation Strategy	
	emphasizes the presentation of storm impacts in the past up to the present day, we hope that it the signs will be both a reminder and that they may implicitly communicate trends of increasing frequency or intensity in future storms to come.

NJSHMP Mitigation Strategy	
Action Name:	RiverWare Models of Passaic/Hackensack and Raritan Basins
Action Number:	2024-NJDEP-10
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Drought, Water Supply
Description of the Problem:	A better understanding of water infrastructure and impacts to drought and flooding-related hazards in the Passaic/Hackensack, Raritan, and Coastal North basins is needed.
Description of the Solution:	NJDEP will conduct hydraulic modeling and a feasibility study to understand water resources and infrastructure improvements across New Jersey. The NJDEP is developing RiverWare models of the raw water infrastructure in the Passaic/Hackensack, Raritan, and Coastal North 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.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC CDBG-DR New Jersey Department of Community Affairs NJEIT
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	This action supports understanding of risks from drought and flooding in relation to New Jersey's water resource management (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will allow for the assessment of the impact of proposed infrastructure.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Quantify Water Infrastructure Water Losses
Action Number:	2024-NJDEP-11
Lead Agency	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Drought, Water Supply
Description of the Problem:	To support understanding of water infrastructure and the impacts to drought and water supply resiliency, the State needs to investigate and refine estimates for total water loss and leakage that occurs throughout New Jersey's water resources.
Description of the Solution:	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 staff will compile and analyze results to better quantify water loss statewide.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC CDBG-DR New Jersey Department of Community Affairs NJEIT Drinking Water State Revolving Fund
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years. Once regulations are in place data will be gathered for several years and then analyzed.
Goals Met:	1, 2, 3, 5
Benefits:	This action supports understanding of risks from drought to water resiliency of New Jersey's water resource management (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will help identify water losses from critical water infrastructure.
Impact on Capabilities:	This action will aid in the identification of necessary upgrades and repairs to the water infrastructure system.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Dam and Reservoir Infrastructure Upgrades
Action Number:	2024-NJDEP-12
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure
Description of the Problem:	As dam infrastructure continues to age, additional rehabilitation will be necessary.
Description of the Solution:	NJDEP will coordinate with dam owners to conduct replacement or improvement of dams deemed to be deficient. Efforts to upgrade dams continue.
Estimated Cost:	High >$100,000
Funding Sources:	HHPD NJDEP Dam Restoration and Inland Water Projects Loan Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action prevents potential flooding to life and property from deficient dam and reservoir infrastructure (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action prevents potential flooding to life and property from deficient dam and reservoir infrastructure
Impact on Capabilities:	N/A
Climate Change Considerations:	Increased extreme precipitation events will stress existing dam and reservoir infrastructure. This action will address deficiencies to reduce the risk of failures.

NJSHMP Mitigation Strategy	
Action Name:	CRS Program Statewide Data Management
Action Number:	2024-NJDEP-13
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	94 municipalities in the State of New Jersey currently participate in the Community Rating System (CRS) program and many municipalities are interested in joining or increasing their class ranking in the program. Better data management is needed to track flood- related data critical for the CRS program.
Description of the Solution:	NJDEP will explore the potential development of a tracking system/database for floodplain managers to upload information on substantially damaged properties, flood permits, elevation certificates, and other information.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP CDBG-DR New Jersey Department of Community Affairs
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	This action supports continuity of operations for debris management and facilities rapid disaster recovery (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action will allow for better tracking of flood permits and elevation certificates.
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will support continuity of operations and sharing of important data that can be used to aid in planning and recovery operations.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Improved State Guidance for the IBank
Action Number:	2024-NJDEP-14
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	The I-Bank is an independent state financing authority which is authorized to issue revenue bonds to make loans to finance the construction of eligible environmental and transportation infrastructure projects. State guidance for the IBank is needed to encourage system resiliency.
Description of the Solution:	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.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State Resources N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	2, 3, 4, 5
Benefits:	This action will result in State guidance that encourages system resiliency (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase the capabilities of the IBank to fund projects that increase system resiliency.
Climate Change Considerations:	This action will consider future conditions to guide investments that increase resiliency.

NJSHMP Mitigation Strategy	
Action Name:	Dam Failure Inundation Boundary Shape File Development
Action Number:	2024-NJDEP-15
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure
Description of the Problem:	There is a need for better assessment of consequence from dam failures. Dam locations have been digitized but dam failure inundation areas need improved mapping.
Description of the Solution:	NJDEP will update dam failure inundation boundary shape files to complete mapping needs.
Estimated Cost:	High >$100,000
Funding Sources:	HHPD NJDEP Dam Restoration and Inland Water Projects Loan Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5, 6
Benefits:	This action allows for a better assessment of consequence from dam failures, improves hazard information databases and maps and increase accessibility to those resources, and improves hazard information databases and maps and increase accessibility to those resources (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	Information on dam failure inundation areas can inform standards for new development in these locations.
Impact on Critical Facilities:	This action will assess the consequence from dam failure events.
Impact on Capabilities:	This action increases capabilities to plan for and respond to during dam emergencies.
Climate Change Considerations:	As extreme precipitation events increase in frequency and severity due to climate change, the risk of dam failure events increases.

NJSHMP Mitigation Strategy	
Action Name:	Raritan and Sandy Hook - Port Monmouth
Action Number:	2024-NJDEP-16
Lead Agency:	NJDEP
Supporting Agencies:	USACE
Hazard(s) of Concern:	Coastal Erosion, Extreme Temperature, Flood, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	The Raritan and Sandy Hook – Port Monmouth facility is a floodgate facility that remains in construction. The facility will have a tide gate, three electric pumps, two diesel backup generators, a road closure gate, concrete floodwall, bulkhead, and beach and dune.
Description of the Solution:	NJDEP will continue construction of the site. This will include installing an additional pump station, floodwall, levee, and interior drainage. Additional features are anticipated in upcoming phases.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State Resources Coastal Engineering and Restoration Projects NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action supports continuity of operations and protection of property for critical infrastructure for emergency operations (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action supports continuity of operations and protection of property for critical infrastructure for emergency operations.
Impact on Capabilities:	This action provides support for the flood control capabilities of the Raritan and Sandy Hook – Port Monmouth facility.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Fish and Wildlife Dams
Action Number:	2024-NJDEP-17
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Dam and Levee Failure
Description of the Problem:	NJDEP Fish & Wildlife manages a number of dams dispersed throughout the State. These dams are in various states of condition and require attention.
Description of the Solution:	NJDEP will acquire funding to maintain, replace, or eliminate dam structures. Many of the stream gages on rivers with Dam structures allow for the collection of reliable and accurate streamflow data that is critical for the water supply, water quality, and flood management/flood warning programs. The database contains years and often decades of records upon which these decisions are drawn and can only be reliably used when river conditions include the Dam structure. These benefits will be considered when evaluating whether to maintain, replace, or eliminate a structure.
Estimated Cost:	High
Funding Sources:	HMGP BRIC HHPD NJDEP operating budget Dam Restoration Loan Program NJDEP Dam Restoration and Inland Water Projects Loan Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	Dams will be maintained to prevent dam failures which could result in risk to life, property damages, and environmental impacts.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will allow for the maintenance, replacement, or elimination of critical dam infrastructure.
Impact on Capabilities:	N/A
Climate Change Considerations:	As extreme precipitation events become more frequent, proper design and maintenance of dams will be needed to prevent dam failures.

NJSHMP Mitigation Strategy	
Action Name:	NJDEP Facility Backup Power
Action Number:	2024-NJDEP-18
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Extreme Temperature, Severe Weather, Severe Winter Weather

Description of the Problem:	Various NJDEP critical facilities require new or replacement backup power sources to maintain continuity of operations.
	• Air, Energy, and Materials Sustainability
	  o 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 NJDEP's Forward Command Center for implementation of the NJ Radiological Emergency Response Plan for nuclear power plants. Field monitoring teams muster at that 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.
	• Contaminated Site Remediation & Redevelopment
	  o Northern Field Office in Cedar Knolls: Other programs also have offices in the same building, including emergency response.
	  o Bureau of Environmental Measurements and Site Assessment at 536 E. State Street.
	• Fish and Wildlife
	  o Central Region Office
	  o Pequest Trout Hatchery: 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. The main generator is 40 years old and requires replacement.
	• Solid Waste
	  o 9 Ewing Street Building: 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. Building power loss (during Sandy) created all kinds of difficulty and lost time finding other areas to work from. A natural gas generator was installed on the roof (historically for the NJDEP Command Center operations) which is not maintained and ceased working.
	• Parks
	  o Greenbank Facility – Processing
	  o Liberty State Park RO (Maintenance Building) - Processing
	  o Hopatcong Office - Processing
	  o Monmouth Training Center – Processing & Evidence (requires temperature control)
	  o Vorhees – Processing
	  o State Forest Tree Nursery
	  o Coyle Field

Description of the Solution:	NJDEP bureaus will work to identify the proper sized generators to provide backup power at each critical facility. Generators will be purchased and installed with necessary electrical components. Each bureau will be responsible for maintenance following installation.
Estimated Cost:	High
Funding Sources:	HMGP BRIC PDM

NJSHMP Mitigation Strategy	
	NJDEP operating budgets New Jersey Board of Public Utilities (BPU)
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	Continuity of operations of critical facilities maintained.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	Continuity of operations of critical facilities maintained.
Impact on Capabilities:	The action will maintain important pre- and post-disaster capabilities of the NJDEP.
Climate Change Considerations:	With increasing frequency of severe weather events, this action will aim to maintain continuity of operations under changing conditions.

NJSHMP Mitigation Strategy	
Action Name:	Pequest Trout Hatchery Gas Pumps
Action Number:	2024-NJDEP-19
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Extreme Temperature, Severe Weather, Severe Winter Weather
Description of the Problem:	In the event of extended power outage, a portable generator can be tied into the main lines in the lower maintenance building of the Pequest Trout Hatchery to maintain functioning gas pumps. These gas pumps require replacement. They are extremely old and will not endure a significant storm event. The gas pumps are utilized by State Police (during emergencies), Fish and Wildlife Law Enforcement, and the hatchery vehicles and equipment.
Description of the Solution:	NJDEP will oversee the replacement of the gas pumps at the Pequest Trout Hatchery.
Estimated Cost:	High
Funding Sources:	HMGP BRIC NJDEP operating budget New Jersey Board of Public Utilities (BPU)
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	2, 6
Benefits:	Continuity of operations of critical facilities maintained.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action maintains the ability of the Pequest Trout Hatchery to serve as an emergency fuel source during hazard events.
Impact on Capabilities:	This action allows for the maintenance of State Police, Fish and Wildlife Law Enforcement, and Pequest Trout Hatchery vehicle capabilities.
Climate Change Considerations:	With increasing frequency of severe weather events, this action will aim to maintain continuity of operations under changing conditions.

NJSHMP Mitigation Strategy	
Action Name:	Enhance Communication for Wildfire Response
Action Number:	2024-NJDEP-20
Lead Agency:	NJDEP
Supporting Agencies:	NJOEM, Forest Fire Service
Hazard(s) of Concern:	Wildfire
Description of the Problem:	There is a need to enhance communication for fire response. The current system has relied on old VHF technology.
Description of the Solution:	Additional repeaters have been added to the system to expand coverage capabilities. The Forest Fire Service also has purchased 70 UHF portable radios for full-time staff. NJDEP will continue this work to fully upgrade the communications system for Forest Fire response.
Estimated Cost:	$500,000
Funding Sources:	FEMA CDBG-DR New Jersey Department of Community Affairs
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5, 6
Benefits:	This action improves communication and safety within the agency and with interagency cooperators
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase emergency communication capabilities for the Forest Fire Service.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Enhance Radiation Monitoring for Power Plants
Action Number:	2024-NJDEP-21
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Nuclear Hazards
Description of the Problem:	Improved monitoring of radiation from power plants is needed to protect life, property, and the environment.
Description of the Solution:	The NJDEP Radiation Protection Element (RPE) will continue 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 NJDEP'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 NJDEPs emergency response facilities so that decisionmakers have instant access to response activities, plant status, and radiation data collected by field monitoring 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.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA CDBG-DR New Jersey Department of Community Affairs
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	This action improves hazard information databases and maps and increase accessibility to those resources (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action improves hazard information databases and maps and increase accessibility to those resources
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Nuclear Hazard Awareness Programs
Action Number:	2024-NJDEP-22
Lead Agency:	NJDEP
Supporting Agencies:	OHSPP, NJ Transit
Hazard(s) of Concern:	Nuclear Hazards
Description of the Problem:	NJDEP seeks to raise awareness of the capabilities offered by NJDEP Radiation Protection Element and increases public awareness on the risk of nuclear hazards.
Description of the Solution:	NJDEP will strengthen social media campaigns to raise awareness of resources and capabilities provided by NJDEP Radiation Protection Element and to increase public education on risk. 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 DEP 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 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 would provide funding for these initiatives for three additional years.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State Resources FEMA to the NJ OHSP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 5
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action increases outreach capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Inventory and Mapping of Storm Drains and Outfalls
Action Number:	2024-NJDEP-23
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	Inventory of storm drains and outfalls is a data gap in the State that will help model the impacts of flooding.
Description of the Solution:	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. NJDEP will use this mapping to create a spatial inventory of storm drains and outfalls to integrate with flood data.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC CDBG-DR New Jersey Department of Community Affairs
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	This action improves hazard information databases and maps and increase accessibility to those resources (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action improves hazard information databases and maps and increase accessibility to those resources.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Conduct Outreach to Counties on Debris Management Plan Development
Action Number:	2024-NJDEP-24
Lead Agency:	NJDEP
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	All Hazards
Description of the Problem:	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.
Description of the Solution:	NJDEP will continue outreach efforts to encourage development of county level debris management plans. During 2019-2020, NJDEP and NJOEM conducted virtual meetings with most of the counties and their respective county and municipal OEM's and discussed the need to develop 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 were submitted to NJOEM 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. In 2023 Camden County began development of a debris management plan and Cumberland County began updating their current plan. Monmouth County submitted their updated plan to NJOEM in September 2023.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State Resources
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 5, 6
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will result in the development of county level debris management plans, improving post-disaster capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Interagency Tracking of Post-Disaster Debris Management
Action Number:	2024-NJDEP-25
Lead Agency:	NJDEP
Supporting Agencies:	NJDOT, NJTA
Hazard(s) of Concern:	All Hazards
Description of the Problem:	There is a need to better manage debris removal during- and post-hazard.
Description of the Solution:	NJDEP will 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. 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.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State Resources New Jersey Turnpike Authority: Capital Program New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5, 6
Benefits:	This action supports continuity of operations for debris management and facilities rapid disaster recovery (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action increases post-disaster capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Establish Interconnections and Alternate Water Supplies
Action Number:	2024-NJDEP-26
Lead Agency:	NJDEP
Supporting Agencies:	
Hazard(s) of Concern:	Drought
Description of the Problem:	Existing water systems need to establish interconnections and alternate water supplies to sustain residential water service.
Description of the Solution:	NJDEP will 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.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC EPA/SRF Ibank Drinking Water State Revolving Fund New Jersey Board of Public Utilities (BPU) New Jersey Water Bank (NJWB)
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years. This action is 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.
Goals Met:	1, 2, 6
Benefits:	This action provides resiliency and long term water supply (>$100,000).
Impact on Socially Vulnerable Populations:	This action protects water supplies relied upon by socially vulnerable populations.
Impact on Future Development:	Access to reliable water is vital for future development.
Impact on Critical Facilities:	This action protects critical water lifelines.
Impact on Capabilities:	This action maintains water supplies to support emergency response such as wildfire.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	GIS Overlay of State-Owned Critical Facilities with Seismic Hazard
Action Number:	2024-NJDEP-27
Lead Agency:	NJDEP
Supporting Agencies:	OHSP
Hazard(s) of Concern:	Earthquake, Geological Hazards
Description of the Problem:	There is a need for an 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.
Description of the Solution:	NJDEP 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.
Estimated Cost:	High >$100,000
Funding Sources:	N.J.A.C.7:5
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years. This action will become an ongoing capability once established.
Goals Met:	2, 3, 5, 6
Benefits:	This action serves as first step in a long-term plan to reduce risks to the most critical State facilities and results in protecting both life and property (High >$100,000)
Impact on Socially Vulnerable Populations:	Critical facilities included in the overlay will include those that service socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action focuses on evaluating critical facility risk to the earthquake hazard.
Impact on Capabilities:	This action will establish an ongoing capability.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Complete HAZUS Loss Estimation Runs for Damaging Earthquakes for New Jersey
Action Number:	2024-NJDEP-28
Lead Agency:	NJDEP NJGWS
Supporting Agencies:	
Hazard(s) of Concern:	Earthquake, Geological Hazards
Description of the Problem:	HAZUS and NYCEM data is necessary for the development of mitigation planning, for both the State and local communities. Much of this data associated with earthquake, landslide, sinkhole, abandoned mines, etc. is already mapped, but not clearly consolidated into a single place. A comprehensive database for mitigation planning is needed to assist in developing State and local mitigation plans with current information.
Description of the Solution:	Phase 1. NJDEP will compile a GIS dataset of all geologic hazards for use in other mitigation plans- earthquake, landslide, sinkhole, abandoned mines, etc. Phase 2. NJDEP will complete a HAZUS loss estimation runs for the most likely damaging earthquakes for New Jersey. NJDEP 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.
Estimated Cost:	High (>$100,000)
Funding Sources:	Expansion of NJGWS financial resources N.J.A.C.7:5
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 5
Benefits:	This action is part of a larger process to identify most at-risk areas, as basis to determine where State mitigation resources can best be used henceforth and results in protecting both life and property (High >$100,000)
Impact on Socially Vulnerable Populations:	At risk areas that overlap with socially vulnerable populations and underserved communities will be identified.
Impact on Future Development:	Action will identify most-at-risk areas where future development should take place with additional design considerations in place.
Impact on Critical Facilities:	Action will identify loss estimations that can be used for emergency planning considerations by lifeline facilities.
Impact on Capabilities:	Action will increase the State's capabilities for pre-disaster mitigation and planning.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Integrate FireWise into the State's Uniform Construction Codes
Action Number:	2024-NJDEP-29
Lead Agency:	NJDEP
Supporting Agencies:	NJDCA
Hazard(s) of Concern:	Wildfire
Description of the Problem:	Construction codes should be updated to reduce fire losses.
Description of the Solution:	The State will integrate FireWise guidance into the uniform construction codes utilized by the State to support preparedness and prevention of wildfire risk.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State funds NJDEP Grant and Loan Programs New Jersey Department of Community Affairs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 5
Benefits:	This action will result in stronger building code requirements (High >$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action will result in stronger building requirements for new construction
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will improve regulatory capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Energy Allocation Initiative
Action Number:	2024-NJDEP-30
Lead Agency:	NJDEP
Supporting Agencies:	NJOEM, NJOHSP, NJBPU
Hazard(s) of Concern:	Extreme Temperature, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	There is need for a financing program to provide governments with financing for alternative energy projects to reduce grid demands during events that result in heavy grid use such as extreme temperature events or grid outages such as severe storms.
Description of the Solution:	The State will implement an Energy Allocation Initiative that provides financing for alternative energy projects to municipalities, counties, and other government units to pursue creative and cost-effective alternatives to enhance statewide energy resilience.
Estimated Cost:	Costs for establishing the Energy Allocation Initiative will be high.
Funding Sources:	State and federal energy resiliency allocations New Jersey Clean Energy Program (NJCEP) NJDEP Grant and Loan Programs
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	5, 6
Benefits:	Benefits are expected to be high (>$100,000) and improve the energy resiliency in the State.
Impact on Socially Vulnerable Populations:	The action may result in increased support for alternative energy projects that serve socially vulnerable populations.
Impact on Future Development:	The action will provide improved energy resilience for both current and future development.
Impact on Critical Facilities:	The action will provide potential funding to energy resilience projects that service critical facilities.
Impact on Capabilities:	This action will improve funding capabilities for energy resilience projects.
Climate Change Considerations:	Climate change is likely to result in increased extreme temperature and severe weather events that result in power outages. This action will improve resiliency to future conditions.

NJSHMP Mitigation Strategy	
Action Name:	Encourage Use of Electrical Dependent Data in Local Hazard Mitigation and Emergency Planning
Action Number:	2024-NJDOH-01
Lead Agency:	Department of Health
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Hurricanes/Nor'easters/Tropical Storms, Severe Weather, Severe Winter Weather, Wildfire, Cyber Attacks, Terrorism
Description of the Problem:	The NJ Department of Health has a wide variety of data available. As local hazard mitigation plan guidance evolves to incorporate a community-wide comprehensive approach to hazard mitigation, it will be important to include data that can inform potential needs during and following a disaster event.
Description of the Solution:	The Department of Health will work with NJOEM to identify useful data that can be incorporated into local planning guidance such as data that identifies factors leading to the increased social vulnerability of populations such as health issues and reliance on electricity.
Estimated Cost:	Staff time
Funding Sources:	Operating budgets
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 5, 6
Benefits:	This action will result in more robust planning processes for local hazard mitigation plans
Impact on Socially Vulnerable Populations:	Data from the Department of Health will increase the identification of socially vulnerable populations, analysis of risk of these populations to hazard events, and assist in the potential identification and implementation of mitigation actions to benefit these populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	Incorporation of Department of Health data may lead to the identification of additional or expanded needs from critical facilities that could lead to identification and implementation of mitigation actions.
Impact on Capabilities:	This action will enhance the State's local hazard mitigation planning guidance.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Identify Gaps in Public Understanding of Department of Health Programs
Action Number:	2024-NJDOH-02
Lead Agency:	Department of Health
Supporting Agencies:	
Hazard(s) of Concern:	All Hazards
Description of the Problem:	The Department of Health administers a wide array of programs. Due to the number and variety of programs that exist, there is potential for gaps in public understanding of these programs. This may result in misinterpretation of important medical and emergency information related to hazard events, such as the assumption that participation in one program results in sharing of an individual's information with emergency response and "check in" programs. This misinterpretation can lead to failure of individuals to prepare for or respond appropriately before, during, and after hazard events.
Description of the Solution:	The Department of Health will conduct a review of existing programs to identify potential gaps in public understanding of programs. The Department will identify methods to resolve these gaps and improve program messaging.
Estimated Cost:	Staff time
Funding Sources:	Operating budgets
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	3
Benefits:	This action will result in improved messaging of important Department of Health programs that may impact the public's preparation and response to hazard events.
Impact on Socially Vulnerable Populations:	This action will specifically identify public understanding gaps for Department of Health programs across various populations, including socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will result in a better understanding of gaps in outreach that will be used to improve program messaging.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Develop Long-term Procedures for Receiving, Storing, Staging, and Transport of PPE
Action Number:	2024-NJDOH-03
Lead Agency:	Department of Health
Supporting Agencies:	NJOEM
Hazard(s) of Concern:	Pandemic, Animal Disease, Harmful Algal Blooms, Hazardous Substances
Description of the Problem:	The coronavirus pandemic has resulted in a large stockpile of Personal Protective Equipment (PPE). While the current need for PPE has been reduced by the ending of the coronavirus public health emergency, it is anticipated that a large stockpile of PPE will need to be maintained for public health emergencies and other hazard events to prevent the shortages that occurred during the early stages of the coronavirus pandemic.
Description of the Solution:	The Department of Health will work with other state departments and agencies to develop a statewide PPE strategy. This strategy will involve identification of storage facilities, tracking of expiration dates of PPE stock, destruction and disposal of expired PPE, and the staging, transport, and delivery of PPE during public health emergencies. This strategy will be incorporated into emergency management planning in the State.
Estimated Cost:	Staff time
Funding Sources:	Operating budgets
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 5, 6
Benefits:	This action will develop an overall emergency PPE stockpile management strategy that will maintain necessary PPE for future events.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	This action may result in potential development of storage and staging facilities for PPE.
Impact on Critical Facilities:	This action may result in identification or development of storage and staging facilities for PPE.
Impact on Capabilities:	This action will improve the State's PPE storage and distribution capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Impervious Surface Reduction Action Planning and Implementation
Action Number:	2024-NJHWPPC-01
Lead Agency:	NJ Highlands Water Protection and Planning Council
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Extreme Temperatures, Hazardous Materials
Description of the Problem:	Impervious surfaces like parking lots, driveways, sidewalks, and rooftops prevent water from infiltrating into soils, leading to stormwater runoff. After flowing through developed areas, stormwater runoff ultimately flows to and/or reaches drainage pipes/swales that connect to waterways. Impervious surfaces amplify the quantity and flow of runoff that enters waterbodies, while reducing infiltration into the underlying soils. Consequently, this can result in localized flooding during heavy, and in some cases even minor, rainfall events. Moreover, stormwater runoff often causes erosion/scouring at outfall areas as well as carries pollutants into waterways, negatively impacting their quality. Additionally, impervious surfaces contribute to the overall urban heat island effect.
Description of the Solution:	By reducing impervious surfaces and implementing green stormwater infrastructure, communities can safeguard themselves against flooding, preserve potable water supplies, and mitigate the escalating temperatures resulting from climate change. Recognizing the need to develop and implement impervious surface Reduction Action Plans, the NJ Highlands Council contracted Rutgers Cooperative Extension Water Resources Program to complete an assessment of impervious surface by subwatershed. Watershed Management Area 8 (WMA), which contains portions of 27 Highlands municipalities, was studied for impervious coverage and opportunities to manage uncontrolled sources of stormwater with green infrastructure. Rutgers also calculated stormwater runoff volumes for the impervious surfaces for the one-inch storm, the 2-year design storm, the 10-year design storm and the 100-year design storm. For each of the 27 municipalities, impervious cover Reduction Action Plans (RAPs) were prepared, identifying locations where green infrastructure projects would be beneficial in managing stormwater. Green infrastructure techniques including bioretention/rain gardens, green roofs, porous pavement, and vegetated swales can help mitigate the impacts of runoff from impervious surfaces. Of the eighty-eight (88) municipalities in the NJ Highlands, many have not yet conducted impervious cover assessments or Impervious Surface Reduction Action Plans. The Highlands Council can provide grant funding for municipalities to develop these plans and identify mitigation projects, though funding will be required for the implementation of the designs. The Highlands Council cannot fund the physical implementation of the projects identified in those plans, additional funding from the state should be directed to a small-scale grant program to assist in the implementation of the plans.
Estimated Cost:	To be determined. Case-by-case basis.
Funding Sources:	NJDEP Green Infrastructure Fund (GIF) NJDEP Water Quality Restoration Grants HMA PDM Clean Water Act Section 319(h) Nonpoint Source (NPS) Pollution Control Grant Program N.J.A.C.7:22 NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 3, 5
Benefits:	Damage from localized flooding may be reduced or avoided through the reduction of impervious surfaces, implementation of green infrastructure to receive stormwater runoff, or a combination of both.
Impact on Socially Vulnerable Populations:	The effects of rising temperatures are anticipated to be most acutely felt by underserved communities which often lack indoor air-conditioning and shaded, green, outdoor spaces for relief from extreme heat. Studies also show that such communities are often located in areas of high flood risk.

NJSHMP Mitigation Strategy	
Impact on Future Development:	Reductions in impervious surfaces have a direct correlation to reducing flood risk, maintaining water quality, and reducing localized heat island effects.
Impact on Critical Facilities:	Hospitals, cooling centers, and like facilities rely on clean, plentiful water supplies for daily operations as well as lifesaving/life-support functions. Mitigation for rising temperatures will help manage, perhaps limit, the need for community lifeline facilities.
Impact on Capabilities:	The action will result in impervious cover assessments or Impervious Surface Reduction Action Plans for the remaining municipalities in the Highlands.
Climate Change Considerations:	New Jersey is projected to experience more frequent and severe storms as a result of climate change. Reducing impervious surfaces and expanding green infrastructure will help communities manage more intense storms and mitigate heat islands. Green infrastructure and stormwater management systems will need to be designed to capture, treat, and infiltrate stormwater runoff of two-year design storms and above to manage localized flooding.

NJSHMP Mitigation Strategy	
Action Name:	Climate Adaption Planning Guide for New Jersey Highlands Municipalities
Action Number:	2024-NJHWPPC-02
Lead Agency:	NJ Highlands Water Protection and Planning Council
Supporting Agencies:	
Hazard(s) of Concern:	Climate Adaption Planning Guide for NJ Highlands Municipalities
Description of the Problem:	The New Jersey Municipal Land Use Law (MLUL) was recently revised to require towns to incorporate smart growth, storm resiliency, environmental sustainability, and climate change hazard vulnerability assessments in their master plans. Many of the eighty-eight (88) municipalities in the Highlands require additional resources to effectively implement the newly required MLUL elements. Additionally, the Highlands Council understands that low-income and vulnerable groups bear a disproportionate share of the harmful consequences of climate change and that municipalities must prioritize environmental justice when addressing climate hazard vulnerabilities and resilience.
Description of the Solution:	The NJ Highlands Council is working with a professional team including New Jersey Future, Sustainable Jersey, BRS Inc., and The Land Conservancy of New Jersey, to develop a municipal guidance document for achieving compliance with the new MLUL requirements. A technical advisory committee was formed to bring knowledge of other similar and relevant efforts and to provide context for development of the guidance material. This broad and comprehensive effort will help ensure that the finished product incorporates the best available information, aligns with other on-going initiatives, and provides a meaningful tool to meet all regulatory requirements for incorporating climate resilience, environmental justice, and hazard vulnerability assessments into Highlands municipal master plans.
Estimated Cost:	The cost of the guidance document has been funded through the Highlands Regional Master Plan Implementation Fund. However, more funding will be required for municipalities to develop and incorporate these required elements into their municipal master plans and then implement these elements to reduce the risks of natural hazards exacerbated by climate change. A key goal of this action is the development of a Highlands grant program to assist municipalities in implementing the changes outlined in the guidance, including a model scope of work for municipalities to use to apply for additional funding.
Funding Sources:	NJ DEP Natural Climate Solutions Grant program HMA BRIC
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4, 5
Benefits:	The municipal guidance document will outline a framework for communities to use when completing vulnerability assessments, including hazard mitigation strategies. The assessment technique will also focus on alleviating social disparities and advancing the resilience of critical community facilities. Policy modifications made by FEMA in 2022 (included in the Robert T. Stafford Disaster Relief and Emergency Assistance Act and Title 44 Code of Federal Regulations Section 201-Mitigation Planning) require local governments to integrate the ""effects of climate change and other future conditions"" in their risk assessments for hazard mitigation strategies. By aligning with these policy updates, this project will enable communities to identify and address the risks associated with climate change effectively. This approach promotes long-term resilience and helps communities adapt to changing environmental conditions, ultimately reducing potential future losses and damages. Mitigation planning can lead to significant cost savings in the long term. By proactively addressing risks and implementing mitigation measures, communities can avoid or minimize damage caused by disasters. This reduces the need for post-disaster recovery and reconstruction expenses and the costs associated with ongoing disruptions to critical infrastructure and services. While the exact cost savings may vary based on the specific hazards and vulnerabilities of the Highlands municipalities, the

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	implementation of mitigation planning is expected to generate long-term savings by reducing property damages, ensuring continuity of operations, and minimizing post-disaster recovery costs.
Impact on Socially Vulnerable Populations:	Highlands municipalities will be given guidance on addressing the risks to underserved and socially vulnerable communities and improving the general safety and welfare of all communities. This project includes a focus on advancing equity and alleviating social disparities in both the planning process and outcomes. By considering the needs and vulnerabilities of all community members, particularly marginalized populations, the project aims to promote social equity and ensure that mitigation and resilience strategies address the diverse needs of the community.
Impact on Future Development:	The municipal guidance document will provide direction on appropriate land use/development in the context of a changing climate. It will directly address development capacities, siting issues, redevelopment opportunities, and planning/design strategies to ensure sustainable practices, particularly in the face of anticipated growth.
Impact on Critical Facilities:	This action has significant potential to reduce risks to critical facilities, though these are anticipated to vary by municipality. The guidance will require community-wide inventories and risk assessments of all such facilities to gain an understanding of future needs and priorities for protection. It will also consider the need for new or expanded facilities and infrastructure to ensure community readiness to assist in extreme weather events, flood situations, power outages, and other like disaster conditions (e.g., with cooling centers, shelters). For example, improving the resilience of the power grid to storm driven outages, is an important way to reduce risk to critical facilities and vulnerable populations.
Impact on Capabilities:	This action supports pre-disaster capabilities in the State and also aims to reduce the need for post-disaster recovery and reconstruction.
Climate Change Considerations:	This action specifically addresses hazards ensuing from or amplified by climate change.

NJSHMP Mitigation Strategy	
Action Name:	Water Use & Conservation Management Plan Model
Action Number:	2024-NJHWPPC-03
Lead Agency:	NJ Highlands Water Protection and Planning Council
Supporting Agencies:	
Hazard(s) of Concern:	Drought, Wildfire
Description of the Problem:	Protecting, restoring, and improving water resources in the Highlands Region is one of the primary goals listed in the Highlands Regional Master Plan (RMP). The RMP requires that conforming municipalities develop Water Use and Conservation Management Plans (WUCMPs) for the Highlands Region to fulfill this goal. While planning grants are available to Highlands municipalities for the development of Water Use and Conservation Management Plans, there is a need for wider adoption and outreach to municipalities outside the Highlands region that rely on Highland's water.
Description of the Solution:	The NJ Highlands Water Protection and Planning Council will develop a Water Use and Conservation Plan model for communities to use to protect water resources in the Highlands. The Council will encourage statewide adoption of the model.
Estimated Cost:	To be determined. Costs based on the complexity of the water balance inputs/outputs by sub watershed and geographical focus area.
Funding Sources:	NJ Highlands Council Plan Conformance grants FEMA HMGP Drinking Water State Revolving Fund NJEIT
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 5
Benefits:	Water Use and Conservation Management Plans contain water deficit mitigation strategies, such as an evaluation of water conservation measures that may be employed to reduce water use. These include high-efficiency irrigation techniques, rainwater harvesting, and low-flow plumbing fixtures, as well as review of reuse potential and water storage alternatives. The program also consists of the development of a deficit reduction strategy and implementation plan to identify reduction targets, responsible parties, a schedule for action, implementation, and funding mechanisms. Monitoring plans are created to measure water use and validate the performance of the mitigation actions. Planning for water availability during droughts and extreme heat will benefit all users, including underserved communities and vulnerable populations both within and outside the Highlands Region.
Impact on Socially Vulnerable Populations:	Ensuring a clean and abundant water supply is crucial for minimizing risks to public health and safety, including the threat of fires. As temperatures rise, the demand for water also increases. A significant portion of this increased water consumption is directed to the urban centers of the state, where the effects of extreme heat are particularly pronounced. This situation poses significant challenges and risks, especially for overburdened communities and vulnerable populations who are disproportionately affected by the impacts of extreme heat.
Impact on Future Development:	Water conservation plays a vital role in ensuring an adequate supply of drinking water for current and future needs. Without prioritizing conservation efforts, it will become increasingly difficult to meet future increased demands for water.
Impact on Critical Facilities:	The action will benefit a variety of critical facilities that rely on clean, plentiful water supplies for daily operations as well as lifesaving/life-support functions such as hospitals, cooling centers, etc.
Impact on Capabilities:	The action will benefit both pre- and post-disaster capabilities for water shortage events.
Climate Change Considerations:	This program has been recently updated to incorporate planning for changes in precipitation and water usage due to the impacts of extreme heat, drought, and other climate impacts. It is expected that ongoing updates will be necessary as climate effects continue to evolve. New water conservation measures may need to be implemented to ensure aquifer recharge, especially as severe storms replace previously common moderate and widespread rainfall events across the Highlands. These storms historically played an important role in naturally replenishing water resources. Climate

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	change impacts, including the occurrence of severe heatwaves and prolonged droughts, may have direct impacts on water resources throughout the State.

NJSHMP Mitigation Strategy	
Action Name:	Develop a Highlands Open Space and Recreation Plan
Action Number:	2024-NJHWPPC-04
Lead Agency:	NJ Highlands Water Protection and Planning Council
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Drought, Crop Failure, Geologic Hazards, Hazardous Materials
Description of the Problem:	Preserving land in the New Jersey Highlands region is essential for effective hazard mitigation. Natural lands play a fundamental role by serving as a buffer against natural disasters and reducing risks from flooding, landslides, crop failure, and climate change impacts. The Highlands Act specifies that a central goal of the Highlands Regional Master Plan (RMP) is to preserve extensive and contiguous areas of land, including forests, wetlands, stream corridors, steep slopes, farmland, and open space to help ensure the protection of the natural, scenic, historic, and other resources, and provide opportunities for recreation on publicly owned lands and the continuation and expansion of agricultural activities (N.J.S.A. 13.20-10). The Highlands Council has been exploring various means to meet the land preservation goals outlined in the Highlands Act and the Highlands RMP. Adequate funding for land preservation projects is crucial to safeguarding resources, building resilience in the region, and fulfilling the intent of the NJ Highlands Act to ensure the protection of the drinking water resources crucial for over 70% of NJ residents.
Description of the Solution:	The Highlands Council has recently secured a federal grant from the United States Fish and Wildlife Service to fund an Open Space and Recreation Plan. This project aims to catalog existing recreation and open space lands, identify additional properties appropriate for preservation, and provide a framework for acquiring future open space. The Plan will be developed with significant outreach to address equity amongst all stakeholders within the State and incorporate environmental justice principles to ensure that proposed open space and recreation projects have equitable benefits for all populations.
Estimated Cost:	Medium
Funding Sources:	United States Fish and Wildlife Service Green Acres Program Blue Acres Program Open Space and Farmland Preservation Programs
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 3
Benefits:	Land preservation in the New Jersey Highlands region plays a critical role in hazard mitigation. Preserved forests, wetlands, farmlands, and open space areas act as natural buffers, regulating water flow during heavy rainfall events, protect against erosion, support biodiversity, and contribute to climate change mitigation efforts. By recognizing the importance of land preservation and incorporating it into hazard management strategies, the New Jersey Highlands region can enhance its resilience to hazards and ensure a sustainable and equitable future for New Jersey communities.
Impact on Socially Vulnerable Populations:	Land preservation is crucial in addressing environmental justice concerns, particularly for socially vulnerable and underserved communities disproportionately affected by pollution, degraded ecosystems, and industrial sites. Preserving land in these areas helps mitigate environmental hazards, ensuring equitable access to safe and healthy environments. It prevents the concentration of harmful industries near vulnerable populations, reducing health risks and improving environmental quality. New Jersey's Environmental Justice Law identifies Overburdened Communities (OBCs) based on factors such as low-income households, minority populations, and limited English proficiency. Within the Highlands region, 29 municipalities contain OBC census block groups. Approximately 31-percent of the region consists of publicly accessible open space, aligning with the goals of the Environmental Justice Law. The Highlands Council aims to continuously track and refine land preservation data to incorporate environmental justice considerations into regional planning for the New Jersey Highlands.
Impact on Future Development:	When the NJ Highlands Act was passed in 2004, a primary goal was to provide a framework for managing development in the New Jersey Highlands region, reducing intense development pressures, and protecting critical environmental, agricultural and water resources. It balances the

NJSHMP Mitigation Strategy	
	need for sustainable growth with the preservation of the region's natural heritage, helping to ensure a resilient and ecologically sound future for the area. Land preservation initiatives are identified in the Act as a means to reduce intense development pressures and protect the New Jersey Highlands region's water resources, agricultural production, and natural environment.
Impact on Critical Facilities:	Protection of lands within the Highlands Region may be designed to buffer critical facilities and community lifelines from the impacts of hazardous events. One example is in the simple capacity of natural land areas to absorb rainfall, reduce and slow the flow of stormwater run-off, and thus minimize potential for flooding in severe storm events.
Impact on Capabilities:	The preservation of critical lands within the Highlands Region will limit impervious surfaces, act as both flood storage and groundwater recharge, support food security, and help buffer population centers from climate impacts. The action supports both pre- and post-disaster capabilities.
Climate Change Considerations:	Preserving land in the New Jersey Highlands region also has a significant impact on climate change mitigation. Forested and agricultural areas sequester carbon dioxide, helping to mitigate greenhouse gas emissions and combat climate change. By preserving these natural lands, the region contributes to reducing the risks associated with climate change.

NJSHMP Mitigation Strategy	
Action Name:	Maintain and Continually Update the Climate Data and Information Warehouse and Software Library
Action Number:	2024-ONJSC-01
Lead Agency:	Office of the New Jersey State Climatologist, Rutgers University
Supporting Agencies:	NJDEP
Hazard(s) of Concern:	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Crop Failure, Harmful Algal Blooms
Description of the Problem:	There is a critical need for both real-time and historical weather and climate information for planning and response associated with numerous weather/climate hazards across NJ. Well-informed individuals who are cognizant of weather/climate conditions can make better decisions associated with life and property. For planning purposes, the Office of the NJ State Climatologist (ONJSC) maintains multiple databases of past extreme weather/climate events (e.g. tornadoes 1950-present; extreme rainfall events (1895-present); data/information associated with Hurricane Sandy). There is a need for further support to expand this data/information warehouse for other variables (e.g. tropical systems; drought) and to develop software to facilitate timely updating and display of all variables. Given New Jersey's changing climate (e.g. large rainfall events and associate flooding, excessive heat) it is important to have complete and timely information at hand for planning purposes. Such information will help NJ prepare and respond when hazards arise, better protecting all in potential harms way, especially socially vulnerable populations and underserved communities.
Description of the Solution:	The ONJSC will be responsible for the generation, storage, display, and dissemination of all weather/climate data and information generated for the hazard warehouse. This will include efforts to build databases for all hazards, including research into past occurrences, software development for the storage, display, and dissemination of products, and providing expert guidance to all interested in accessing the data/information.
Estimated Cost:	The estimated cost of upgrading/expanding the weather/climate event warehouse along with its display, updating, and advising any stakeholder communities is estimated at $90,000 each of the first two years. Subsequent years will require reduced efforts, estimated at $50,000 per year.
Funding Sources:	USDOT USDA NOAA USDOI
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	3, 4, 5
Benefits:	With data/information on past hazardous weather/climate events readily at hand, the state and communities can better plan for the reduction and avoidance of property and especially people in vulnerable areas at the time of future major events. It is difficult if not impossible to place a price tag on such hazard avoidances, but they most certainly are considerable
Impact on Socially Vulnerable Populations:	Data/information gathered and archived in the weather/climate hazard warehouse knows know social boundaries. In fact, since underserved communities and socially vulnerable populations have been disproportionately impacted by past hazardous events the warehouse will include data/information that often focuses on each. Thus, information will be available to better understand what occurred in the past in order to help prevent recurrences in the future.
Impact on Future Development:	This action may reduce risk for areas under intense development pressures by illustrating the hazards that could disproportionately impact such areas during future events in our climate changing world.
Impact on Critical Facilities:	Having critical information regarding critical past weather/climate events may reduce risk for critical facilities/community lifelines by increasing awareness of the serious nature and frequency of past events. This evaluated in light of the likelihood of an increased frequency of some events in our climate changing world.
Impact on Capabilities:	This weather/climate warehouse will increase capabilities/capacity for risk reduction in NJ. It will support pre- and post-disaster capabilities. Pre-disaster capabilities will increase due to a better understanding of past events. Post-disaster capabilities will increase in particular associated with compound or cascading hazardous events (e.g., a heatwave following a hurricane).

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Climate Change Considerations:	This action clearly has a climate change focus. Evaluation of how NJ's climate is changing is only possible through having an as complete as possible database/information on what has occurred in the past up through the present.

NJSHMP Mitigation Strategy	
Action Name:	Maintain and Potentially Expand Rutgers New Jersey Weather Network (NJWxNet) Operations
Action Number:	2024-ONJSC-02
Lead Agency:	Office of the New Jersey State Climatologist, Rutgers University
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Crop Failure, Harmful Algal Blooms, Hazardous Substances
Description of the Problem:	The NJWxNet is the source of weather/climate-related data and information that may be customized for State, county, or community assessments of hazards and risks. The real-time network of 67 current stations throughout NJ permits public entities of any size to generate weather/climate products for use in event reports, mitigation proposals, and various planning documents. It also provides real-time information critical to decision making as weather and weather-related events unfold, throughout events, and in recovery phases. Informed decisions that are critical in preserving life and property. The NJWxNet gathers observations of multiple atmospheric variables every five minutes, with these data immediately quality controlled, archived, and disseminated via the network website (njweather.org) and directly to local National Weather Service offices (with the potential of direct customized delivery of data and products to decision makers via the web or through apps). The NJWxNet requires considerable operational funds to cover the costs of maintaining the stations, including instrumentation calibration and replacement and site upkeep. Communication costs must be covered. So too, are funds needed to maintain the NJWxNet database, quality control, product generation, data dissemination, and data/product display.
Description of the Solution:	The Office of the New Jersey State Climatologist will work to secure funding to maintain the current NJWxNet system and expand the coverage of the system where possible.
Estimated Cost:	The estimated cost of properly maintaining the NJWxNet is $400,000/year.
Funding Sources:	Currently, a portion of funding support is mainly provided through the National Mesonet Program (funds from the National Weather Service) and the NJ Department of Environmental Protection. These funds and smaller amounts provided by a small number of other sources come up approximately $100,000 short. Thus, it would be beneficial to receive such funding via NJOEM (which previously has provided support) and FEMA.
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 3, 5, 6
Benefits:	With real-time weather data/information readily at hand, the State and communities is greatly benefited. It is difficult if not impossible to place a price tag on such timely event monitoring, but they most certainly are considerable.
Impact on Socially Vulnerable Populations:	Data/information gathered and disseminated in a timely manner knows know social boundaries. In fact, since underserved communities and socially vulnerable populations are often disproportionately impacted thus the NJWxNet is particularly beneficial in quickly and effectively responding to hazardous events in these communities.
Impact on Future Development:	Support for NJWxNet operations may reduce risk for areas under intense development pressures by providing critical timely information to quickly address a hazardous event that is threatened or in progress, thus likely saving lives.
Impact on Critical Facilities:	Having critical information regarding ongoing weather events may reduce risk for critical facilities/community lifelines. This evaluated in light of the likelihood of an increased frequency of some events in our climate changing world.
Impact on Capabilities:	A functioning NJWxNet increases capabilities/capacity for risk reduction in NJ. It will support pre-, ongoing, and post-disaster activities. Knowledge of what is transpiring weatherwise is essential for reducing risk.
Climate Change Considerations:	Observations gathered by the NJWxNet are serving a valuable purpose over time in documenting extreme events, thus helping in evaluations of any changes in the frequency and/or severity of such events.

NJSHMP Mitigation Strategy	
Action Name:	Develop Extreme Precipitation Events Report
Action Number:	2024-ONJSC-03
Lead Agency:	Office of the New Jersey State Climatologist, Rutgers University
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather;
Description of the Problem:	Extreme temperature events appear to be more common in the State, but decision makers are currently unaware of the relation of these events to climate change or if the occurrence of these events is in alignment with normal conditions. These events often lead to flash flooding of roads and streams and later to flooding of larger rivers. Combined with coastal surge flooding, the potential for extreme flooding in downstream portions of river basins exists.
Description of the Solution:	The ONJSC will gather historic data from weather stations that have been reporting in the State since the latter half of the 19th century. The first half of the record will only include daily precipitation totals. Later years find some (a minority) of stations with hourly or more frequent observations, and for in recent decades there are observations from Rutgers NJ Weather Network and some other stations as often as every five minutes. Data have already had some quality assessment however more will be accomplished to ensure that, for instance, multi-day events have not been entered into the database as single day totals. Also, to check if reports or zero precipitation are not actually missing reports. Subsequently, the database will be archived and made publicly available. Several case studies will be generated to provide examples of the utility of the dataset. Time series analysis will also evaluate potential trends or changes in variability.
Estimated Cost:	The estimated cost of this study including database generation, analysis, and means of dissemination is estimated at $30,000 over the course of a year.
Funding Sources:	USDOT NOAA FEMA USGS
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4
Benefits:	With data and analysis of past excessive precipitation events readily at hand, the state and communities can better plan for the reduction and avoidance of property and especially people in vulnerable areas at the time of future major events. It is difficult if not impossible to place a price tag on such hazard avoidances, but they most certainly are considerable.
Impact on Socially Vulnerable Populations:	Underserved communities and socially vulnerable populations are disproportionately impacted by hazardous events, including flooding that results from excessive precipitation events. This study will help to better understand what occurred in the past in order to help address potential current and future events.
Impact on Future Development:	This action can assist in reducing risk for areas under intense development pressures by illustrating the type of event that could disproportionately impact such areas during future events in our climate changing world.
Impact on Critical Facilities:	Having critical information regarding critical past extreme precipitation events may reduce risk for critical facilities/community lifelines by increasing awareness of the serious nature and frequency of past events.
Impact on Capabilities:	Yes, this study will increase capabilities/capacity for risk reduction in the State. It will support pre- and post-disaster capabilities. Pre-disaster due to a better understanding of past events. Post-disaster in particular associated with a major precipitation event that generated flooding.
Climate Change Considerations:	This action clearly has a climate change focus. There is a likelihood of an increased frequency of excessive precipitation events in our climate changing world. In order to evaluate how the State's precipitation regime is changing, a complete database on what has occurred in the past up through present is needed.

NJSHMP Mitigation Strategy	
Action Name:	Maintain and Continually Update a Weather Hazards Portal and Dashboard
Action Number:	2024-ONJSC-04
Lead Agency:	Office of the New Jersey State Climatologist, Rutgers University
Supporting Agencies:	
Hazard(s) of Concern:	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather, Wildfire, Crop Failure, Harmful Algal Blooms, Hazardous Substances
Description of the Problem:	There is a critical need within the emergency management community for quick and easy access weather and related information for responding to numerous weather hazards across NJ. Well-informed individuals who are cognizant of atmospheric, hydrologic, and coastal conditions can make better decisions associated with preserving life and property. The portal continually provides a multitude of baseline information from the Office of the NJ State Climatologist (ONJSC) and other sources, including the National Weather Service, US Geological Survey, National Ocean Service, and NJDEP. In particular, this will include timely (5-minute updates) from the Rutgers NJ Weather Network, a constellation of 67 weather stations operated by the ONJSC). 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 (e.g., wildfire, chemical spill/toxic release) events. Such information will help NJ emergency managers respond when hazards arise, better protecting all in potential harm's way, including socially vulnerable populations and underserved communities.
Description of the Solution:	The ONJSC will be responsible for the development of the portal/dashboard and the ongoing population of the site. This will include accessing data from the multiple providers in a timely manner and quickly generating effective means of disseminating the information in a quickly understandable format for the emergency management community. This will, of course, involve working closely with this community in order to develop the most effective products and their presentation.
Estimated Cost:	The estimated cost of developing the portal/dashboard along with its maintenance is estimated at $90,000 each of the first two years. Subsequent years will require reduced efforts, estimated at $50,000 per year.
Funding Sources:	USDOT USDA NOAA USDOI
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 5
Benefits:	With data/information in one place from multiple sources regarding ongoing weather or weather-related events readily at hand, the State and communities can greatly benefit all. It is difficult to place a price tag on such timely event monitoring, but they most certainly are considerable.
Impact on Socially Vulnerable Populations:	Data/information gathered and disseminated in a timely manner knows know social boundaries. In fact, since underserved communities and socially vulnerable populations are often disproportionately impacted by past hazardous events the portal/dashboard will be particularly beneficial in quickly and effectively responding to hazardous events in these communities.
Impact on Future Development:	This action may very well reduce risk for areas under intense development pressures by providing critical timely information to quickly address a hazardous event that is threatened or in progress, thus likely saving lives.
Impact on Critical Facilities:	Having critical information regarding ongoing weather events may reduce risk for critical facilities/community lifelines. This evaluated in light of the likelihood of an increased frequency of some events in our climate changing world.
Impact on Capabilities:	This portal/dashboard will increase capabilities/capacity for risk reduction in NJ. It will support pre-, ongoing, and post-disaster activities. Knowledge of what is transpiring across multiple fronts (e.g., heavy rain, subsequent flash and river flooding) is essential for reducing risk.
Climate Change Considerations:	Data archived from the portal/dashboard will serve a valuable purpose over time in documenting past extreme events thus helping in evaluations of any changes in the frequency and/or severity of such events.

NJSHMP Mitigation Strategy	
Action Name:	George Washington Bridge Upgrades
Action Number:	2024-PANYNJ-01
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Earthquake, Geological Hazards, Severe Winter Weather, Nor'easter, Tropical Storms, Hurricane, Severe Weather
Description of the Problem:	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. 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.
Description of the Solution:	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. PANYNJ will continue to develop plans and policies to mitigate other hazards that may affect the George Washington Bridge. Ongoing efforts by multiple agencies aim to mitigate flooding and icing in the Trans Manhattan Expressway. Additional protections will be considered if identified by the agency Climate Risk Assessment.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA HMGP BRIC PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	This multi-year program has progressed significantly since 2019. It is currently on track for completion in 2030.
Goals Met:	1, 2, 5, 6
Benefits:	The action will improve operational bridge safety and the structure's ability to withstand adverse environmental conditions (High >$100,000)
Impact on Socially Vulnerable Populations:	This action will protect the viability of the George Washington Bridge which is relied upon by socially vulnerable populations. .
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will protect the viability of the George Washington Bridge.
Impact on Capabilities:	N/A
Climate Change Considerations:	Additional protections are being identified through the PANYNJ Climate Risk Assessment.

NJSHMP Mitigation Strategy	
Action Name:	George Washington Bridge Terrorism Protections
Action Number:	2024-PANYNJ-02
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	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. To ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency, improvements and security enhancements are necessary.
Description of the Solution:	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.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. Completion anticipated by 2026.
Goals Met:	1, 2, 5, 6
Benefits:	This action ensures resilience for bi-state vehicular travel (>$100,000).
Impact on Socially Vulnerable Populations:	This action will protect the viability of the George Washington Bridge which is relied upon by socially vulnerable populations. .
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will protect the viability of the George Washington Bridge.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Greenville Yards Resiliency Upgrades
Action Number:	2024-PANYNJ-03
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Geological Hazards, Earthquake
Description of the Problem:	Greenville Yards is the western 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. 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.
Description of the Solution:	Mooring cell replacements were completed in 2018. PANYNJ will identify additional needs to improve the resiliency/durability of flood-prone assets. PANYNJ will also continue to develop plans and policies to mitigate other hazards that may be identified at Greenville Yards.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	2, 6
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	Greenville Yards is a critical cross-harbor shipping link.
Impact on Capabilities:	Infrastructure resiliency improvements will reduce storm damage and minimize facility down-time post-disaster.
Climate Change Considerations:	This action considers sea level rise and increased coastal flooding risk due to climate change.

NJSHMP Mitigation Strategy	
Action Name:	Greenville Yards Security Upgrades
Action Number:	2024-PANYNJ-04
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	Greenville Yards is the western 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. Security upgrades are needed to ensure survivability of supporting infrastructure in the event of a man-made terrorism hazard and ensure resiliency.
Description of the Solution:	Greenville Yards: Man-Made Hazards: The Port Authority has incorporated numerous security enhancements to Greenville Yards since it became operational. Multiple ongoing security projects and upgrades
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 6
Benefits:	This action ensures resilience for bi-state shipping and cargo movement (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	Greenville Yards is a critical cross-harbor shipping link.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Holland Tunnel Resiliency Upgrades
Action Number:	2024-PANYNJ-05
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Geological Hazards, Earthquake
Description of the Problem:	The Holland Tunnel is a critical component of the 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. 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.
Description of the Solution:	PANYNJ will improve tunnel electrical, mechanical, and plumbing infrastructure damaged by Superstorm Sandy-related saltwater intrusion. PANYNJ will work to mitigate water leakage, particularly in ventilation ducts and pump rooms. PANYNJ will protect the facility, especially tunnel portals, from sea level rise and coastal flooding threats. PANYNJ will improve onsite stormwater management practices. PANYNJ will also continue to develop plans and policies to mitigate other hazards that may be identified for the Holland Tunnel. 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.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. Program is currently on track for completion in late 2023/early 2024.
Goals Met:	1, 2, 5, 6
Benefits:	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 (>$100,000).
Impact on Socially Vulnerable Populations:	The Holland Tunnel serves as a major evacuation route for the area and a key point of entry and exit for emergency personnel.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Holland Tunnel is a critical component of the 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.
Impact on Capabilities:	N/A
Climate Change Considerations:	Additional protections will be considered if identified by the agency Climate Risk Assessment.

NJSHMP Mitigation Strategy	
Action Name:	Holland Tunnel Security Upgrades
Action Number:	2024-PANYNJ-06
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	The Holland Tunnel is a critical component of the 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. Security improvements are needed to ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency.
Description of the Solution:	The Port Authority has incorporated numerous security enhancements to the Holland Tunnel over the past 17 years. As tunnel infrastructure is replaced/upgraded, security elements will be incorporated into the design. Multiple ongoing security projects and upgrades are underway.
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years. Project completion anticipated in 2026.
Goals Met:	1, 2, 5, 6
Benefits:	This action ensures resilience for bi-state vehicular travel (>$100,000).
Impact on Socially Vulnerable Populations:	The Holland Tunnel serves as a major evacuation route for the area and a key point of entry and exit for emergency personnel.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Holland Tunnel is a critical component of the 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.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Lincoln Tunnel Resilience Upgrades
Action Number:	2024-PANYNJ-07
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Sea level rise, Hurricane, Tropical Storms, Nor'easter, Severe Weather, Power Outage, Geological Hazards, Earthquake
Description of the Problem:	The Lincoln Tunnel is a critical component of the Region's transportation 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. Plumbing, electrical, and mechanical improvements to the Lincoln Tunnel are needed to reduce system vulnerability to corrosion and future flooding. Further fortification of tunnel entrances and ventilation buildings is needed to reduce the likelihood of saltwater intrusion and facility closures. Stormwater management improvements are needed to mitigate risk of site flooding. Selected infrastructure is currently protected by deployable flood control devices.
Description of the Solution:	PANYNJ will repair and improve tunnel electrical, mechanical and plumbing infrastructure damaged by Superstorm Sandy-related saltwater intrusion. PANYNJ will protect the facility, especially tunnel ventilation buildings, from sea level rise and coastal flooding threats. PANYNJ will improve onsite stormwater management practices. PANYNJ will also continue to develop plans and policies to mitigate other hazards that may be identified for the Lincoln Tunnel.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC PDM PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 5, 6
Benefits:	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 (>$100,000).
Impact on Socially Vulnerable Populations:	The Lincoln Tunnel is a critical component of the Region's transportation 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.
Impact on Future Development:	
Impact on Critical Facilities:	The Lincoln Tunnel is a critical component of the Region's transportation 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.
Impact on Capabilities:	N/A
Climate Change Considerations:	Improvements will consider climate change.

NJSHMP Mitigation Strategy	
Action Name:	Lincoln Tunnel Security Upgrades
Action Number:	2024-PANYNJ-08
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	The Lincoln Tunnel is a critical component of the Region's transportation 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. 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.
Description of the Solution:	The Port Authority has incorporated numerous security enhancements to the Lincoln Tunnel over the past 17 years and there are multiple ongoing security projects and upgrades. As tunnel infrastructure is replaced/upgraded, security elements are incorporated into the design.
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 5, 6
Benefits:	This action ensures resilience for bi-state vehicular travel (>$100,000).
Impact on Socially Vulnerable Populations:	The Lincoln Tunnel serves as a major evacuation route for the area and a key point of entry and exit for emergency personnel.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Lincoln Tunnel is a critical component of the Region's transportation 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.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Newark Liberty International Airport Resilience Improvements
Action Number:	2024-PANYNJ-09
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Geological Hazards, Earthquake
Description of the Problem:	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 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. In order to operate safely and efficiently, airfields must remain free from pooling or ponding water. Terminal 1 was already upgraded and 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.
Description of the Solution:	PANYNJ will install 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). PANYNJ continue to develop plans and policies to mitigate other hazards that may affect Newark Liberty International Airport.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC PDM PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	Proposed hazard mitigation plans for Newark Liberty International Airport therefore help ensure that the facility can operate safely and continuously (>$100,000).
Impact on Socially Vulnerable Populations:	The Newark Liberty International Airport accounts for over 400,000 aviation operations a year and moving over 33 million passengers through the NY/NJ metropolitan area.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Newark Liberty International Airport is a critical component of the Region's transportation infrastructure.
Impact on Capabilities:	N/A
Climate Change Considerations:	Additional protections will be considered if identified by the agency Climate Risk Assessment

NJSHMP Mitigation Strategy	
Action Name:	Newark Liberty International Airport Security Enhancements
Action Number:	2024-PANYNJ-10
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	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 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. Security design criteria have already been incorporated into the new Terminal 1 Redevelopment Project. Mitigating strategies were built into the redesigned structure.
Description of the Solution:	The Port Authority has incorporated numerous security enhancements to Newark Liberty International Airport over the past 17 years. PANYNJ will lead additional security projects and upgrades.
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action ensures resilience of one of the busiest airports in the world (>$100,000).
Impact on Socially Vulnerable Populations:	The Newark Liberty International Airport accounts for over 400,000 aviation operations a year and moving over 33 million passengers through the NY/NJ metropolitan area.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The Newark Liberty International Airport is a critical component of the Region's transportation infrastructure.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Outerbridge Crossing Security Upgrades
Action Number:	2024-PANYNJ-11
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	To ensure survivability of the structure in the event of a man-made terrorism hazard and ensure resiliency.
Description of the Solution:	The Port Authority has incorporated numerous security enhancements to the Outerbridge Crossing over the past 17 years. As bridge components are replaced/upgraded, security elements will be incorporated into the design.
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action ensures resilience for bi-state vehicular travel as well as a navigable waterway for shipping (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action will protect the Outerbridge Crossing, a critical facility.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	PATH Train Resilience Upgrades
Action Number:	2024-PANYNJ-12
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Power Outage, Severe Winter Weather, Geological Hazards, Earthquake
Description of the Problem:	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. 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.
Description of the Solution:	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. PANYNY will also continue to develop plans and policies to mitigate other hazards that may affect the PATH system. 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.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 5, 6
Benefits:	This action protects the ability of the PATH system to withstand disasters and resume operations quickly for passenger safety and regional economic productivity (>$100,000).
Impact on Socially Vulnerable Populations:	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.
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	Additional protections will be considered if identified by the agency Climate Risk Assessment.

NJSHMP Mitigation Strategy	
Action Name:	PATH Train Security Enhancements
Action Number:	2024-PANYNJ-13
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	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. To ensure survivability of the PATH system in the event of a man- made terrorism hazard and ensure resiliency.
Description of the Solution:	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, security elements will be incorporated into the design.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 6
Benefits:	This action ensures resilience for bi-state transportation (>$100,000).
Impact on Socially Vulnerable Populations:	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.
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Port Jersey Resiliency Upgrades
Action Number:	2024-PANYNJ-14
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/ Nor'easter/Tropical Storms, Severe weather, Power outage, Severe Winter Weather, Geological Hazards, Earthquake
Description of the Problem:	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. 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, gantries/cranes, containers, rail, utility/mechanical infrastructure, and buildings.
Description of the Solution:	PANYNJ will complete 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 other hazards that may affect the Port Jersey Port Authority Marine Terminal. The east substation flood protection was completed in 2021. Other measures continue to progress.
Estimated Cost:	High >$100,00
Funding Sources:	FEMA grant funding PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 4, 5, 6
Benefits:	This action will make Port Jersey more resilient to hazard events (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	Additional protections will be considered if identified by the agency Climate Risk Assessment

NJSHMP Mitigation Strategy	
Action Name:	Port Jersey Port Authority Marine Terminal
Action Number:	2024-PANYNJ-15
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	To ensure survivability of terminal infrastructure in the event of a man-made terrorism hazard and ensure resiliency.
Description of the Solution:	The Port Jersey Port Authority Marine Terminal is an important facility for bi-state shipping and cargo movement and cruise operations. 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.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA grant funding PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 5, 6
Benefits:	This action ensures resilience for bi-state shipping and cargo movement as well as cruise operations (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action protects the Port Jersey Port Authority Marine Terminal
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Port Newark and Elizabeth-Port Authority Marine Terminal
Action Number:	2024-PANYNJ-16
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Severe winter weather, Geological Hazards, Earthquake
Description of the Problem:	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. 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. Waterfront assets are particularly vulnerable including, but not limited to piers, pilings, gantries/cranes, containers, rail, utility/mechanical infrastructure, and buildings.
Description of the Solution:	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 which was damaged by Superstorm Sandy. PANYNJ will also continue to develop plans and policies to mitigate other hazards that may affect Port Newark.
Estimated Cost:	High >$100,000
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	2, 4, 5, 6
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	Improvements will take into account future projections.

NJSHMP Mitigation Strategy	
Action Name:	Port Newark and Elizabeth-Port Authority Marine Terminal Security Enhancements
Action Number:	2024-PANYNJ-17
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Terrorism
Description of the Problem:	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. To ensure survivability of terminal infrastructure in the event of a man-made terrorism hazard and ensure resiliency.
Description of the Solution:	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. PANYNJ will continue efforts to complete multiple ongoing security projects and upgrades.
Estimated Cost:	High >$100,000
Funding Sources:	PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 2, 6
Benefits:	This action ensures resilience for bi-state shipping and cargo movement as well as cruise operations (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	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 security enhancements will help ensure continuity of Port operations during and after a disaster.
Impact on Capabilities:	N/A
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Teterboro Airport
Action Number:	2024-PANYNJ-18
Lead Agency:	PANYNJ
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Coastal Erosion, Sea level Rise, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Severe Winter Weather, Geological Hazards, Earthquake
Description of the Problem:	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 the area's normal and emergency transportation needs. 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.
Description of the Solution:	PANYNJ will complete upgrades to airport flood mitigation infrastructure, including rehabilitation of stormwater drainage system. Electrical infrastructure will also be upgraded, particularly to improve airfield lighting. PANYNJ will also continue to develop plans and policies to mitigate other hazards that may affect Teterboro Airport. 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.
Estimated Cost:	Costs for the action are expected to be high (<$100,000). Total costs will be determined by selected projects following the Benefit-Cost Analysis.
Funding Sources:	FEMA PANYNJ internal funding NJTIB New Jersey Department of Transportation (NJDOT) Local Aid and Economic Development
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	Benefits of the action are high (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action will increase the resiliency of Teterboro Airport.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is likely to increase severe weather and flooding events that may impact Teterboro Airport. This action will increase the resiliency of the airport to events relating to climate change.

NJSHMP Mitigation Strategy	
Action Name:	Elevate SJTA Above-Ground Storage Tanks
Action Number:	2024-SJTA-01
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane and Tropical Storms, Nor'easter, Severe Weather, Severe Winter Weather
Description of the Problem:	Flooding can result in unintended releases from above-ground storage tanks at SJTA facilities.
Description of the Solution:	SJTA will elevate above-ground storage tanks to be 2 feet above the base flood elevation.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action protects property and helps support the continuity of operations pre-, during, and post-hazard events for the SJTPA (<$100,000)
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action protects continuity of operations.
Impact on Capabilities:	N/A
Climate Change Considerations:	Climate change is likely to result increased flooding heights. This action results in elevation of above-ground storage tanks to prevent flood damages to account for future flood conditions.

NJSHMP Mitigation Strategy	
Action Name:	Elevate Atlantic City Expressway
Action Number:	2024-SJTA-02
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storms, Severe Weather, Severe Winter Weather, Economic Collapse
Description of the Problem:	The Atlantic City 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.
Description of the Solution:	SJTA will raise the last 4.5 miles of the Atlantic City Expressway. This action would raise the elevation of the road surface 30 inches, which should guard against a similar occurrence in the future.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	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. Lastly, providing a safe toll road system that is in a state of good repair helps ensure the success of the New Jersey economy (High >$100,000).
Impact on Socially Vulnerable Populations:	This action will support populations that rely on the Atlantic City Expressway for transportation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action would raise the elevation of the road surface to guard against future flooding conditions.

NJSHMP Mitigation Strategy	
Action Name:	Atlantic City Expressway Connector Elevation
Action Number:	2024-SJTA-03
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storms, Severe Weather, Severe Winter Weather, Economic Collapse
Description of the Problem:	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.
Description of the Solution:	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 City and connects to the tunnel. There has been No Action taken to date, however, the SJTA is in the process of preparing a Resiliency Plan for all Authority Assets.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	The action will provide for the continuity of operations pre-, during, and post-hazard events for a coastal evacuation route. Providing a safe toll road system that is in a state of good repair helps ensure the success of the New Jersey economy (High >$100,000).
Impact on Socially Vulnerable Populations:	This action will support populations that rely on the Atlantic City Expressway for transportation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action would raise the elevation of the road surface to guard against future flooding conditions.

NJSHMP Mitigation Strategy	
Action Name:	Scour Protection for the Atlantic City Expressway Connector Bulkhead
Action Number:	2024-SJTA-04
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	The Atlantic City Expressway 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.
Description of the Solution:	Reinforcement to existing bulkheads as well as other mitigation measures will be established to prevent this from happening in the future. Design and permitting has been completed and the project is awaiting funding.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action 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 (High >$100,000).
Impact on Socially Vulnerable Populations:	This action will support populations that rely on the Atlantic City Expressway for transportation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	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.
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will protect the Atlantic City Expressway Connector from damages caused by worsening flooding and storm conditions associated with climate change.

NJSHMP Mitigation Strategy	
Action Name:	Pleasantville Toll Plaza Sanitary Sewer System Elevation
Action Number:	2024-SJTA-05
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storms, Severe Weather, Severe Winter Weather
Description of the Problem:	During Hurricane Sandy the sanitary sewer system at the Pleasantville Toll Plaza flooded and caused significant damage to the pumps and associated equipment causing the system to be shut down for an extended period of time.
Description of the Solution:	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.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC N.J.A.C.7:22 N.J.A.C.7:15 NJEIFP
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	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 (High >$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	N/A
Climate Change Considerations:	This action will guard against damages/impacts from future flooding conditions.

NJSHMP Mitigation Strategy	
Action Name:	Enhance Signage and Intelligent Traffic Systems (ITS) Detection Systems on the Atlantic City Expressway
Action Number:	2024-SJTA-06
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane and Tropical Storms, Nor'easter, Severe Weather, Severe Winter Weather
Description of the Problem:	There is a need for a heightened ability for early and consistent detection and monitoring of flooding on the Atlantic City Expressway to allow for better response and reduced delays during critical times of evacuation and disaster response.
Description of the Solution:	This action 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. Significant improvements to the SJTA ITS systems have been designed and are out to bid as of March 2023.
Estimated Cost:	Cost >$100,000
Funding Sources:	HMGP BRIC NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. Improvements are expected to be installed by 2025
Goals Met:	1, 3, 5, 6
Benefits:	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. (High >$100,000)
Impact on Socially Vulnerable Populations:	This action will support populations that rely on the Atlantic City Expressway for transportation.
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action supports continuity of operations for a critical transportation lifeline.
Impact on Capabilities:	This action increases emergency management and outreach capabilities.
Climate Change Considerations:	This action will increase capabilities needed to respond to worsening flooding conditions due to climate change.

NJSHMP Mitigation Strategy	
Action Name:	Install Dual Hook-ups for Emergency Generators at SJTA Sites
Action Number:	2024-SJTA-07
Lead Agency:	South Jersey Transportation Authority
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	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.
Description of the Solution:	SJTA will purchase and install dual (natural gas and diesel) hook-ups for emergency generators at critical sites and facilities that support SJTA operations.
Estimated Cost:	High >$100,000
Funding Sources:	HMGP BRIC PDM
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 5, 6
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	The action will support critical facilities that support socially vulnerable populations.
Impact on Future Development:	N/A
Impact on Critical Facilities:	The action will support continuity of operations at SJTA's critical facilities.
Impact on Capabilities:	This action will maintain capabilities through continuity of operations.
Climate Change Considerations:	Climate change is likely to increase severe weather events that are likely to result in power outages.

NJSHMP Mitigation Strategy	
Action Name:	Develop a Regional Vulnerability Framework for the Transportation Infrastructure in Southern New Jersey.
Action Number:	2024-SJTPO-01
Lead Agency:	South Jersey Transportation Planning Organization
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	A Regional Vulnerability Assessment is needed to identify 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.
Description of the Solution:	SJTPO will develop a Regional Vulnerability Framework for the transportation infrastructure in Atlantic, Cape May, Cumberland, and Salem Counties in southern New Jersey. In 2023, SJTPO will kick 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 will create a detailed Regional Vulnerability Assessment.
Estimated Cost:	High >$100,000
Funding Sources:	FHWA PL funds (Metropolitan Planning) NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. The study will be done within one year, but the timeline for completing all the actions recommended in the study will likely be much longer, perhaps 5 years or more.
Goals Met:	1, 3, 4, 5, 6
Benefits:	The regional vulnerability assessment is a critical first step in the development of a full-fledged regional resiliency study. The purpose of the Regional Vulnerability Framework is to create a need for the continuation and integration of resilience in the SJTPO region. As part of this project, a methodology for evaluating best practices in this space will be provided.
Impact on Socially Vulnerable Populations:	TBD by outcomes of Regional Vulnerability Framework
Impact on Future Development:	TBD by outcomes of Regional Vulnerability Framework
Impact on Critical Facilities:	TBD by outcomes of Regional Vulnerability Framework
Impact on Capabilities:	TBD by outcomes of Regional Vulnerability Framework
Climate Change Considerations:	The Regional Vulnerability Assessment will recommend strategies to increase capabilities to mitigate against future losses and vulnerability.

NJSHMP Mitigation Strategy	
Action Name:	Resiliency and Hazard Mitigation Planning Roundtable
Action Number:	2024-SJTPO-02
Lead Agency:	South Jersey Transportation Planning Organization
Supporting Agencies:	NJDOT, NJOEM
Hazard(s) of Concern:	Flood, Hurricane/Nor'Easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	There is a need to gather subject matter experts to present on the region's resiliency progress and challenges.
Description of the Solution:	SJTPO will host a roundtable specific to resiliency and hazard mitigation planning for the region to enhance stakeholder education and training. 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.
Estimated Cost:	As this is a one-day forum, most of the cost is in professionals' respective times. Some time has been spent in preparation in developing the content for the forum.
Funding Sources:	NJDOT FHWA-PL funds (Metropolitan Planning) NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 4, 5
Benefits:	This action enhances stakeholder education and training and increases public preparedness and awareness. The primary benefit is education, which is sometimes hard to quantify.
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will 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.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Regional Transportation Plan Update
Action Number:	2024-SJTPO-03
Lead Agency:	South Jersey Transportation Planning Organization
Supporting Agencies:	
Hazard(s) of Concern:	Flood, Hurricane/Nor'easter/Tropical Storm, Severe Weather, Severe Winter Weather
Description of the Problem:	SJTPO staff need to be informed on existing hazard mitigation initiatives and plans in place to enhance Central Staff knowledge and awareness of existing hazard mitigation and resiliency initiatives.
Description of the Solution:	SJTPO will review existing local and regional plans pertaining to hazard mitigation and resiliency and integrate principles with Regional Transportation Plan Update.
Estimated Cost:	Low <$10,000
Funding Sources:	FHWA PL (Metropolitan Planning) NJDEP Grant and Loan Programs New Jersey Department of Transportation (NJDOT): Local Aid and Economic Development New Jersey Turnpike Authority: Capital Program
Implementation Timeline:	Mid-Term-Implementation can begin within 2-3 years.
Goals Met:	1, 3, 4, 5
Benefits:	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 (Low <$10,000)
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase the staff knowledge at SJTPO, enhancing capabilities.
Climate Change Considerations:	This action will increase staff knowledge of resiliency initiatives that can help to mitigate climate change impacts.

NJSHMP Mitigation Strategy	
Action Name:	Reestablish Infrastructure Advisory Committee Meetings
Action Number:	2024-DOBI-01
Lead Agency:	NJ Department of Banking and Insurance (DOBI)
Supporting Agencies:	
Hazard(s) of Concern:	All Hazards
Description of the Problem:	Due to Covid-19, no meetings of the Infrastructure Advisory Committee have taken place since 2020. This system needs to be reestablished to help first responders and adjusters access damage and aid in rapid disaster recovery. This action will increase resiliency by facilitating rapid disaster recovery.
Description of the Solution:	DOBI will participate in tabletop exercises with State and industry partners through reestablished Infrastructure Advisory Committee meetings.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State resources NJDEP Grant and Loan Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 3, 5, 6
Benefits:	High >$100,000
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action reestablishes the Infrastructure Advisory Committee.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Revamp Insurance Adjuster Database
Action Number:	2024-DOBI-02
Lead Agency:	NJ Department of Banking and Insurance (DOBI)
Supporting Agencies:	NJOHSP, State Police
Hazard(s) of Concern:	All Hazards
Description of the Problem:	The system of credentialing insurance adjusters requires revamping. Revamping has not occurred since 2020.
Description of the Solution:	In coordination with NJOHSP, NJOEM and State Police, DOBI will develop and maintain a system of credentialing insurance adjusters to manage access to disaster areas possible through the existing New Jersey Resource Directory Database (RDDB) system.
Estimated Cost:	High >$100,000
Funding Sources:	Existing State resources NJDEP Grant and Loan Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 3, 5
Benefits:	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 (High >$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase disaster recovery capabilities.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	NJADAPT Flood Zone Data
Action Number:	2024-Rutgers-01
Lead Agency:	Rutgers University
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	There is a need for accurate visual models of current ground elevations of buildings and infrastructure located in BFE Zones A and V.
Description of the Solution:	Rutgers CAIT and the Bloustein School will perform mobile LiDAR and digital imagery acquisition along an estimated 2,500 miles of residential and urban roads in ABFE Zones A and V. The project is active, and 90-percent of the project area has been digitalized. This data will be incorporated into NJADAPT.
Estimated Cost:	High >$100,000
Funding Sources:	Joint effort between Rutgers CAIT and the Bloustein School
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year. The project is expected to complete by June of 2024.
Goals Met:	1, 2, 5
Benefits:	Development of 3D visualizations will help analyze geospatial risk data (High >$100,000).
Impact on Socially Vulnerable Populations:	NJADAPT allows for overlays of social vulnerability with flood zone mapping.
Impact on Future Development:	NJADAPT upgrades will be capable of informing future development decisions.
Impact on Critical Facilities:	NJADAPT allows for mapping of critical facilities within flood zone mapping.
Impact on Capabilities:	This action will increase the capabilities of the NJADAPT platform.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	NJADAPT NFIP Data Inclusion
Action Number:	2024-Rutgers-02
Lead Agency:	Rutgers University
Supporting Agencies:	
Hazard(s) of Concern:	Flood
Description of the Problem:	NFIP data is useful to local planners and emergency management personnel when preparing updates 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.
Description of the Solution:	Rutgers University will create a geospatial dataset for each of the 21 counties that include the IA, PA, and NFIP payouts for each major storm event where data is available, aggregated at the Census Block level. This dataset will be incorporated into the NJADAPT platform.
Estimated Cost:	>$100,000
Funding Sources:	Rutgers Bloustein School Blue Acres Program Open Space and Farmland Preservation Programs
Implementation Timeline:	Short-Term—Implementation of the action can begin within 1 year.
Goals Met:	1, 2, 3, 4, 5
Benefits:	This action will increase capabilities of the NJADAPT platform to inform emergency management and hazard mitigation planning (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	N/A
Impact on Capabilities:	This action will increase capabilities of the NJADAPT platform to inform emergency management and hazard mitigation planning.
Climate Change Considerations:	N/A

NJSHMP Mitigation Strategy	
Action Name:	Backup Power at NJDOC Facilities
Action Number:	2024-NJDOC-01
Lead Agency:	NJ Department of Corrections
Supporting Agencies:	
Hazard(s) of Concern:	Hurricane/Nor'easter/Tropical Storms, Flood, Severe Weather, Severe Winter Weather
Description of the Problem:	Some NJDOC facilities still lack backup power. This presents a risk for continuity of operations.
Description of the Solution:	NJDOC will purchase and install dual hook up (natural gas and diesel) generators and generator transfer switches at State Correction Facilities.
Estimated Cost:	High >100,000
Funding Sources:	HMGP BRIC
Implementation Timeline:	Long-Term—Implementation can begin within 4-5 years.
Goals Met:	1, 2, 6
Benefits:	This action enhances continuity of operations, protects life, and property of critical facilities during a power outage (>$100,000).
Impact on Socially Vulnerable Populations:	N/A
Impact on Future Development:	N/A
Impact on Critical Facilities:	This action provides continuity of operations at critical State Correction facilities.
Impact on Capabilities:	This action allows for the maintenance of critical services at State Correction facilities.
Climate Change Considerations:	N/A

NJSHMP 2024 State Mitigation Action Plan Prioritization

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJOEM-01	State of New Jersey Substantial Damage Management Strategy	0	1	0	1	1	0	0	0	1	1	1	-1	1	1	7	Medium
2024-NJOEM-02	Local Substantial Damage Management Plan Template	0	1	1	1	1	0	0	0	1	1	1	-1	1	1	8	Medium
2024-NJOEM-03	Potential Substantial Damage Area Mapping	1	0	1	1	1	0	0	0	0	1	1	-1	1	1	7	Medium
2024-NJOEM-04	Wetland Restoration of Acquired Properties	0	1	1	1	1	1	1	0	1	1	1	-1	0	1	9	Medium
2024-NJOEM-05	Establish Funding Partners in Natural Floodplain Restoration of Acquired Properties	0	1	1	1	1	0	1	1	0	0	1	0	0	1	8	Medium
2024-NJOEM-06	NJIT Technical Assistance	0	0	0	1	1	1	0	0	1	1	1	1	0	0	6	Medium
2024-NJOEM-07	GIS Based Monitoring System for Mitigation	1	1	1	1	1	0	0	1	0	1	0	1	0	1	9	Medium
2024-NJOEM-08	LIDAR to Support Home Elevation Mitigation Planning	0	0	0	0	0	0	0	0	1	1	1	-1	0	1	3	Low
2024-NJOEM-09	Develop Long-Term Critical Infrastructure Hierarchy	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJOEM-10	Temporary Housing Location Guidance	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	High
2024-NJOEM-11	Disaster Recovery Center Guidance	1	0	1	1	1	1	0	1	0	1	1	1	1	1	10	Medium
2024-NJOEM-12	Academic Partnerships for Technical Assistance	1	0	1	1	1	1	0	1	0	1	0	1	0	1	9	Medium
2024-NJOEM-13	Improved Flood Risk Communication	0	1	1	1	1	1	0	1	1	1	1	1	0	1	11	High
2024-NJOEM-14	Continue to Develop GIS Program and Web Based Tools for Incorporation into Planning	0	0	1	1	1	1	0	1	1	1	0	-1	0	1	7	Medium
2024-NJOEM-15	State Police Facility Retrofits and Mitigation	1	1	1	1	1	0	0	0	1	1	1	-1	1	0	8	Medium
2024-NJOEM-16	Plan Maintenance Training Courses	0	0	1	1	1	1	0	0	1	1	0	1	0	1	8	Medium
2024-NJOEM-17	Annual FEMA HMA Workshops	0	0	0	1	1	1	0	0	1	1	0	1	0	1	7	Medium
2024-NJOEM-18	Repetitive Loss Mitigation	1	1	1	1	1	0	1	0	1	1	1	1	0	1	11	High
2024-NJOEM-19	Hazard Event GIS Database	0	0	1	1	1	0	0	0	1	1	0	-1	0	1	5	Low
2024-NJOEM-20	Critical State Facilities Wind Retrofits	1	1	1	0	0	0	0	1	1	1	1	-1	1	0	7	Medium
2024-NJOEM-21	Incorporate Dialysis Needs into Emergency Shelter Planning	1	0	1	1	1	1	0	1	1	1	0	0	1	1	10	Medium

Commented [R2]: Note dialysis action was moved in order

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJTransit-01	All Hazards Risk Assessment for Emergency Management Operations	1	0	1	0	0	1	0	1	1	1	1	1	1	0	9	Medium
2024-NJTransit-02	Develop and Implement Agency-Wide Climate Change Adaptation, Resiliency, and Mitigation Guidance, Policies, and Strategies	1	0	1	0	0	0	0	1	0	1	1	1	1	0	7	Medium
2024-NJTransit-03	Conduct Regional/Service-Based Climate Change Impact & Resiliency Studies, and Develop Resiliency Investment Plans	1	1	1	0	0	0	0	1	1	1	1	1	1	1	10	Medium
2024-NJTransit-04	Research, Evaluate, and Update Design Standards and Guidance to Account for Anticipated Climate Change Impacts and Risks	1	1	0	0	1	0	0	1	1	1	1	1	1	0	9	Medium
2024-NJTransit-05	Explore, Identify, and Implement Innovative Technologies to	1	1	1	0	1	0	1	1	1	1	1	1	1	1	12	High

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
	Adapt to or Mitigate Climate Change Impacts																
2024-NJTransit-06	Implement Green, Gray, and Hybrid Infrastructure Resiliency Strategies to Protect Capital Assets	1	1	1	0	0	0	1	1	1	1	1	-1	1	0	8	Medium
2024-NJTransit-07	Implement Natural Infrastructure to Protect Capital Assets and Restore Environments	1	1	1	0	0	0	1	1	1	1	1	-1	1	0	8	Medium
2024-NJTransit-08	Elevate or Retrofit Structures and Utilities based on Updated Guidance	1	1	1	0	0	0	0	1	1	1	1	-1	1	0	7	Medium
2024-NJTransit-09	Wet and Dry Floodproofing Investments	0	1	1	0	0	0	0	1	1	1	1	-1	1	0	6	Low
2024-NJTransit-10	Resiliency Improvements to Facilitate Continuity of Operations	1	1	1	0	0	0	0	1	1	1	1	1	1	0	9	Medium
2024-NJTransit-11	Partner, Coordinate, and Implement Resiliency Improvement Projects with Local Stakeholders	0	0	1	0	0	0	0	1	0	1	1	1	1	1	7	Medium
2024-NJDHS-01	Joseph Kohn Training Center and the Commission for	1	0	1	1	1	0	0	1	1	1	1	1	1	0	10	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
	the Blind and Visually Impaired Chillers																
2024-NJDHS-02	Underground Utility Resiliency Upgrades for Critical Facilities	1	0	1	1	1	0	0	1	1	1	1	1	1	0	10	Medium
2024-NJDHS-03	Statewide Mass Care Warehouse	1	0	1	0	1	0	0	1	1	1	0	1	1	0	8	Medium
2024-NJDHS-04	Flooding Mitigation for Community Foodbank of NJ	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2024-NJDHS-05	Generator Support for the Salvation Army	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2024-NJDHS-06	Community Foodbank of New Jersey Egg Harbor Location	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2024-NJDHS-07	Mass Care Truck Acquisition	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2024-NJDHS-08	Department Generator Upgrades	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2024-NJTA-01	Coordinate cross-jurisdictional transportation agency hazard mitigation and resilience initiatives to improve network resilience.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2024-NJTA-02	Resilience Plan and Framework to Address Climate Risk and Impacts to NJ	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
	Turnpike Authority Assets																
2024-NJTA-03	Integrate Dam Failure Inundation Mapping into Flood Models	1	1	1	1	1	1	1	1	0	1	1	1	1	1	13	High
2024-NJTA-04	System-wide Assessment to Determine Vulnerability to Inland, Stormwater, and Coastal Flooding	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2024-NJTA-05	Integrate Climate Risk and Future Conditions into the NJ Turnpike Authority Project Delivery Process to Advance Resilience	1	0	1	1	1	1	0	1	1	1	1	1	1	0	11	High
2024-NJSEA-01	Increase Storage Capacity of Stormwater Lagoons at Sports Complex	0	1	1	1	1	0	0	0	1	1	1	1	1	0	9	Medium
2024-NJSEA-02	Raise Flood Control Berms at West Side of Sports Complex	0	1	0	0	1	0	0	0	1	1	1	-1	1	0	5	Low
2024-NJSEA-03	MRRI GIS Updates	1	0	1	1	1	0	0	1	1	1	1	1	1	0	10	Medium
2024-NJSEA-04	Update the Tide Gate Monitoring Network	1	1	0	1	1	0	0	1	1	1	1	1	1	0	10	Medium
2024-NJSEA-05	Curb Inlet Modification	0	1	1	0	1	0	1	1	1	1	1	-1	0	1	8	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJSEA-06	Meadowlands District Berm Enhancement	0	1	0	0	1	0	0	1	1	1	1	-1	1	0	6	Low
2024-NJSEA-07	Obtain Flood Control/ Maintenance Equipment	0	1	1	0	1	0	0	1	1	1	1	-1	1	0	7	Medium
2024-NJSEA-08	Incorporate Extreme Heat Risk and Opportunities into NJSEA Strategic Plans	1	0	1	1	1	0	0	1	1	1	1	1	0	1	10	Medium
2024-NJSEA-09	Review and Updating of Plans, Regulations, and Guidelines to Improve Resiliency Practices in the District	0	1	0	0	1	0	1	1	1	1	1	1	0	0	8	Medium
2024-NJDEP-01	Bay Point Shoreline Restoration	0	1	1	0	1	1	1	1	1	-1	1	-1	1	0	7	Medium
2024-NJDEP-02	Higbee Beach Restoration Project	0	0	0	0	1	1	1	1	1	1	1	-1	0	0	6	Low
2024-NJDEP-03	REPI Island Beach State Park T-Groins and Living Shoreline	0	0	0	1	1	1	1	1	1	-1	1	-1	0	0	5	Low
2024-NJDEP-04	Heislerville Dike Repair	1	1	1	1	1	1	1	1	1	-1	1	-1	1	0	9	Medium
2024-NJDEP-05	Shark River Inlet Jetty Repair	1	1	1	1	1	0	1	1	1	-1	1	-1	1	0	8	Medium
2024-NJDEP-06	North Wildwood Seawall Extension	0	1	1	1	1	0	1	1	1	1	1	-1	1	0	9	Medium
2024-NJDEP-07	Holgate Terminal Groin - Phase II	0	1	0	1	0	0	1	1	1	1	1	-1	0	0	6	Low

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJDEP-08	Historic Resources Windshield Survey Update/Expansion (Green Zones)	0	1	0	0	0	0	1	1	1	1	1	1	0	1	8	Medium
2024-NJDEP-09	Flood Risk Awareness Signage (FRAS) Campaign to Promote Flood Resilient Decision Making and Buyout Awareness	1	0	1	1	1	0	0	1	1	1	1	1	0	1	10	Medium
2024-NJDEP-10	RiverWare Models of Passaic/Hackensack and Raritan Basins	1	1	1	1	1	0	1	0	1	1	0	-1	0	0	7	Medium
2024-NJDEP-11	Quantify Water Infrastructure Water Losses	1	0	1	1	1	0	1	0	1	1	0	1	1	1	10	Medium
2024-NJDEP-12	Dam and Reservoir Infrastructure Upgrades	1	1	1	1	1	0	0	0	1	1	1	-1	1	0	8	Medium
2024-NJDEP-13	CRS Program Statewide Data Management	1	1	0	0	0	0	0	0	1	1	0	-1	1	1	5	Low
2024-NJDEP-14	Improved State Guidance for the IBank	0	0	1	1	1	1	1	0	1	1	1	1	0	1	10	Medium
2024-NJDEP-15	Dam Failure Inundation Boundary Shape File Development	1	1	1	1	1	0	0	0	1	1	1	-1	1	1	9	Medium
2024-NJDEP-16	Raritan and Sandy Hook - Port Monmouth	0	1	1	1	1	1	0	0	1	1	0	-1	1	0	7	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJDEP-17	Fish and Wildlife Dams	1	1	1	1	1	0	1	0	1	1	1	-1	1	1	10	Medium
2024-NJDEP-18	NJDEP Facility Backup Power	1	1	1	1	1	0	1	0	1	1	1	-1	1	1	10	Medium
2024-NJDEP-19	Pequest Trout Hatchery Gas Pumps	1	0	1	1	1	0	0	0	1	1	1	-1	1	0	6	Low
2024-NJDEP-20	Enhance Communication for Wildfire Response	1	0	1	1	1	1	0	0	1	1	0	-1	1	1	8	Medium
2024-NJDEP-21	Enhance Radiation Monitoring for Power Plants	1	1	1	1	1	1	1	0	0	1	0	-1	1	1	9	Medium
2024-NJDEP-22	Nuclear Hazard Awareness Programs	1	0	1	1	1	1	0	0	1	1	0	-1	1	1	8	Medium
2024-NJDEP-23	Inventory and Mapping of Storm Drains and Outfalls	0	1	1	0	1	0	0	0	1	1	0	-1	0	1	5	Low
2024-NJDEP-24	Conduct Outreach to Counties on Debris Management Plan Development	1	1	1	1	1	1	1	0	1	1	0	-1	0	1	9	Medium
2024-NJDEP-25	Interagency Tracking of Post-Disaster Debris Management	1	1	1	1	1	1	1	0	1	1	0	-1	1	1	10	Medium
2024-NJDEP-26	Establish Interconnections and Alternate Water Supplies	1	0	0	1	1	0	1	1	1	1	0	-1	1	1	8	Medium
2024-NJDEP-27	GIS Overlay of State-Owned Critical Facilities with Seismic Hazard	1	1	1	1	1	1	0	1	1	1	0	-1	1	1	10	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-NJDEP-28	Complete HAZUS Loss Estimation Runs for Damaging Earthquakes for New Jersey	1	1	1	1	1	-1	0	1	1	1	0	1	1	1	10	Medium
2024-NJDEP-29	Integrate FireWise into the State's Uniform Construction Codes	1	1	1	1	1	1	0	0	1	1	0	1	1	1	11	High
2024-NJDEP-30	Energy Allocation Initiative	1	0	1	1	1	1	1	1	1	1	1	-1	0	1	10	Medium
2024-NJDOH-01	Encourage Use of Electrical Dependent Data in Local Hazard Mitigation and Emergency Planning	1	0	1	1	1	1	0	1	1	1	0	1	1	1	11	High
2024-NJDOH-02	Identify Gaps in Public Understanding of Department of Health Programs	1	0	1	1	1	1	0	1	1	1	0	1	0	1	10	High
2024-NJDOH-03	Develop Long-term Procedures for Receiving, Storing, Staging, and Transport of PPE	1	0	1	1	1	1	0	1	1	1	0	1	1	1	11	High
2024-NJHWPPC-01	Impervious Surface Reduction Action Planning and Implementation	0	1	1	1	1	1	1	1	1	1	1	-1	0	1	10	Medium
2024-NJHWPPC-02	Climate Adaption Planning Guide for New Jersey	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
	Highlands Municipalities																
2024-NJHWPPC-03	Water Use & Conservation Management Plan Model	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2024-NJHWPPC-04	Develop a Highlands Open Space and Recreation Plan	0	0	1	1	1	1	1	1	1	1	1	1	0	1	11	High
2024-ONJSC-01	Maintain and Continually Update the Climate Data and Information Warehouse and Software Library	1	1	1	1	1	0	0	1	1	1	1	1	0	1	11	High
2024-ONJSC-02	Maintain and Potentially Expand Rutgers New Jersey Weather Network (NJWxNet) Operations	1	0	1	1	1	0	0	1	1	1	1	-1	0	1	8	Medium
2024-ONJSC-03	Develop Extreme Precipitation Events Report	1	1	1	1	1	0	0	1	1	1	1	1	0	1	11	High
2024-ONJSC-04	Maintain and Continually Update a Weather Hazards Portal and Dashboard	1	1	1	1	1	0	0	1	1	1	1	1	0	1	11	High
2024-PANYNJ-01	George Washington Bridge Upgrades	1	1	1	1	1	0	0	1	1	1	0	-1	1	0	8	Medium
2024-PANYNJ-02	George Washington Bridge Terrorism Protections	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-PANYNJ-03	Greenville Yards Resiliency Upgrades	0	1	1	1	1	0	0	0	1	1	0	1	1	0	8	Medium
2024-PANYNJ-04	Greenville Yards Security Upgrades	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2024-PANYNJ-05	Holland Tunnel Resiliency Upgrades	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High
2024-PANYNJ-06	Holland Tunnel Security Upgrades	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	High
2024-PANYNJ-07	Lincoln Tunnel Resilience Upgrades	1	1	1	1	1	1	0	1	1	1	0	-1	1	1	10	Medium
2024-PANYNJ-08	Lincoln Tunnel Security Upgrades	1	0	1	1	1	1	0	1	1	1	1	-1	1	1	10	Medium
2024-PANYNJ-09	Newark Liberty International Airport Resilience Improvements	1	1	1	1	1	1	0	1	1	1	0	-1	1	1	10	Medium
2024-PANYNJ-10	Newark Liberty International Airport Security Enhancements	1	0	1	1	1	1	0	1	1	1	0	-1	1	1	9	Medium
2024-PANYNJ-11	Outerbridge Crossing Security Upgrades	1	0	1	1	1	1	0	0	1	1	1	-1	1	1	9	Medium
2024-PANYNJ-12	PATH Train Resilience Upgrades	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High
2024-PANYNJ-13	PATH Train Security Enhancements	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	High
2024-PANYNJ-14	Port Jersey Resiliency Upgrades	1	1	1	1	1	1	1	0	1	1	0	-1	1	1	10	Medium
2024-PANYNJ-15	Port Jersey Port Authority Marine Terminal	1	0	1	1	1	1	0	0	1	1	1	-1	1	1	9	Medium
2024-PANYNJ-16	Port Newark and Elizabeth-Port	0	1	1	1	1	1	0	0	1	1	0	-1	1	1	8	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
	Authority Marine Terminal																
2024-PANYNJ-17	Port Newark and Elizabeth-Port Authority Marine Terminal Security Enhancements	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2024-PANYNJ-18	Teterboro Airport	1	1	1	1	1	1	0	0	1	1	1	-1	1	1	10	Medium
2024-SJTA-01	Elevate SJTA Above-Ground Storage Tanks	1	1	1	1	1	0	1	0	1	1	1	-1	1	0	9	Medium
2024-SJTA-02	Elevate Atlantic City Expressway	1	1	1	1	1	0	0	1	1	1	1	-1	1	1	10	Medium
2024-SJTA-03	Atlantic City Expressway Connector Elevation	1	1	1	1	1	0	0	1	0	1	1	-1	1	1	9	Medium
2024-SJTA-04	Scour Protection for the Atlantic City Expressway Connector Bulkhead	1	1	1	1	1	-1	0	1	1	1	1	-1	1	1	9	Medium
2024-SJTA-05	Pleasantville Toll Plaza Sanitary Sewer System Elevation	1	1	1	1	1	0	1	0	1	1	1	-1	1	0	9	Medium
2024-SJTA-06	Enhance Signage and Intelligent Traffic Systems (ITS) Detection Systems on the Atlantic City Expressway	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2024-SJTA-07	Install Dual Hook-ups for Emergency Generators at SJTA Sites	1	0	1	1	1	0	0	1	1	1	1	-1	1	0	8	Medium

Action Number	Action Name	Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Community Objectives	Total	High / Medium / Low
2024-SJTPO-01	Develop a Regional Vulnerability Framework for the Transportation Infrastructure in Southern New Jersey.	1	1	1	1	1	1	0	0	1	1	0	1	1	1	11	High
2024-SJTPO-02	Resiliency and Hazard Mitigation Planning Roundtable	1	1	1	1	1	1	0	0	1	1	0	1	0	1	10	Medium
2024-SJTPO-03	Regional Transportation Plan Update	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2024-DOBI-01	Reestablish Infrastructure Advisory Committee Meetings	1	1	1	1	1	1	0	0	1	1	0	1	1	1	11	High
2024-DOBI-02	Revamp Insurance Adjuster Database	0	1	1	1	1	1	0	0	1	1	0	1	0	1	9	Medium
2024-Rutgers-01	NJADAPT Flood Zone Data	1	1	1	1	1	1	0	1	0	1	0	1	1	1	11	High
2024-Rutgers-02	NJADAPT NFIP Data Inclusion	1	1	1	1	1	1	0	0	0	1	0	1	1	1	10	Medium
2024-NJDOC-01	Backup Power at NJDOC Facilities	1	0	1	1	1	0	0	0	1	1	0	-1	1	1	7	Medium

Note *Agencies were asked to use these criteria to assist them in evaluating and prioritizing mitigation actions identified in the 2024 update. Specifically, for each mitigation action, agencies were asked to assign a numeric rank (-1, 0, or 1) for each of the 15 evaluation criteria, defined as follows:*

1 = Highly effective or feasible
0 = Neutral
-1 = Ineffective or not feasible

The numerical results of this exercise were then used to help prioritize the action or strategy as "Low", "Medium," or "High" based on the following totals for numeric ranks:

0 – 6 = Low
7 – 10 = Medium

11 - 14 = High