

9.1 CAMDEN COUNTY

This section presents the jurisdictional annex for Camden County and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the County participated in the planning process, an assessment of Camden County’s risk and vulnerability, the different capabilities used in the County, and an action plan that will be implemented to achieve a more resilient community.

9.1.1 Hazard Mitigation Planning Team

Camden County followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many County departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including Camden County’s hazard mitigation plan primary and alternate points of contact. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.1-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
<p>Name/Title: Jessica Stokes, Special Projects Coordinator, Camden County Department of Public Safety Address: 520 Market Street, Camden, New Jersey 08102 Phone Number: 856-783-4808 Ext. 5427 Email: Jessica.stokes@camdencodps.org</p>	<p>Name/Title: Samuel Spino, Emergency Management Coordinator, Camden County Department of Public Safety Address: 520 Market Street, Camden, New Jersey 08102 Phone Number: Email: Samuel.spino@camdencodps.org</p>
<p>NFIP Floodplain Administrator</p> <p>Floodplain Administration is conducted at the municipal level</p>	
<p>Additional Contributors</p> <p>Name/Title: Jason Fry, Assistant Director of Operations and Maintenance, Camden County Municipal Utility Authority Method of Participation: Provided data for capability assessment</p> <p>Name/Title: Kevin Becica, Senior Engineer, Camden County Department of Public Works Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions</p> <p>Name/Title: Bill England, Assistant Engineer, Camden County Department of Public Works Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions</p> <p>Name/Title: Christopher Waldron, Director, Camden County Office of Sustainability Method of Participation: Supported mitigation strategy, identified mitigation actions</p> <p>Name/Title: Bob Cornforth, Director of Operations and Maintenance, Camden County Municipal Utility Authority Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions</p>	

Name/Title: Andrew Levecchia, Director, Camden County Planning
Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions
Name/Title: Kamille Preto, GIS Analyst, Camden County Department of Public Works
Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions
Name/Title: Lauren Bonus, Senior Environmental Health Specialist, Camden County Environmental Affairs, Parks Department
Method of Participation: Provided data and information, supported mitigation strategy, identified mitigation actions
Name/Title:
Method of Participation:
Name/Title:
Method of Participation:

9.1.2 Municipal Profile

According to the U.S. Census, the 2010 population for Camden County was 513,657. The estimated 2019 population was 506,738, a 1.35 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 6.1 percent of the population is 5 years of age or younger and 15.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.1.3 Jurisdictional Capability Assessment and Integration

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

- An assessment of planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community’s adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.1.3). The updated mitigation strategy includes opportunities Camden County identified for integration of mitigation concepts to be incorporated into municipal procedures.

9.1.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the County, what is present in the jurisdiction, and code citation and date.

Table 9.1-2. Planning, Legal, and Regulatory Capability

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations					
Building Code	No	Yes	-	-	-
Zoning/Land Use Code	No	Yes, if the jurisdiction has a planning board	-	-	-
Subdivision Ordinance	No	Yes, if the jurisdiction has a planning board	-	-	-
Stormwater Management Ordinance	No	Yes	-	-	-
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
Real Estate Disclosure	No	Yes	-	-	-
Growth Management	No	Yes, if the jurisdiction has a planning board	-	-	-
Site Plan Ordinance	Yes	Yes, if the jurisdiction has a planning board	February 2020	Local and County	Division of Planning, Camden County Planning Board
Environmental Protection Ordinance	Yes	Yes, depends on type of environmental areas	-	-	-
Flood Damage Prevention Ordinance	N/A	Yes	-	-	-
Wellhead Protection	No	No	-	-	-
Emergency Management Ordinance	No	No	-	-	-

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
Climate Change Ordinance	No	No	-	-	-
Disaster Recovery Ordinance	No	No	-	-	-
Disaster Reconstruction Ordinance	No	No	-	-	-
Other	No	-	-	-	-

Codes, Ordinances, & Regulations Connection to Mitigation and Safe Growth

How are codes, ordinances and regulations contributing to risk reduction in your community?

- Building Code:
 - The State of New Jersey has adopted the 2018 International Building Code (IBC). Flood design provisions are found in the Building Subcode (Section 1612), Residential Subcode, Rehabilitation Subcode, and Plumbing, Mechanical, and Fuel Gas subcodes. The flood provisions are deemed by FEMA to meet or exceed NFIP requirements for buildings and structures.
 - The IBC includes design requirements for structural wind resistance. Design wind speeds in New Jersey vary based on structure type and location, with higher wind design speeds required in coastal areas.
- Flood Damage Prevention Ordinance:
 - A local flood damage prevention ordinance sets design standards for reducing flood losses and is required for participation in the National Flood Insurance Program.
 - The local flood damage prevention ordinance requires permits for floodplain development, adopts and enforces flood maps, requires new and substantially improved structures be elevated above the base flood elevation, among other standards.
 - In the State of New Jersey, all new and substantially improved structures are required to be elevated at least one foot above the base flood elevation.
- Stormwater Ordinance
 - New Jersey municipalities enact stormwater management ordinances to regulate runoff quantity and quality, groundwater recharge, and erosion control. Municipalities are required to update their municipal stormwater control ordinance to reflect amendments to the Stormwater Management rules at N.J.A.C. 7:8, adopted March 2, 2020 and should use [NJ DEP's Model Stormwater Control Ordinance for Municipalities](#).
 - Stormwater ordinances for major development require mitigating runoff by requiring that peak runoff rates for the 2, 10, and 100-year storms be below pre-construction conditions and not increase flood damage downstream of the site.

Prior to zoning changes or development approvals, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Not Applicable.

Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Not Applicable.

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
<i>Does the ordinance require developers to take additional actions to mitigate natural hazard risk?</i> Not Applicable.					
<i>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?</i> Not Applicable.					
<i>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</i> Not Applicable.					
<i>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</i> Not Applicable.					
<i>Do the regulations allow density/development transfers where hazard areas exist?</i> Not Applicable.					
Planning Documents					
Master Plan	Yes	Yes	Camden County Master Plan, 2014	County	Division of Planning, Camden County Planning Board
Capital Improvement Plan	No	Allowed	-	-	-
Disaster Debris Management Plan	No	No	-	-	-
Floodplain Management or Watershed Plan	No	No	-	-	-
Stormwater Management Plan	No	All but Boroughs of Pine Valley and Tavistock	-	-	-
Stormwater Pollution Prevention Plan	No	All but Boroughs of Pine Valley and Tavistock	-	-	-
Urban Water Management Plan	No	No	-	-	-
Habitat Conservation Plan	No	No	-	-	-
Economic Development Plan	No	No	-	-	-
Shoreline Management Plan	No	No	-	-	-

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
Community Wildfire Protection Plan	No	No	-	-	-
Community Forestry Management Plan	No	No	-	-	-
Transportation Plan	Yes	No	Camden County Highway Plan, March 2017	County	Division of Planning
Agriculture Plan	Yes	No	Camden County Open Space and Farmland Preservation Plan, May 2004	County	Division of Planning
Climate Action/ Resiliency Plan	No	No	-	-	-
Tourism Plan	No	No	-	-	-
Business/ Downtown Development Plan	Yes	No	Haddon Avenue Corridor Redevelopment Plan, June 2020	Local, County	City of Camden, Camden County
Other	Yes	No	Sustainable Camden County Plan, 2018	County	Office of Sustainability

Planning Connection to Mitigation and Safe Growth

How are your plans contributing to risk reduction in your community? The plans that Camden County does have contributes to risk reduction within the County by identifying both areas of investment to continue growth, and by classifying other areas as conservation or preservation areas, making sure development in those locations are limited. Furthermore, these plans act as guides on how Camden County can better itself by becoming more resilient with green infrastructure and more sustainable actions.

Does the future land use map clearly identify natural hazard areas? It does not; however, there is some verbiage within the Land Use Plan.

Do the land use policies discourage development or redevelopment within natural hazard areas? It does not.

Does the land use plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes.

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
Is transportation policy used to guide growth to safe locations? Yes.					
Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Unknown.					
Are environmental systems that protect development from hazards identified and mapped (i.e., dunes, rip rap, defensible space, wetlands/natural shoreline)? The only seen environmental systems within Camden County are waterways and the Pinelands, both which are clearly marked.					
Do environmental policies maintain and restore protective ecosystems? Yes.					
Response/Recovery Planning					
Emergency Operations Plan	Yes	Yes	Camden County Emergency Operations Plan, July 20, 2021	County	Office of Emergency Management
Strategic Recovery Planning Report	No	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	No	THIRA-2020-SAR	County	Office of Emergency Management
Post-Disaster Recovery Plan	No	No	-	-	-
Continuity of Operations Plan	Yes	No	Names will vary, years 2019 or 2020	County	Individual departments are supposed to have own plans; not enforced until 2019-2020 and still not strictly enforced
Public Health Plan	No	No	-	-	-
Other	-	-	-	-	-
Response/Recovery Planning Connection to Mitigation and Safe Growth					
How do your response/recovery plans contribute to risk reduction in your community?					
<ul style="list-style-type: none"> • Emergency Operations Plan (EOP): <ul style="list-style-type: none"> ○ NJ Rev Stat § App.A:9-43.2 (2013) requires a written Emergency Operations Plan (EOP) for each county and municipality in the State that coordinates with neighboring jurisdictions. ○ EOPs must address the needs of animals and individuals with animals; evacuation procedures for hospitals and health care facilities; and addressing evacuation of families and dependents of emergency responders. ○ EOPs must include a basic plan as well as Emergency Support Functions (ESF) annexes that address public information, hazardous materials, emergency warnings, and related subjects. ○ Emergency operations plans must be certified for approval by the New Jersey Office for Emergency Management. 					

Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (Code chapter and enactment date or name of plan and date of plan)	Authority (Local, county, state, federal)	Individual / Department / Agency Responsible
Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes. Communication is addressed in ESF#2, Evacuation is addressed in ESF #6, Housing is addressed in ESF #6, and Long-Term Community Recovery as a whole is ESF #14.				

9.1.3.2 Development and Permitting Capability

The table below summarizes the capabilities of Camden County to oversee and track development.

Table 9.1-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? - If yes, what department is responsible? - If no, what is your process for development?	No	Municipality's must receive permits from their permittable entity. Camden County Planning Board will review and approve developments that fall underneath its regulations but does not issue permits for development.
Are permits tracked by hazard area? (For example, floodplain development permits.)	N/A	N/A
Do you have a buildable land inventory? - If yes, describe. - If no, quantitatively describe the level of buildout in the jurisdiction.	Yes	The County Investment Area Framework which can be found within the Camden County Land-Use Master Plan, identifies four planning areas can be divided into two categories, areas where growth is preferred, and areas where conservation/preservation is preferred. A list of locations is not available, but instead presented as a map.

9.1.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the County and their current responsibilities which contribute to hazard mitigation.

Table 9.1-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (Available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Led by Director of Planning department within Public Works
Zoning Board of Adjustments	No	-

Resources	Available? (Yes/No)	Comments (Available staff, responsibilities, support of hazard mitigation)
Planning Department	Yes	The Camden County planning process concerns itself primarily with a review of factors that directly impact county facilities such as county owned roads and stormwater management systems.
Mitigation Planning Committee	Yes	Only active when Hazard Mitigation Plan needs to be updated. Planning Committee includes individuals from Public Safety, Public Works, Engineering, Planning, Environmental Affairs, Sustainability, and Parks.
Environmental Board/Commission	Yes	The Camden County Division of Environmental Affairs, a division of the Department of Parks, is responsible for a number of environmental programs and projects which are important to Camden County residents. These include Recycling and Solid Waste Management, Household Special Waste Collections, Litter Clean-Up and Enforcement, Open Space and Historic Preservation, Watershed Protection, and the County Green Initiative.
Open Space Board/Committee	Yes	Division of Environmental Affairs, Parks Department
Economic Development Commission/Committee	Yes	Camden County Improvement Authority
Public Works/Highway Department	Yes	The Camden County Department of Public Works, under the direction of the Camden County Board of Commissioners, maintains over 400 miles of county highways. Public Works personnel perform a wide range of tasks, ranging from engineering to snowplowing, to ensure county roads remain well maintained and safe for the motoring public.
Construction/Building/Code Enforcement Department	Yes	The Camden County Division of Engineering provides engineering and technical support for Camden County capital projects. Engineering Division is responsible for the preparation of drawings, plans, specifications, and other requisite documentation. Engineering field crews conduct project surveys, documentation validation and on-site project inspections. Camden County Engineering Division utilizes the latest technology including CAD, GIS, and GPS for the management of county highway assets such as traffic signs and signals.
Emergency Management/Public Safety Department	Yes	Public Safety comprised of Emergency Management, Communications, Fire Marshal, Hazardous Materials, and Highway Traffic Safety
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	CivicReady, messages sent through OEM
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Regular maintenance on County roads and County property by Public Works employees and contractors
Mutual aid agreements	Yes	County & Municipalities have response mutual aid agreement

Resources	Available? (Yes/No)	Comments (Available staff, responsibilities, support of hazard mitigation)
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	-	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Director of Planning, County Engineer, GIS Analyst
Engineers or professionals trained in building or infrastructure construction practices	Yes	Director of Planning, County Engineer, Director of Buildings & Operations, Contractors
Planners or engineers with an understanding of natural hazards	Yes	Director of Planning, County Engineer, GIS Analyst
Staff with expertise or training in benefit/cost analysis	Yes	Department of Finance
Professionals trained in conducting damage assessments	Yes	OEM Staff, CERT
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	County GIS Analyst
Scientist familiar with natural hazards	Yes	Individuals across multiple County departments
Surveyor(s)	Yes	Contracted through Engineering Department
Emergency Manager	Yes	Coordinator with staff of 4. Coordinator also oversees Division of Hazardous Materials.
Grant writer(s)	Yes	Staff in CCOEM manages and/or writes OEM Grants, including HMGP, PSGP, PA, IA, and HSGP.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Director of Sustainability
How do your administrative/technical capabilities contribute to risk reduction in your community? Grant writers and managers are able to find funding to support mitigation activities within the County. Input from the SMEs listed above assist in being awarded aforementioned grants, and also play a significant role during the completion of the grant cycle.		

9.1.3.4 Fiscal Capability

The table below summarizes financial resources available to Camden County.

Table 9.1-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes, given there is a written Five-Year Consolidated Plan for the program years and

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
	an Analysis of Impediments to Fair Housing Choice report. These documents are required by HUD to distribute funds for CDBG.
Capital improvements project funding	Yes, given the project is within the County's jurisdiction and owned by the County.
Authority to levy taxes for specific purposes	Yes, taxes levied for various purposes, one example being Open Space.
User fees for water, sewer, gas, or electric service	For sewer, unless it would directly benefit the CCMUA and its users, no. For water, it is the decision of the municipality or the independent contractor which the municipality receives its water. For gas and electric it is unlikely, as these utilities are provided by PSE&G and/or ACE.
Impact fees for homebuyers or developers of new development/homes	No, this would be applicable to municipalities.
Stormwater utility fee	No, as the County does not charge a stormwater utility fee.
Incur debt through general obligation bonds	No, this would be applicable to municipalities.
Incur debt through special tax bonds	No, this would be applicable to municipalities.
Incur debt through private activity bonds	No, this would be applicable to municipalities.
Withhold public expenditures in hazard-prone areas	No, but plausible to enforce with informative data to harness Commissioner support.
Other federal or state funding programs	Yes – HUD, PSGP, BRIC. For PSGP, the project must be approved for funding through the Captain of the Port for Sector Delaware Bay.
Open Space Acquisition funding programs	Yes, used to acquire and preserve open space properties.
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-
Fiscal Connection to Mitigation and Safe Growth	
How do your fiscal capabilities contribute to risk reduction in your community? Capital improvements and mitigation activities often overlap due to deficiencies that have been identified by the County. Given there is adequate funding in capital improvements, and the need for the action is designated as adamant, the project will be completed without any additional funding source; however, if the project is eligible for HMGP funding, that funding will supersede the Capital Improvements funding source, which will be re-designated.	
When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Yes. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Yes.	

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Annually, the jurisdiction will review mitigation actions when allocating funding. Yes.	
Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes, although some natural hazards, such as flooding, have been due to urban/stormwater flooding, making it difficult to avoid limiting expenditures on projects in certain areas.	
Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes, although some natural hazards, such as flooding, have been due to urban/stormwater flooding, making it difficult to avoid limiting expenditures on projects in certain areas.	
Do budgets provide funding for hazard mitigation projects identified in the County HMP? If the project is listed as a priority for the County, yes; otherwise, projects will be worked on/completed when HMGP funding is available.	

9.1.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to Camden County.

Table 9.1-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.
Public information officer or communications office	Yes	PIO releases news bulletins and occasionally appears on media addressing the public on an eminent natural hazard event and how to prepare.
Personnel skilled or trained in website development	Yes	Contractor able to update the County Website if requested by the Department.
Hazard mitigation information available on your website	Yes	https://www.camdencounty.com/service/public-safety/2022-hazard-mitigation-plan/
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, Instagram
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission
Other programs already in place that could be used to communicate hazard-related information	Yes	Prior to COVID, the Monthly Commissioner’s Meeting were utilized by multiple County entities (including the Office of Emergency Management) to conduct public outreach. Other events that were used for outreach were bike rodeos, Camden County police outreach events, and carnivals/fairs.
Warning systems for hazard events	Yes	CivicReady, which can also be used for various incidents and events.
Natural disaster/safety programs in place for schools	No	-
Other	-	-

9.1.3.6 Community Classifications

The table below summarizes classifications for community programs available to Camden County.

Table 9.1-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

9.1.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.1-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Strong
Flood	Strong
Geological Hazards	Moderate
High Wind	Strong
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Strong
Severe Winter Weather	Strong
Wildfire	Strong

*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

9.1.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.1-9. NFIP Summary

NFIP Topic	Comments
NFIP administration is carried out at the local municipal level.	

9.1.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction’s overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.1-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	Permitting is carried out at the local municipal level.											
Multi-Family												
Other												
Total Permits Issued												
Property or Development Name	Type of Development	# of Units / Structures		Location (Address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2015 to Present												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												

SFHA Special Flood Hazard Area (1% annual chance flood event)

* Only location-specific hazard zones or vulnerabilities identified.

9.1.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Section 4.2 (Methodology and Tools), Section 4.3 (Hazards of Concern), and Section 4.4 (Hazard Ranking) provide a detailed summary for Camden County’s risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which Camden County has significant exposure. The maps also show the location of potential new development, where available.

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Figure 9.1-1. Camden County Hazard Area Extent and Location Map 1

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Figure 9.1-2. Camden County Hazard Area Extent and Location Map 2

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9.1.6.1 Hazard Event History

Camden County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The table below provides details regarding Camden County’s history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI), including specific loss and damages the County experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.1-11. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	The extreme cold weather caused pipes to freeze and burst, displacing 16 residents from the Gloucester Township Senior Campus. Property damages in Camden County were estimated at \$150,000.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	Hot and humid air combined with an approaching cold mass, resulting in a squall line of severe thunderstorms to move through southern new Jersey on the afternoon of June 23. Estimated wind gusts reached 85 mph and knocked down thousands of trees and caused extensive damages and power losses to over 410,000 homes throughout the area.	The Camden County Department of Public Safety fielded over 3,500 calls for assistance during the event. Damages included crop losses, and structural damages to buildings and facilities throughout the County, an estimated total over \$3.35 million.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	A low-pressure system moved up along the Carolina Coast intensifying into a major nor’easter, producing record snowfall in New Jersey on January 23. Wind gusts reached upwards of 60 mph and visibility was one-quarter mile or less throughout the region. Damages across the state were estimated at \$82.6 million.	Up to 22 inches of snow was reported in Camden County.
June 24, 2017	Severe Storm, Heavy Rain and Winds	No	Powerful straight-line storm that cut through Camden County. Fallen trees, downed power lines, power loss, damages to several houses and structures across multiple towns.	Damages in Haddon Township, Audubon, Oaklyn, and Collingswood. Damages

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				included structural damages to buildings.
March 6, 2018	Winter Storm	No	A low-pressure system moved northeast across Delaware and New Jersey bringing a wintery snow/rain mix overnight on March 6. Across the state, snowfall totals ranged from 6 to 24 inches. Heavy, wet snow downed trees and limbs leaving 350,000 customers state-wide without power.	Snowfall totals in Camden County reached 9 inches in some areas near the Delaware River.
June 19-20, 2019	Heavy Rain, Flooding Event	No	Severe weather conditions, including heavy rains and flooding, particularly in the Northwest region of Camden County. SBA offered disaster assistance to businesses and residents of New Jersey affected by severe weather and flooding.	Flooding in Camden County caused more than \$9 million in personal and public destruction. Two to four inches of rain in only a few hours, overtopping several dams, rivers, and creeks, closing major roadways due to flooding, and requiring the evacuation of numerous residents.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Beginning on January 20, 2020, the pandemic resulting from the Coronavirus Disease (COVID-19) created conditions of sufficient severity and magnitude to warrant a disaster declaration in the State of New Jersey.	Between March 1, 2020 and February 18, 2021, Camden County reported 38,352 confirmed cases of COVID-19, and 1,023 total fatalities.
January 31 – February 2, 2021	Winter storm	No	Nor'easter winter storm caused hazardous weather conditions including heavy mixed precipitation, high winds, blizzard like conditions, and coastal flooding. Winds reached 35 to 45 mph, reducing visibility, and hindering travel because of blowing and drifting snow.	Category B activities totaling roughly \$1.3 million for the County and its municipalities. No severe damages reported.

9.1.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.3 (Hazards of Concern) of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes Camden County’s risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 4 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Camden County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for Camden County. The County and Steering Committee reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the County indicated the following:

- There has been a raise in water levels along coastal communities
- Multiple communities in the County experience flooding outside of FEMA designated flood zones
- The County has experienced an increase in high wind events, particularly straight-line wind occurrences
- The County has experienced an increase in invasive species in recent years
- Heavy snowfall occurs annually and/or bi-annually, affecting roadways and utilities throughout the County
- The County noted an increase in the severity of summer storms, not particularly in storm occurrence

Table 9.1-12. Hazard Ranking Input

Coastal Erosion/ Sea Level Rise	Dam Failure/ Levee Failure	Disease Outbreak/ Pandemic	Drought	Earthquake	Extreme Temperatures	Flood
Medium	Medium	Medium	Medium	Low	Medium	High
Geological Hazards	High Wind	Invasive Species/ Harmful Algal Bloom	Severe Summer Weather	Severe Winter Weather	Wildfire	
Low	High	Medium	Medium	High	Medium	

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.1-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Addressed by Proposed Action
		1% Event	0.2% Event	
Camden County Municipal Utilities Authority	Regional Wastewater Treatment Plant	A	-	N/A – facilities are elevated to 100-year floodplain, new construction is built to 500-year floodplain
Kaighn Ave Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Holly Run Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Little Gloucester Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Driscoll's Pond Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Evan's Pond Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Hopkin's Pond Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Wallworth Lake Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Kirkwood Lake Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Haddon Lake Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering
Kettle Run Dam	Dam	A	-	N/A – privately owned
New Brooklyn Dam	Dam	A	-	N/A – Class 2 EAPs monitored by NJDEP and County Engineering

Source: FEMA DFIRM – 2016

9.1.6.3 Identified Issues

After review of Camden County's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, Camden County has identified the following vulnerabilities within their community:

- Lack of stream gauges to monitor flooding
- Flooding at County Roads and outside of floodplain and stormwater/urban flooding
- The County does not have a Debris Management Plan
- Combined Sewer flooding in Camden City and Gloucester City
- Lack of municipal participation in NFIP

Specific areas of concern based on resident response to the citizen survey include:

- Flooding
- Lack of Residential Education
- Stormwater Pollution / Drains Clogged
- Tree Maintenance
- Snow Accumulation
- Utility Lines / Power Outages
- Old Infrastructure
- Increase Open Space
- Not Enough Sustainability Efforts

9.1.7 Mitigation Strategy and Prioritization

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

9.1.7.1 Past Mitigation Initiative Status

The following table indicates progress on the County's mitigation strategy identified in the 2017 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and are discussed in the 'Capability Assessment' presented previously in this annex.

Table 9.1-14. Status of Previous Mitigation Actions

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-1	Support municipal outreach and education programs.	Camden County OEM	Ongoing Capability	Yes	Not all residents are aware of potential hazards; this action educates the residents and visitors of Camden County.	Camden County OEM
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Camden County OEM and Facility Managers	Ongoing Capability	Yes	As critical facilities age, more vulnerabilities may appear. Identifying these vulnerabilities and identifying how to mitigate them will strengthen the infrastructure in the County.	Camden County OEM and Facility Managers
M-3	Support efforts by Municipal Working Groups to survey municipal critical facilities by providing data management services.	Camden County OEM / Camden County Planning	Ongoing Capability	Yes	As critical facilities age, more vulnerabilities may appear. Identifying these vulnerabilities and how to mitigate them will strengthen infrastructure in the County.	Camden County OEM / Camden County Planning
M-4	Support on-going plan maintenance and update processes by County and Municipal Working Groups by providing the most up-to-date information about natural hazards.	Camden County OEM / Camden County Planning	Ongoing Capability	Yes	As the climate continues to change, so do the hazards within an area. Providing up-to-date information about natural hazards will assist municipalities in keeping residents informed.	Camden County OEM / Camden County Planning

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-5	Prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies.	Camden County OEM and County Working Group	Ongoing Capability	Yes	Camden County has multiple areas with drainage issues, making the locations prone to flooding.	Camden County OEM and County Working Group
M-6	Conduct regular County Working Group meetings.	Camden County OEM and County Working Group	Ongoing Capability	Yes	These meetings help steer discussions and priorities across the County.	Camden County OEM and County Working Group
M-7	Support regular Municipal Working Group meetings and related implementation efforts.	Camden County OEM	Ongoing Capability	Yes	These meetings help steer discussions and priorities within a municipality; providing information from County Working Group meetings can benefit the Municipal Working Group meetings.	Camden County OEM
M-8	Facilitate meetings with state, county, and municipal officials to discuss and resolve implementation issues related to multi-jurisdictional mitigation measures.	Camden County OEM	Ongoing Capability	Yes	State, County, and Local roads run through multiple municipalities. To address issues on the relevant roads, having joint meetings with open discussions can resolve them.	Camden County OEM
M-9	Camden County College Mega-Shelter	Camden County OEM and Camden County College	Completed. County funded, with some purchases through SHSP. Shelter items stored onsite at CCC and maintained by CCOEM and CCC.	-	-	-
M-10	Camden County Fueling Stations	Camden County OEM and Camden County DPW	Completed. Waiting for State review and grant close-out; DR-4086. Funding source is Federal with a cost match.	-	-	-

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-11	Camden County portable back-up emergency power generators.	Camden County OEM	Completed/Ongoing. DR-4086 is waiting for State review and grant close-out; DR-4231 is still in progress but nearing completion. Both funding sources are Federal with a cost match.	-	-	-
M-12	Stream gauge for Little Timber Creek.	Camden County Engineer	No Progress	Yes	Cannot tell water elevation during high rainfall events	Camden County Engineer
M-13	Stream gauge for Newton Creek.	Camden County Engineer	No Progress	Yes	Cannot tell water elevation during high rainfall events	Camden County Engineer
M-14	Stream gauge for Big Timber Creek.	Camden County Engineer	No Progress	Yes	Cannot tell water elevation during high rainfall events	Camden County Engineer
Audubon Borough	Upgrade storm water runoff to alleviate flooding issue at 300 Oak Street and 200 Wyoming Street (County Route 653).	Municipal OEM, Camden County DPW	No Progress	Yes	Area developed without stormwater system	Municipal OEM, Camden County DPW
Bellmawr Borough	Alleviate flooding at Creek Road (County Route 753) tidal berm at Big Timber Creek.	Municipal OEM, Camden County DPW	In-Progress, No Progress by County Engineer	Yes	Road floods periodically during high tides and after times of heavy rain at Big Timber Creek.	Municipal OEM, Municipal Floodplain Manager, Camden County DPW
Berlin Borough	Alleviate flooding along Camden County Route 692.	Municipal OEM, Camden County DPW	Completed	-	-	-
Berlin Borough	Improve drainage and clear out streams to alleviate flooding issue in Berlin Park.	Municipal OEM, Municipal DPW, Camden County DPW	Completed	-	-	-
Brooklawn Borough	Alleviate flooding on US Highway 130/County Route 551 (affecting Borough Hall / 310 Crescent Boulevard).	Municipal OEM, Municipal Engineer, Camden County DPW, NJ DOT	No Progress	Yes	Flooding	Municipal OEM, Municipal Engineer, Camden County DPW, NJ DOT

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Brooklawn Borough	Alleviate flooding at New Broadway (County Route 551) and West Circle Creek.	Municipal OEM, Camden County DPW, NJ DOT	In Progress by NJDOT and Camden County	Yes	NJDOT has concept to install retaining walls and raise circle, Camden County has Concept Study to improve CR 551 north of circle	Municipal OEM, Camden County DPW
Camden City	Alleviate flooding for four (4) well houses along Delaware River in between the Pennsauken Creek and Cooper River	Utility Operator, Pennsauken Township, Camden County DPW	NJAW responsible for well houses	Yes	Flooding	Utility Operator, Camden City, Pennsauken Township, NJAW
Chesilhurst Borough	Alleviate flooding at Lucas Avenue & White Horse Pike (US Highway 30)	Municipal OEM, Camden County DPW, NJ DOT		Yes	Check with NJDOT, Rt 30 project	Municipal OEM, NJ DOT
Collingswood Borough	Install water pumps for 15 housing structures located at 300 Comly Avenue to alleviate flooding issue from U.S. Highway 130.	Municipal OEM, Camden County DPW, NJ DOT	No progress	Yes	Flooding	Municipal OEM, NJ DOT
Collingswood Borough	Flood proof of business located at 175 Richey Avenue to alleviate flooding issue from U.S. Highway 130.	Municipal OEM and DPW, Camden County DPW, NJ DOT	No Progress	Yes	Flooding	Municipal OEM, NJ DOT
Gloucester City	Alleviate combined sewer overflows	Municipal OEM, Camden County DPW	No Progress	Yes	Flooding	Municipal OEM, Camden County DPW, NJ DOT
Gloucester Township	Alleviate flooding at Somerdale Road and North Branch Timber (County Route 677) ¹	Municipal OEM, Camden County DPW, Camden County Engineer	Bridge Replacement Design in Progress, will mitigate roadway flooding at GTMUA Pump Station	No	Flooding	Municipal OEM, Camden County DPW, Camden County Engineer

¹ Project included in LOI for DR 4086 HMGP. LOI project #1223 budget = \$352,825.

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Gloucester Township	Alleviate flooding at Berlin Cross Keys Road (County Route 689) ²	Municipal OEM, Camden County DPW, Camden County Engineer	Under Construction by Camden County, Bridge structure to be built under Berlin-Cross keys Road per NJDEP Permit	No	Flooding	Municipal OEM, Camden County DPW, Camden County Engineer
Haddon Heights Borough	Alleviate recurrent drainage problem in 500 block of Station Avenue including possible options of constructing supplementary stormwater bypass system.	Municipal OEM, Haddon Heights DPW, Camden County DPW	In Progress	Yes	One project completed by Camden County in 2012, more needed	Municipal OEM, Haddon Heights DPW, Camden County DPW
Haddon Heights Borough	Eliminate potential damage to electrical transmission lines and equipment due to tree limbs during high wind and severe winter weather events.	Municipal OEM, Haddon Heights DPW, Camden County DPW, PSE&G	Unknown	No	Tree limbs interfering with power lines	PSE&G
Hi-Nella Borough	Upgrade and improve stormwater drainage system on East Atlantic Avenue.	Municipal OEM, Camden County DPW	No Progress	Yes	Drainage issue	Municipal OEM, Camden County DPW
Hi-Nella Borough	Upgrade and improve stormwater drainage system at Minnetonka and Wykagyl Road including constriction at culvert under Conrail tracks.	Municipal OEM, Camden County DPW, Conrail	No Progress	Yes	Drainage issue	Municipal OEM, NJ DOT, Conrail
Lindenwold Borough	Improve drainage to alleviate flooding and erosion issues at White Horse Pike (US Highway 30) and State Avenue.	Municipal OEM, Camden County DPW, NJ DOT	Unknown	Yes	Drainage issue	Municipal OEM, NJ DOT
Lindenwold Borough	Improve drainage to alleviate flooding issue on Berlin Road.	Municipal OEM, Camden County DPW	In progress, In Camden County Roadway Improvement plan	Yes	Flooding of roadway and multipurpose path	Municipal OEM, Camden County DPW
Lindenwold Borough	Improve drainage to alleviate flooding issue on Chews Landing	Municipal OEM, Camden County DPW	No Progress	Yes	Replacement of Existing Bridge and	Municipal OEM, Camden County DPW

² Project included in LOI for DR 4086 HMGP. LOI project #1224 budget = \$500,300.

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	Road (County Route 683) over Mason Run.				improvements to Pump Station needed	
Mount Ephraim Borough	Conduct dam maintenance - Haddon Lake Dam ³	Municipal OEM, Camden County DPW.	Ongoing Capability	Yes	Continual dam maintenance by the Camden County Department of Public Works, Dam and bridge replacement Needed	Camden County DPW
Gloucester City	Dredge Miller's Pond located in Gloucester City to alleviate stormwater drainage issues.	Municipal OEM, Gloucester City DPW, Camden County DPW.	No Progress	Yes	Drainage issue	Gloucester City
Mount Ephraim Borough	Alleviate drainage problem in front of Kershaw Elementary School (State Highway 168/S. Black Horse Pike).	Municipal OEM, Camden County DPW, NJ DOT.	No Progress	Yes	Flooding issue in front of Kershaw Elementary School	NJ DOT
Runnemede Borough	Upgrade storm-water management system at 900 Block East Evesham Road (County Route 544).	Municipal OEM, Department of Public Works, Engineering Department, Camden County DOT	In Progress, Under design by Camden County	No	Erosion and Flooding issue	Municipal OEM, Municipal DPW, Camden County DPW
Somerdale Borough	Upgrade pipe, develop detention area and enhance stream bank stabilization at Gravelly Run Stream to alleviate flooding issues.	Municipal OEM, Municipal Engineering Department, NJ DOT, Conrail, Hi-Nella Borough, Magnolia Borough ⁴	Unknown	Yes	Flooding	Municipal OEM, Municipal Engineering Department, NJ DOT, Conrail, Gloucester Twp. OEM, Gloucester Twp. DPW
Somerdale Borough	Improve surface drainage and flow improvements centered on West Maiden Lane and Ava Avenue. ⁵	Municipal OEM, Municipal Engineering Department, NJ DOT, Conrail, Hi-Nella	Unknown	Yes	Drainage issue	Municipal OEM, Municipal DPW

³ Dam is maintained by Camden County.

⁴ Mitigation measure impacts border with Hi-Nella Borough and Magnolia Borough (Camden County).

⁵ Roads included in project area are Cypress Court, Fairview Avenue, Gloucester Avenue, Ava Avenue, and West Maiden Lane.

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
		Borough, Magnolia Borough, Gloucester Township ⁶				
Somerdale Borough	Cooper River stormwater management flow and flood control to alleviate flooding between Evesham Road (County Route 544) and Somerdale Road (County Route 678).	Municipal OEM, Municipal Engineering Department, Camden County DPW, Delaware Valley Regional Planning Commission, PATCO, NJ Transit Rail, Conrail, NJ DEP, Voorhees Township, Lindenwold Borough ⁷	No Progress	Yes	Flooding	Municipal OEM, Municipal DPW, Camden County DPW, Voorhees OEM, Voorhees DPW
Winslow Township	Alleviate flooding on NJ Route 73 and Myers Avenue to mitigate roadway flooding.	Municipal OEM, NJ DOT	Unknown	Yes	Flooding	Municipal OEM, NJ DOT
Winslow Township	Improve drainage on US Hwy 30 and Fleming Pike. Pump station installation needed.	Municipal OEM, US DOT	Completed by NJDOT	-	-	-
Winslow Township	Improve drainage system at Jackson Lane and Chews Landing Road.	Municipal OEM, Camden County Engineering Department	No progress	Yes	Localized drainage problem, nor drainage relief	Municipal OEM, NJ DOT
Winslow Township	Improve drainage system at 2nd Street and Pennington Avenue.	Municipal OEM, Camden County Engineering Department	No Progress	Yes	Flooding, no stormwater system in the area, high water table and clay lenses in soils	Municipal OEM, Camden County DPW

⁶ Mitigation measure impacts border with Hi-Nella Borough, Magnolia Borough, and Gloucester Township (Camden County).

⁷ Mitigation measure impacts border with Voorhees Township and Lindenwold Borough (Camden County).

9.1.7.2 Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

Camden County has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2017 HMP:

- None Identified

9.1.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

Camden County participated in a mitigation action workshop in May 2021 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories.

Table 9.1-15. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise		X	X	X			X	X		X
Dam Failure/Levee Failure		X	X	X			X	X		X
Disease Outbreak/Pandemic		X	X	X			X	X		X
Drought		X	X	X			X	X		X
Earthquake		X	X	X			X	X		X
Extreme Temperatures		X	X	X			X	X		X
Flood		X	X	X			X	X	X	X
Geological Hazards		X	X	X			X	X		X
High Wind	X	X	X	X	X		X	X		X
Invasive Species/Harmful Algal Bloom		X	X	X			X	X		X
Severe Summer Weather		X	X	X			X	X		X
Severe Winter Weather		X	X	X			X	X	X	X
Wildfire		X	X	X			X	X		X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.


The table below summarizes the comprehensive range of specific mitigation initiatives Camden County would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.1-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

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Table 9.1-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Camden County-001	Stream Gauges	<p>Problem: Little Timber Creek, Big Timber Creek, and Newton Creek flood frequently and the stream flow rates cannot be monitored. Flooding from the creeks frequently impacts roadways and causes property damages. Camden County currently has only one stream gauge at the Cooper River to monitor flooding.</p> <p>Solution: The County will seek funding to install USGS stream gauges and necessary monitoring equipment at the Little Timber Creek, Big Timber Creek, and Newton Creek. Data collected from the gauges will allow the county to accurately monitor water levels and prepare for floods and reduce risks associated with</p>	New	Flood, Severe Winter Weather	1, 2, 3, 4, 5, 6	Engineering	USGS, FEMA HMA	High, increases capacity to manage floods	Estimated \$20,000 each to install, plus annual maintenance	Dependent on funding	High 	NSP	NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		flooding in communities along the waterways.											
2022-Camden County-002	Identification of Flood Prone Areas	<p>Problem: Multiple locations throughout the County flood frequently due to poor drainage even when not located in a floodplain.</p> <p>Solution: The County will prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies. The County will solicit feedback from municipal agencies to determine locations of recurrent or recent drainage problems throughout the County and on County-owned roads to aid County Public Works with mapping of locations that have previously flooded. The County will also prepare Standard Operating</p>	Existing	Flood	1, 2, 4, 5	Engineering, Public Works	FMA, HMA	High, reduces flooding and increases understanding of hazard risk locations and county-municipal collaboration	Medium – High	Ongoing	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<p>Procedures to complete seasonal cleaning of County storm drains/inlets in areas prone to flooding prior to a predicted storm event, as well as street sweeping and debris removal. Areas identified in need of infrastructure protections from flooding include:</p> <ul style="list-style-type: none"> • Route 30 and Copley Rd in Barrington • Elvena & Lexington Ave in Pennsauken • Kaighns Ave between North Park Drive and Euclid Ave in Pennsauken/City of Camden • Broadway & County Route 551 in Brooklawn • Creek Rd in Bellmawr between 295 Bridge and Route 130 Circle 											

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Camden County-003	Combined Sewer Flooding	<p>Problem: Camden City and Gloucester City are part of a Combined Sewer Overflow (CSO) System, which exacerbates flooding during heavy rains.</p> <p>Solution: The County is working with the Municipal Utilities Authority to separate the stormwater from the sewer systems where feasible, as part of ongoing road reconstruction projects. Mitigation of street flooding and implementation of green stormwater infrastructure, as well as long-term control alternatives have been detailed in the "CCMUA, Camden City and Gloucester City Long-Term Control Plan," dated September 2020. Projects from this plan will be implemented in order of established priority, and as soon</p>	Existing	Flood	2, 4, 5, 6	CCMUA, Camden City, Gloucester City, Engineering	EPA	High	High	Dependent on funding	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		as funding becomes available.											
2022-Camden County-004	Debris Management Plan	<p>Problem: Camden County does not currently have a Debris Management Plan.</p> <p>Solution: The County will work to develop a County-Wide Debris Management Plan, covering all municipalities. The Plan will be developed following guidance from NJOEM and FEMA, and will include procedures for debris clearance and collection, debris management sites, contracted services, debris removal at private properties and demolition of private structures, considerations for public health and safety, and public information and education. The Plan will also include a tree maintenance</p>	New	High Wind	1, 2, 3, 4, 5, 6	Public Safety, Planning, DPW	County Budget	High	Low	1 year	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		schedule for County properties to avoid branches and debris affecting power lines and cascading impacts including property damages and power outages. The County will also develop a system for Individual Assistance and Public Assistance grant management, and work to train more municipalities in conducting Damage Assessments.											
2022-Camden County-005	Culvert Replacements	Problem: Culverts at Berlin Cross Keys Road/County Route 689 near Erial-New Brooklyn Road, and County Route 561 near Brace Road/NJ St Highway 154 in Haddonfield/Berlin are undersized and exacerbate roadway flooding and at nearby properties. Solution: The County will seek funding to implement the following solutions:	Existing	Flood	2, 6	Engineering, DPW	HMGP, NJDOT	High, reduces flooding	High	2 years	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<ul style="list-style-type: none"> Berlin Cross Keys Road/County Route 689 near Erial-New Brooklyn Road – The County is in the process of replacing the culvert at this location with a bridge under the road to eliminate flooding on Berlin Cross Keys Road. NJDEP has approved this project. County Route 561 near Brace Road/NJ St Highway 154 in Haddonfield/Berlin – The County will need to design and replace the culvert at County Route 561. The current culvert takes drainage through a developed area with no detention, causing the road to flood frequently and embankments to fail. 											

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Camden County-006	Emergency Generators	<p>Problem: Critical Facilities and a Shelter location do not have backup power.</p> <p>Solution: The County will seek funding to install permanent, automatic generators at the flowing locations to ensure continuity of operations.</p> <ul style="list-style-type: none"> Cherry Hill High-East High School (also a County Shelter) Pennsauken Technical Vocational School Municipal Building 1/backup EOC 	New	All Hazards	1, 3, 6	Public Safety	FEMA HMGP, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	High, ensures continuity of operations	High, Estimated \$70,000 each	Dependent on Funding	High	SIP	ES
2022-Camden County-007	Green Infrastructure	<p>Problem: The County wants to increase its sustainability efforts.</p> <p>Solution: There are multiple projects in the engineering and development stage throughout the County that will be developed to include options for best management practices in sustainability and</p>	New	All Hazards	2	Engineering, DPW	County Budget	High	Medium-High	Ongoing	Medium	NSP	NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		incorporation of green infrastructure and natural solutions wherever possible. The County will also work to implement GI on county properties including dedicated green space, rain gardens, permeable surfaces on new constructions, and others, where appropriate.											
2022-Camden County-008	Public Education	<p>Problem: The County wants to improve its hazard education and awareness programming for residents.</p> <p>Solution: The County has identified the following ways to improve education for residents:</p> <ul style="list-style-type: none"> Updating the OEM webpage to include helpful links, update residents on current projects, host webinars and speaker-series on hazard mitigation, direct residents to 	New	All Hazards	1, 2, 3, 4	Camden County	County Budget	High	Low	Ongoing	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<p>grants and waivers which may assist with finances, mailing paper flyers to houses</p> <ul style="list-style-type: none"> • Posting the link to FEMA flood maps on webpages for residents to investigate flood locations • Educating residents to put snow on left side of driveway apron to avoid plows putting snow back, fostering an open channel of communication between County Public Works and residents • Providing resources for structural flood mitigation for RL properties including elevation, adding drainage, maintain as open land, acquire open space to preserve land; and support municipal efforts 											

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		for flood mitigation <ul style="list-style-type: none"> Supporting CRS, StormReady, Firewise, and Sustainable Jersey participation for municipalities Updating County website to show status of current projects 											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

! This action has been identified as being of greatest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- EHP Environmental Planning and Historic Preservation
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.

- *Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

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Table 9.1-17. Summary Evaluation and Action Priority

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2022-Camden County-001	Stream Gauges	1	1	1	1	1	1	-1	1	1	1	1	1	1	1	12	High
2022-Camden County-002	Identification of Flood Prone Areas	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022-Camden County-003	Combined Sewer Flooding	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022-Camden County-004	Debris Management Plan	1	1	1	1	1	1	1	0	0	1	0	1	1	1	10	High
2022-Camden County-005	Culvert Replacements	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022-Camden County-006	Emergency Generators	1	0	1	1	1	1	-1	0	1	1	1	1	1	1	10	High
2022-Camden County-007	Green Infrastructure	0	0	1	1	1	1	0	1	1	1	1	1	1	1	11	High
2022-Camden County-008	Public Education	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

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

9.1.8 Action Worksheets

The following action worksheets have been developed by Camden County to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.

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Action Worksheet			
Project Name:	Stream Gauges		
Project Number:	2022-Camden County-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Winter Weather		
Description of the Problem:	Little Timber Creek, Big Timber Creek, and Newton Creek flood frequently and the stream flow rates cannot be monitored. Flooding from the creeks frequently impacts roadways and causes property damages. Camden County currently has only one stream gauge at the Cooper River to monitor flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	The County will seek funding to install USGS stream gauges and necessary monitoring equipment at the Little Timber Creek, Big Timber Creek, and Newton Creek. Data collected from the gauges will allow the county to accurately monitor water levels and prepare for floods and reduce risks associated with flooding in communities along the waterways.		
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Level of Protection:	100-year flood	Estimated Benefits (Losses avoided):	High, increases capacity to manage floods
Useful Life:	50 years	Goals Met:	1, 2, 3, 4, 5, 6
Estimated Cost:	Estimated \$20,000 each to install, plus annual maintenance	Mitigation Action Type:	NSP
Plan for Implementation			
Prioritization:	Highest	Desired Timeframe for Implementation:	Dependent on Funding
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	USGS, FEMA HMA, BRIC
Responsible Organization:	Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Manual daily monitoring of water levels	N/A	Not cost effective, not feasible
	Submersible pressure sensors	\$50,000	Not accurate enough, costly construction
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Stream Gauges	
Project Number:	2022-Camden County-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Identification of Flood Prone Areas		
Project Number:	2022-Camden County-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Multiple locations throughout the County flood frequently due to poor drainage even when not located in a floodplain.		
Action or Project Intended for Implementation			
Description of the Solution:	<p>The County will prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies. The County will solicit feedback from municipal agencies to determine locations of recurrent or recent drainage problems throughout the County and on County-owned roads to aid County Public Works with mapping of locations that have previously flooded. The County will also prepare Standard Operating Procedures to complete seasonal cleaning of County storm drains/inlets in areas prone to flooding prior to a predicted storm event, as well as street sweeping and debris removal.</p> <p>Areas identified in need of infrastructure protections from flooding include:</p> <ul style="list-style-type: none"> • Route 30 and Copley Rd in Barrington • Elvena & Lexington Ave in Pennsauken • Kaighns Ave between North Park Drive and Euclid Ave in Pennsauken/City of Camden • Broadway & County Route 551 in Brooklawn • Creek Rd in Bellmawr between 295 Bridge and Route 130 Circle 		
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Level of Protection:	100-year flood, 25-year storm	Estimated Benefits (Losses avoided):	High, reduces flooding and increases understanding of hazard risk locations and county-municipal collaboration
Useful Life:	N/A	Goals Met:	1, 2, 4, 5
Estimated Cost:	Medium – High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Ongoing
Estimated Time Required for Project Implementation:	Ongoing	Potential Funding Sources:	FEMA FMA, HMA
Responsible Organization:	Engineering, Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Identification of Flood Prone Areas	
Project Number:	2022-Camden County-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Culvert Replacements		
Project Number:	2022-Camden County-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Problem: Culverts at Berlin Cross Keys Road/County Route 689 near Erial-New Brooklyn Road, and County Route 561 near Brace Road/NJ St Highway 154 in Haddonfield/Berlin are undersized and exacerbate roadway flooding and at nearby properties. Solution:		
Action or Project Intended for Implementation			
Description of the Solution:	The County will seek funding to implement the following solutions: <ul style="list-style-type: none"> Berlin Cross Keys Road/County Route 689 near Erial-New Brooklyn Road – The County is in the process of replacing the culvert at this location with a bridge under the road to eliminate flooding on Berlin Cross Keys Road. NJDEP has approved this project. County Route 561 near Brace Road/NJ St Highway 154 in Haddonfield/Berlin – The County will need to design and replace the culvert at County Route 561. The current culvert takes drainage through a developed area with no detention, causing the road to flood frequently and embankments to fail. 		
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Level of Protection:	25-year storm	Estimated Benefits (Losses avoided):	High
Useful Life:	30 years	Goals Met:	2, 6
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6 months
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMGP, NJDOT
Responsible Organization:	Engineering, DPW	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Culvert Replacements	
Project Number:	2022-Camden County-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Emergency Generators		
Project Number:	2022-Camden County-006		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	Critical Facilities and a Shelter location do not have backup power.		
Action or Project Intended for Implementation			
Description of the Solution:	The County will seek funding to install permanent, automatic generators at the following locations to ensure continuity of operations. <ul style="list-style-type: none"> Cherry Hill High-East High School (also a County Shelter) Pennsauken Technical Vocational School Municipal Building 1/backup EOC 		
Is this project related to a Critical Facility?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (Losses avoided):	High, ensures continuity of operations
Useful Life:	20 years	Goals Met:	1, 3, 6
Estimated Cost:	High, Estimated \$70,000 each	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Dependent on Funding
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA HMGP, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Public Safety	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Emergency Generators	
Project Number:	2022-Camden County-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	