19. CAPE MAY COUNTY MUNICIPAL UTILITIES AUTHORITY

This jurisdictional annex to the Cape May County Hazard Mitigation Plan (HMP) provides information to assist the Cape May County Municipal Utilities Authority (CMCMUA) with reducing losses from future hazard events. This annex is not guidance of what to do when a disaster occurs; its focus is on actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex presents a general overview of the CMCMUA, describes who participated in the planning process, assesses the CMCMUA's risk, vulnerability, and capabilities, and outlines a strategy for achieving a more resilient community.

19.1 HAZARD MITIGATION PLANNING TEAM

The CMCMUA identified primary and alternate HMP points of contact and developed this plan over the course of several months. The Wastewater Program Manager represented the CMCMUA on the Cape May County HMP Steering Committee, Planning Partnership, and supported the local planning process by securing input from persons with specific knowledge to enhance the plan. Personnel within the CMCMUA 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.

Table 19-1 summarizes CMCMUA officials who participated in the development of the annex and in what capacity. Additional documentation of the CMCMUA's planning activities through Planning Partnership meetings is included in Volume I.

Table 19-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name/Title: Josh Palombo, Wastewater Program Manager Address: 1523 U.S. Route 9 North, Cape May Court House, NJ 08210 Phone Number: 609-465-9026 Email: palomboj@cmcmua.com	Name/Title: Andrew Wallace, Risk Program Manager Address: 1523 U.S. Route 9 North, Cape May Court House, NJ 08210 Phone Number: 609-465-9026 Email: wallacea@cmcmua.com
National Flood Insurance Program Floodplain Administrator	
Floodplain Administration is conducted at the municipal level.	
Additional Contributors	
Name/Title: Patrick Morrison, Solid Waste Engineer Method of Participation: Attended in-person and/or virtual meetings.	
Name/Title: Megan Rau, Wastewater Engineer Method of Participation: Attended in-person and/or virtual meetings.	

19.2 COMMUNITY PROFILE

In 1972, the Cape May County Municipal Utilities Authority ("CMCMUA" or "Authority") was created by the Cape May County Board of County Commissioners. The Authority, and its appointed Board of Commissioners, was entrusted with the task of designing, constructing and operating, efficient and cost-effective wastewater treatment facilities to respond to the passage of the Federal Water Pollution Control Act Amendment of 1972. This Amendment mandated the abatement of pollution of the nation's water resources. These new regional treatment facilities would replace numerous outdated municipal treatment plants (CMCMUA n.d.).

The prompt response of both the Cape May County Board of County Commissioners and the Authority to this federal mandate resulted in the CMCMUA being able to secure more than $183 million in State and federal grants to pay for approximately 55 percent of the capital costs for the regional wastewater treatment projects constructed by the Authority. The construction phase for the four (4) regional systems, which include Ocean City, Cape May, Seven Mile Beach/Middle and Wildwood/Lower, began in 1979 with the first facility completed in 1982 and the fourth plant finished in 1988. The CMCMUA's regional wastewater system also includes a sewage sludge composting facility that began operating in 1985 (CMCMUA n.d.).

The Cape May County Board of County Commissioners formally expanded the Authority's pollution abatement mission in 1980 when the Authority was designated as the implementing agency for the Cape May County Solid Waste Management Plan. This Plan was developed in response to the 1976 enactment by the New Jersey Legislature of an Amendment to the New Jersey Solid Waste Management Act (CMCMUA n.d.).

The Authority developed and implemented a comprehensive solid waste management system which includes the siting, construction, and operation of a Secure, Sanitary Landfill located on the Borough of Woodbine/Township of Upper border; a Transfer Station located in the Burleigh section of Middle Township; and an aggressive source separation, recycling, reuse, and waste reduction program that provides for the recycling of forty-one (41) mandated materials, reclaims energy through its landfill gas recovery system and prevents toxic materials from entering the waste stream by collecting them through a household hazardous waste program (CMCMUA n.d.).

The Authority established and adopted regional planning areas throughout Cape May County to receive wastewater treatment services. The four (4) regional service areas are: The Ocean City Service Region, The Seven Mile Beach/Middle Service Region; The Wildwood/Lower Service Region, and The Cape May Service Region. The Authority also operates a regional biosolids transfer facility. These regional facilities serve the following municipalities (CMCMUA n.d.):

- The Ocean City Service Region serves the City of Ocean City.
- The Seven Mile Beach-Middle Service Region serves the City of Sea Isle City, the Borough of Avalon, the Borough of Stone Harbor, the northern and central portions of the Township of Middle, and the Ocean View Service Area on the Garden State Parkway.
- The Wildwood Lower Service Region serves the City of North Wildwood, the City of Wildwood, the Borough of West Wildwood, the Borough of Wildwood Crest, the southernmost portion of the Township of Middle, and a small portion of the Township of Lower near Rio Grande.
- The Cape May Service Region serves the City of Cape May, the Borough of West Cape May, and the Borough of Cape May Point.

The Authority's Solid Waste Program operates a comprehensive solid waste management system which includes a Secure Sanitary Landfill, a Transfer Station, and a variety of recycling programs and facilities that serve all sixteen Cape May County municipalities including, the Borough of Avalon, the City of Cape May, the Borough of Cape May Point, the Township of Dennis, the Township of Lower, the Township of Middle, the City of North Wildwood, the City of Ocean City, the City of Sea Isle City, the Borough of Stone Harbor, the Township of Upper, the Borough of West Cape May, the Borough of West Wildwood, the City of Wildwood, the Borough of Wildwood Crest, and the Borough of Woodbine (CMCMUA n.d.).

Governing Body Format

CMCMUA is governed by a Board of Commissioners, consisting of a Chairman and Vice Chairman, who must be members of the Authority, a Corporate Secretary, Recording Secretary, Treasurer, Assistant Secretary and Assist Treasurer, who may be, but are not required to be, members of the Authority. The Corporate Secretary and Treasurer may be held by the same individual (CMCMUA n.d.).

19.2.1 Population and Social Vulnerability

Research has shown that some populations are at greater risk from hazard events because of decreased resources or physical abilities. These populations can be more susceptible to hazard events based on a number of factors including their physical and financial ability to react or respond during a hazard, and the location and construction quality of their housing. The CMCMUA serves, to some extent, all populations within the County of Cape May. Data from the 2022 American Community Survey indicates that 4.3 percent of the County population is 5 years of age or younger, 27.8 percent is 65 years of age or older, 1.5 percent is non-English speaking, 8.9 percent is below the poverty threshold, and 14.7 percent is considered disabled.

ALICE in Cape May County

ALICE is an acronym for Asset Limited, Income Constrained, Employed – households that earn more than the Federal Poverty Level, but less than the basic cost of living for the County. While conditions have improved for some households, many continue to struggle, especially as wages fail to keep pace with the rising cost of household essentials (housing, child care, food, transportation, health care, and a basic smartphone plan). Households below the ALICE Threshold – ALICE households plus those in poverty – can't afford the essentials.

The CMCMUA serves, to some extent, all populations within the County of Cape May. According to 2021 Point-in-Time-Data from ALICE, 26% of the 48,860 households in Cape May County are ALICE households (on par with the state average of 26%). The median household income in Cape May is $78,657, and the County sees a labor force participation rate of 57%. Cape May County faces low household income compared to the state average of $89,296, along with a low labor participation rate of 57% compared to the state average of 66%. 8% of Cape May households live in poverty, which falls below the state average of 10%.

19.3 JURISDICTIONAL CAPABILITY ASSESSMENT AND INTEGRATION

CMCMUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume I describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment for this annex includes analyses of the following:

- Planning and regulatory capabilities
- Development and permitting capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Classification under various community mitigation programs
- Adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into day-to-day local government operations. As part of the hazard mitigation analysis, planning and /policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. Development of an updated mitigation strategy provided an opportunity for CMCMUA to identify opportunities for integrating mitigation concepts into ongoing procedures.

19.3.1 Planning and Regulatory Capability and Integration

Table 19-2 summarizes the planning and regulatory tools that are available to CMCMUA.

Table 19-2. Planning and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
CODES, ORDINANCES, & REGULATIONS				
All codes, ordinances, and regulations are administered at the municipal level.				
PLANNING DOCUMENTS				
General/Comprehensive Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Capital Improvement Plan	Yes	20-year Capital Renewal and Replacement Plan	County	CMCMUA
How has or will this be integrated with the HMP and how does this reduce risk? Long term budgets are established for projects. This allows the Authority to identify funding gaps.				
Disaster Debris Management Plan	Yes	Temporary Debris Management Plan, 2018	County, State	CMCMUA
How has or will this be integrated with the HMP and how does this reduce risk? The CMCMUA has prepared a Temporary Debris Management Plan that is approved by NJDEP to manage potential debris overflow in the case of a disaster. The plan is updated every five years and was last approved in 2018.				
Floodplain Management or Watershed Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Stormwater Pollution Prevention Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Open Space Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Economic Development Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Community Wildfire Protection Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Transportation Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Agriculture Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Climate Action/ Resilience/Sustainability Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Tourism Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Other	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
RESPONSE/RECOVERY PLANNING				
Emergency Operations Plan	Yes	Emergency Response SOPs	County	CMCMUA
How has or will this be integrated with the HMP and how does this reduce risk? Emergency Response SOPs will identify available resources, resource gaps, vulnerable areas and populations, and communication methods for response to emergencies. This provides a foundation for the development of hazard mitigation goals, objectives, and actions to ensure any gaps and needs are addressed and all capabilities are being effectively utilized.				
Continuity of Operations Plan	Yes	CMCMUA Business Continuity SOP	County	CMCMUA
How has or will this be integrated with the HMP and how does this reduce risk? The Business Continuity SOP is designed to ensure that essential functions of the organization continue during and after significant disruption, such as natural disasters or emergencies. Key components of the SOP include leadership, staff, communications, and facilities, which are essential for maintaining operations. It serves as a roadmap for organizations to effectively manage and implement continuity strategies.				

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
Strategic Recovery Planning Report	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Threat and Hazard Identification and Risk Assessment	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Public Health Plan	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
Other	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

19.3.2 Development and Permitting Capability

Table 19-3 summarizes the capabilities of CMCMUA to oversee and track development.

Table 19-3. Development and Permitting Capability

	Yes/No	Comment
Do you issue development permits? • If you issue development permits, what department is responsible? • If you do not issue development permits, what is your process for tracking new development?	No	The CMCMUA does not issue development permits; this is done at the municipal level
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	The CMCMUA does not issue development permits; this is done at the municipal level
Do you have a buildable land inventory? • If you have a buildable land inventory, please describe	No	Municipalities conduct their own analyses
Describe the level of buildout in your jurisdiction.	N/A	Not applicable

19.3.3 Administrative and Technical Capability

Table 19-4 summarizes potential staff and personnel resources available to CMCMUA and their current responsibilities that contribute to hazard mitigation.

Table 19-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
ADMINISTRATIVE CAPABILITY		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	No	-
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Maintenance personnel, CDL drivers, heavy equipment
Mutual aid agreements	No	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
TECHNICAL/STAFFING CAPABILITY		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	Professional Engineers in various disciplines.
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	Yes	
Professionals trained in conducting damage assessments	Yes	
Personnel skilled or trained in GIS and/or Hazus applications	Yes	
Staff that work with socially vulnerable populations or underserved communities	No	-
Environmental scientists familiar with natural hazards	No	-
Surveyors	No	-

Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
Emergency manager	Yes	
Grant writers	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater engineer, Water/Wastewater engineers

19.3.4 Fiscal Capability

Table 19-5 summarizes financial resources available to CMCMUA.

Table 19-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	No
Capital improvement project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

19.3.5 Education and Outreach Capability

Table 19-6 summarizes the education and outreach resources available to CMCMUA.

Table 19-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	Contracted
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-

Outreach Resources	Available? (Yes/No)	Comment
Organizations that conduct outreach to socially vulnerable populations and underserved populations	No	-
Public outreach mechanisms / programs to inform citizens on natural hazards, risk, and ways to protect themselves during such events	No	-

19.3.6 Community Classifications

Table 19-7 summarizes classifications for community programs available to CMCMUA.

Table 19-7. Community Classifications

Program	Participating? (Yes/No)	Classification	Date Classified
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
National Weather Service StormReady Certification	Yes	-	-
Firewise Communities classification	No	-	-
New Jersey Sustainable Jersey Community	No	-	-
Other: Organizations with mitigation focus (advocacy group, non-government)	No	-	-

N/A = Not applicable
— = Unavailable

19.3.7 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 2022). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. Table 19-8 summarizes the adaptive capacity for each identified hazard of concern and the CMCMUA’s capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement

Table 19-8. Adaptive Capacity

Hazard	Adaptive Capacity
Dam Failure	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Severe Weather	Moderate

Hazard	Adaptive Capacity
Severe Winter Weather	Moderate
Wildfire	Moderate

19.4 NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the National Flood Insurance Program (NFIP). The floodplain administrator listed in Table 19-1 is responsible for maintaining this information.

19.4.1 NFIP Statistics

Table 19-9 summarizes the NFIP policy and claim statistics for CMCMUA.

Table 19-9. CMCMUA NFIP Summary of Policy and Claim Statistics

# Policies	Not applicable to the CMCMUA.
# Claims (Losses)	
Total Loss Payments	
# Repetitive Loss Properties (NFIP definition)	
# Repetitive Loss Properties (FMA definition)	
# Severe Repetitive Loss Properties	

NFIP Definition of Repetitive Loss: The NFIP defines a repetitive loss property as any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period since 1978.

FMA Definition of Repetitive Loss: FEMA's Flood Mitigation Assistance (FMA) program defines a repetitive loss property as any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

Definition of Severe Repetitive Loss: A residential property covered under an NFIP flood insurance policy and: (a) That has at least four NFIP claim payments over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or (b) For which at least two separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. At least two of the claims must have occurred within any 10-year period, more than 10 days apart.

Source: FEMA 2024

19.4.2 Flood Vulnerability Summary

Table 19-10 provides a summary of the NFIP program for the CMCMUA.

Table 19-10. NFIP Summary

NFIP Topic	Comments
Floodplain Administration is conducted at the municipal level.	

19.5 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 appreciating a jurisdiction's overall risk to its hazards of concern. Recent and expected future development trends, including major residential/commercial development and major infrastructure development, are summarized in Table 19-11 through Table 19-13.

Table 19-11. Number of Building Permits for New Construction Issued Since the Previous HMP

Year	New Construction Permits Issued			
	Single Family	Multi-Family	Other (commercial, mixed-use, etc.)	Total
2020	Permitting is carried out at the municipal level.			
Total Permits				
Permits within SFHA				
2021				
Total Permits				
Permits within SFHA				
2022				
Total Permits				
Permits within SFHA				
2023				
Total Permits				
Permits within SFHA				
2024				
Total Permits				
Permits within SFHA				

SFHA = Special Flood Hazard Area (1% flood event)

Table 19-12. Recent Major Development and Infrastructure from 2017 to Present

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
There has not been any recent major development or infrastructure.					

** Only location-specific hazard zones or vulnerabilities identified.*

Table 19-13. Known or Anticipated Major Development and Infrastructure in the Next Five Years

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
There is no known or anticipated major development or infrastructure in the next five (5) years.					

19.6 JURISDICTIONAL RISK ASSESSMENT

The hazard profiles in Volume I provide detailed information regarding each planning partner's vulnerability to the identified hazards, including summaries of the CMCMUA's risk assessment results and data used to determine the hazard ranking. Key local risk assessment information is presented below.

19.6.1 Hazard Area

The hazard profiles in Volume 1, Chapter 6 through Chapter 13 provide detailed information regarding each plan participant's vulnerability to the identified hazards. Chapter 4 (Methodology) and Chapter 14 (Hazard Ranking)

provide detailed summaries for the CMCMUA's risk assessment results and data used to determine the hazard ranking discussed later in this section.

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

19.6.2 Hazard Event History

The history of natural and non-natural hazard events in Cape May is detailed in Volume I, where each hazard profile includes a chronology of historical events that have affected the County and its jurisdictions. Table 19-14 provides details of loss and damage the CMCMUA incurred during hazard events since the last hazard mitigation plan update.

Table 19-14. Hazard Event History for the CMCMUA

Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses
February 11, 2021	Severe Winter Weather (4597-DR-NJ)	Yes	Widespread snow fell and accumulate between 3 to 5 inches across the County, with some amounts locally a little higher. The County was eligible for Public Assistance through Federal Declaration.	No damages or losses impacted CMCMUA structures or infrastructure.
September 1-3, 2021	Remnants of Hurricane Ida (EM-3573-NJ, DR-4614-NJ)	Yes	The remnants of Hurricane Ida produced heavy rainfall through the County. The County was eligible for Public Assistance through Federal Declaration.	No damages or losses impacted CMCMUA structures or infrastructure.
January 31, 2021	Severe Winter Weather, Flood	No	A quick moving winter storm impacted Cape May County where a widespread 6 to 12 inches of snow fell. Moderate coastal flooding in the tidal areas of Cape May County occurred around the time of the morning high tide causing numerous road closures.	No damages or losses impacted CMCMUA structures or infrastructure.
April 1, 2023	Severe Weather	No	Thunderstorms produced damaging winds and small to medium-sized hail. Multiple trees downed on Corson Tavern Road and Route 9 in Dennis Township. A structure fire was caused by lightning in Rio Grande.	No damages or losses impacted CMCMUA structures or infrastructure.
September 23, 2023	Severe Weather	No	Tropical Storm Ophelia resulted in a steady onshore flow along the coast, causing widespread tidal flooding. There were numerous road closures. Many homes and other buildings were surrounded by flood waters with some minor property damage occurring.	No damages or losses impacted CMCMUA structures or infrastructure.

Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses
January 19, 2024	Severe Winter Weather	No	A winter storm brought widespread light to moderate snowfall accumulations across the region. Snowfall totals ranged largely from around 3 to 4 across much of the zone. The highest snowfall report was from Dennis Township with 4.9.	No damages or losses impacted CMCMUA structures or infrastructure.

EM = Emergency Declaration (FEMA)
FEMA = Federal Emergency Management Agency
DR = Major Disaster Declaration (FEMA)
N/A = Not applicable

19.6.3 Hazard Ranking and Vulnerabilities

The hazard profiles in Volume I have detailed information regarding each planning partner's vulnerability to the identified hazards. The following presents key risk assessment results for the CMCMUA.

Hazard Ranking

The participating jurisdictions have differing degrees of vulnerability to the hazards of concern, so each jurisdiction ranked its own degree of risk to each hazard. The community-specific hazard ranking is based on problems and impacts identified by the risk assessment presented in Volume I. The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; community capabilities to address the hazard; and changing future climate conditions. CMCMUA reviewed the hazard ranking and individual results to assess the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the CMCMUA indicated the rankings were appropriate.

Table 19-15 shows the CMCMUA's final hazard rankings for identified hazards of concern. Mitigation action development uses the ranking to target hazards with the highest risk.

Table 19-15. Hazard Ranking

Hazard	Rank
Dam Failure	Low
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	High
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Medium

Note: The scale is based on the hazard rankings established in Volume I, modified as appropriate based on review by the jurisdiction

Critical Facilities

Table 19-16 identifies critical facilities in the community located in the 1 percent and 0.2 percent annual chance floodplains.

Table 19-16. Critical Facilities Flood Vulnerability

Name	Type	Vulnerability	
		1% Annual Chance Event	0.2% Annual Chance Event
Refer to Volume II, Chapters 2-18 for critical facilities identified to be located in the annual chance floodplains.			

Source: Cape May County 2022, 2024; HIFLD 2024; USACE 2024

19.6.4 Identified Issues

After a review of the CMCMUA's hazard event history, hazard rankings, hazard location, and current capabilities, the CMCMUA identified the following vulnerabilities within the community:

- Cape May County has notable groundwater intrusion issues due to water withdrawals and the sensitivity of the underlying aquifer.
- The MUA-owned Ocean City Wastewater Treatment Facility located at 45th and Simpson Ave in Ocean City treats all the wastewater from the island of Ocean City, NJ. It is a critical piece of infrastructure that currently is not hardened against a major flood. Furthermore, it resides directly adjacent to the intercostal waterway and just two city blocks from the Atlantic Ocean. In the event of a major flood caused by hurricane, nor'easter storm or the like that resulted in the facility going completely underwater, the facility's ability to treat wastewater from the island of Ocean City would be compromised. In the worst-case scenario, the facility could be out of service for several weeks.
- Hazard mitigation principles need to be integrated into the CMCMUA's Standard Operating Procedures (SOPs). SOPs are a set of detailed, step-by-step instructions that describe how to carry out a specific process or task within an organization. SOPs aim to ensure consistency, efficiency, and quality in operations while reducing miscommunication and errors. Incorporating hazard mitigation principles into a SOP can assist in risk reduction to the identified hazards of concern, by ensuring certain criteria is reviewed or met while determining a project and/or solution.

19.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses the status of mitigation actions from the previous HMP, describes proposed hazard mitigation actions, and prioritizes actions to address over the next five years.

19.7.1 Past Mitigation Action Status

Table 19-17 indicates progress on the CMCMUA's mitigation strategy identified in the 2021 HMP. Actions that are still recommended but not completed or that are in progress are carried forward and combined with new actions as part of the mitigation strategy for this plan update. Previous actions that are now ongoing programs and capabilities are indicated as such and are presented in the capability assessment earlier in this annex.

19.7.2 Additional Mitigation Efforts

The CMCMUA did not identify any additional mitigation efforts completed since the last HMP.

Table 19-17. Status of Previous Mitigation Actions

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2026 HMP or Discontinue 2. If including action in the 2026 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2021-CapeMayCounty-001	Saltwater Mitigation Initiative	Drought	Cape May County MUA; NJDEP; sewer operators	Problem: Cape May County has notable groundwater intrusion issues due to water withdrawals and the sensitivity of the underlying aquifer. Solution: The County MUA proposes to examine the feasibility of groundwater recharge projects that would entail County treatment plants pumping effluent into the aquifer to push out salt water and mitigate the cost and hazard of saltwater intrusion into the County's aquifer.	1. No Progress 2. This project has not risen to a high priority when compared to other critical capital improvements indicated on the Authority's 20-year Capital Renewal and Replacement Program.	1. Include 2. Not applicable 3. Not applicable
2021-CapeMayCounty-046	CMCMUA – OCWTF Seawall	Severe Storm; Flood; Hurricane, Tropical Storm; Nor'easter; Climate Change and Sea Level Rise	Cape May County MUA	Problem: The MUA-owned Ocean City Wastewater Treatment Facility located at 45th and Simpson Ave in Ocean City treats all the wastewater from the island of Ocean City, NJ. It is a critical piece of infrastructure that currently is not hardened against a major flood. Furthermore, it resides directly adjacent to the intercostal waterway and just two city blocks from the Atlantic Ocean. In the event of a major flood caused by hurricane, nor'easter storm or the like that resulted in the facility going completely underwater, the facility's ability to treat wastewater from the island of Ocean City would be compromised. In the worst-case scenario, the facility could be out of service for several weeks.	1. In Progress 2. Design and engineering (Phase 1) for the project was initially approved for funding through FEMA's Building Resilient Infrastructure and Communities (BRIC). Funding approval was discontinued before any major progress on the project was made. The Authority is still evaluating funding and feasibility.	1. Include 2. Not applicable 3. Not applicable

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2026 HMP or Discontinue 2. If including action in the 2026 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
				Solution: The construction of a sea wall around the perimeter of the Ocean City Wastewater Facility would mitigate the catastrophic flood risk.		

19.7.3 Proposed Hazard Mitigation Actions for the HMP Update

The CMCMUA participated in the mitigation strategy workshop for this HMP to identify appropriate actions to include in a local hazard mitigation strategy. Its comprehensive consideration of all possible activities to address hazards of concern included review of the following FEMA documents:

- FEMA 551 “Selecting Appropriate Mitigation Measures for Floodprone Structures” (March 2007)
- FEMA “Mitigation Ideas—A Resource for Reducing Risk to Natural Hazards” (January 2013).

The action worksheets included at the end of this annex list the mitigation actions that the CMCMUA would like to pursue in the future to reduce the effects of hazards. The actions 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 CMCMUA priorities.

Table 19-18 indicates the range of proposed mitigation action categories. The four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Volume I identifies 14 evaluation criteria for prioritizing the mitigation actions. To assist with rating each mitigation action as high, medium, or low priority, a numeric rank is assigned (-1, 0, or 1) for each of the evaluation criteria. Table 19-19 provides a summary of the prioritization of all proposed mitigation actions for the HMP update.

Table 19-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Actions That Address the Hazard, by Action Category									
	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam Failure	X				X					
Drought	X		X		X			X		
Earthquake	X				X					
Extreme Temperature	X				X					
Flood	X	X			X	X				
Severe Weather	X	X			X	X				
Severe Winter Weather	X				X					
Wildfire	X				X					

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 structures to reduce the impact of hazards.

Natural Systems Protection (NSP)—These are actions that minimize damage and losses and preserve or restore the functions of natural systems.

Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

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 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

Table 19-19. Summary of Prioritization of Actions

Project Number	Project Name	Scores for Evaluation Criteria														High / Medium / Low
		Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Local Objectives	Total	
2026-CMCMUA-01	Saltwater Mitigation Initiative	1	1	1	1	1	0	1	1	1	0	1	1	1	0	**11**	High
2026-CMCMUA-02	OCWTF Seawall	1	1	1	1	1	0	1	1	1	1	1	0	1	0	**11**	High
2026-CMCMUA-03	Hazard Mitigation Principles Integration	1	1	1	1	1	1	1	1	1	1	1	1	1	0	**13**	High

Note: Volume I, Section 16 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).

Action 2026-CMCMUA-01. Saltwater Mitigation Initiative

Lead Agency:	CMCMUA
Supporting Agencies:	NJDEP, Sewer Operators
Hazards of Concern:	Drought
Description of the Problem:	Cape May County has notable groundwater intrusion issues due to water withdrawals and the sensitivity of the underlying aquifer.
Description of the Solution:	The County MUA proposes to examine the feasibility of groundwater recharge projects that would entail County treatment plants pumping effluent into the aquifer to push out saltwater and mitigate the cost and hazard of saltwater intrusion into the County's aquifer.
Estimated Cost:	High
Potential Funding Sources:	MUA Funds, User Fees
Implementation Timeline:	5+ years
Goals Met:	1, 5, 6
Benefits:	This action will result in the reduction of saltwater intrusion into County aquifers, protecting the environment as well as a potable water source.
Impact on Socially Vulnerable Populations:	Populations will have access to potable water sources during periods of drought and extreme heat.
Impact on Future Development:	Areas of future development would be able to draw water from the aquifer with reduced intrusion issues.
Impact on Critical Facilities/Lifelines:	The aquifer is a source of potable water within Cape May County and supports critical facilities within the County.
Impact on Capabilities:	This action will ensure potable water is available and reduce possible environmental degradation in and around the aquifer.
Climate Change Considerations:	Higher temperatures are expected to increase the amount of moisture that evaporates from land and water. These changes have the potential to lead to more frequent and severe droughts.
Mitigation Category	Natural Systems Protection (NSP)
CRS Category	Natural Resource Protection (NR)
Priority	High

Alternatives

Action	Evaluation
No Action	Current problem exists
Water Reclamation	Does not displace intruded water
Groundwater Recharge	Potential Ecological benefits

Action 2026-CMCMUA-02. OCWTF Seawall

Lead Agency:	CMCMUA
Supporting Agencies:	-
Hazards of Concern:	Flood, Severe Storm, Severe Winter Storm
Description of the Problem:	The MUA-owned Ocean City Wastewater Treatment Facility located at 45th and Simpson Ave in Ocean City treats all of the wastewater from the island of Ocean City, NJ. It is a critical piece of infrastructure that currently is not hardened against a major flood. Furthermore, it resides directly adjacent to the intercostal waterway and just two city blocks from the Atlantic Ocean. In the event of a major flood caused by hurricane, nor'easter storm or the like that resulted in the facility going completely underwater, the facility's ability to treat wastewater from the island of Ocean City would be compromised. In the worst case scenario, the facility could be out of service for several weeks.
Description of the Solution:	The construction of a sea wall around the perimeter of the Ocean City Wastewater Facility would mitigate the catastrophic flood risk.
Estimated Cost:	High - $7.5 million
Potential Funding Sources:	County Funds, FEMA HMA, MUA Funds
Implementation Timeline:	3 Years
Goals Met:	1, 3, 4, 6
Benefits:	This action will eliminate or reduce the risk of loss of the Wastewater Treatment facility, which is essential to the public health of Ocean City.
Impact on Socially Vulnerable Populations:	The Wastewater Treatment facility protects the population it serves by treating wastewater prior to being released, purifying the water during its process to support public health.
Impact on Future Development:	This action would support any future development to be supported by this facility without any detriment.
Impact on Critical Facilities/Lifelines:	The Wastewater Treatment facility is a critical facility, supporting the treatment of wastewater before it is released. Significant damage to, or the closure of, this facility would impact the public health of those which the facility serves.
Impact on Capabilities:	This action will assist in the continuance of existing wastewater treatment capabilities.
Climate Change Considerations:	Climate change is likely to increase the intensity and frequency of many climate related disaster events. These events can lead to an influx of water, resulting in flooding conditions.
Mitigation Category	Structure and Infrastructure Project (SIP)
CRS Category	Property Protection (PP)
Priority	High

Alternatives	Action	Evaluation
	No Action	Current problem exists
	Construct a Sea Wall	Mitigate current risk
	Install flood gates on doors, hatches and manholes	The risk of catastrophic outage still present. Could help with smaller storm surges that only last a short period.

Action 2026-CMCMUA-03. Hazard Mitigation Principles Integration

Lead Agency:	CMCMUA	
Supporting Agencies:	Cape May County Emergency Management	
Hazards of Concern:	Dam Failure, Drought, Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm, Wildfire,	
Description of the Problem:	Hazard mitigation principles need to be integrated into the CMCMUA's Standard Operating Procedures (SOPs). SOPs are a set of detailed, step-by-step instructions that describe how to carry out a specific process or task within an organization. SOPs aim to ensure consistency, efficiency, and quality in operations while reducing miscommunication and errors. Incorporating hazard mitigation principles into a SOP can assist in risk reduction to the identified hazards of concern, by ensuring certain criteria is reviewed or met while determining a project and/or solution.	
Description of the Solution:	During future updates of the CMCMUA SOPs, the MUA will work with Cape May County Emergency Management to integrate hazard mitigation principles and recommendations into the SOPs. The CMCMUA will also use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.	
Estimated Cost:	Low	
Potential Funding Sources:	MUA Funds, FEMA HMA	
Implementation Timeline:	2 years	
Goals Met:	1, 2, 3, 4, 6	
Benefits:	This action provides an opportunity for coordination amongst agencies and their planning efforts to improve the overall ability to prepare for, respond to, and recover from events. Mitigation considerations being taken when developing or updating SOPs can lessen the risk of damage from a hazard event and increase overall resiliency.	
Impact on Socially Vulnerable Populations:	Entities that collaborate and coordinate their planning efforts are more likely to have identified ways to best work with vulnerable populations to increase their level of preparedness.	
Impact on Future Development:	Future development of CMCMUA infrastructure will be supported by the SOPs.	
Impact on Critical Facilities/Lifelines:	This action will assist the CMCMUA in maintaining its buildings and infrastructure, which are considered critical facilities and mainly fall into the water systems lifeline.	
Impact on Capabilities:	A consolidated planning process brings together the capabilities of divisions and outside agencies and better identifies what resources are available and where they are needed most.	
Climate Change Considerations:	As the climate changes, planning processes will require a more intense focus on plan maintenance and gathering of the best data to remain current and accurate over time. The CMCMUA will use available tools and resources from FEMA and other sources to integrate climate adaptation planning such as FEMA's "Climate Adaptation Planning: Guidance for Emergency Managers" document.	
Mitigation Category	Local Plans and Regulations (LPR)	
CRS Category	Preventative Measures (PR)	
Priority	High	
Alternatives	Action	Evaluation

	No Action	Current problem exists
	Only update existing SOPs	Limits integration of principles
	Only create new SOPs	Limits integration of principles