10. FLOOD

10.1 HAZARD PROFILE

10.1.1 Hazard Description

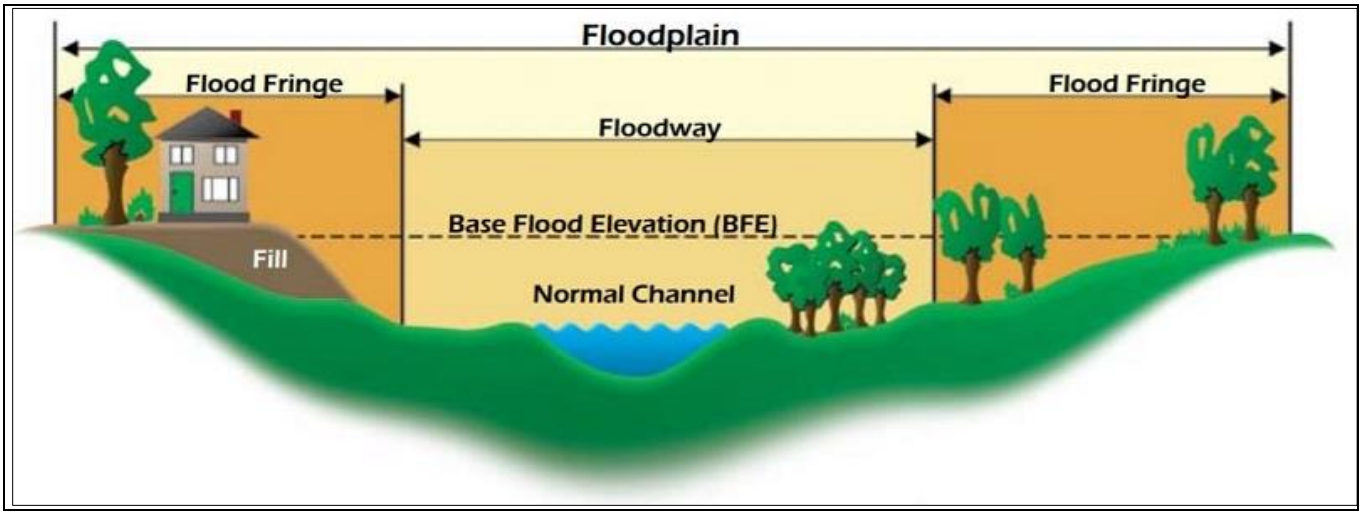
A flood is an overflow of water from oceans, rivers, groundwater, or rainfall that submerges areas that are usually dry. This natural phenomenon can occur during any season and can be exacerbated by features of the built environment. There are many types and causes of flooding. For the purpose of this HMP and as deemed appropriate by the Cape May County Steering Committee, the main flood types of concern are riverine flooding, flash flooding, stormwater/urban flooding, ice jam flooding, coastal flooding, and sea level rise inundation. The following sections describe general characteristics of each.

Riverine Flooding

Riverine floods are the most common flood type. They occur along the channels of rivers, creeks, streams, or ditches. When a channel receives too much water, the excess water flows over its banks and inundates low-lying areas (FEMA 2019). The inundated area is called the floodplain (NWS n.d.). Floodplains consist of the flat land adjacent to a watercourse that is subject to periodic inundation. A floodplain is made up of the following components (refer to Figure 10-1) (FEMA 2019, US DHS 2019):

- **Floodway:** the channel of a river or other waterway and the adjacent land areas that are under water or reserved to carry and discharge the overflow of water caused by flooding.
- **Flood Fringe:** the area within the floodplain but outside the floodway; this area extends from the outer banks of a floodway to the river valley, where the elevation begins to rise.

Figure 10-1. Characteristics of a Floodplain



Source: FEMA 2022

Riverine flooding is measured by how frequently a given level of flooding occurs. The 1 percent annual chance flood, also referred to as the base flood or 100-year flood, is a flood with a level that has a 1 percent chance of being equaled or exceeded in any given year. Though commonly called the 100-year flood, this flood can occur

more than once in a relatively short period of time. Similarly, the flood with a 0.2 percent chance of being equaled or exceeded each year is often called the 500-year flood but can occur more frequently than that (FEMA 2020).

FEMA prepare maps of the expected floodplains along water courses, based on historical riverine and coastal flooding conditions. In FEMA flood maps, the floodplain inundated by the 1 percent annual chance flood is identified as Special Flood Hazard Area (SFHA). This is the area where flood insurance and floodplain management requirements apply (FEMA 2020).

- **Special Hazard Flood Areas (SFHAs)—**Labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30.
- **Zone B or Zone X (shaded)—**Moderate flood hazard areas. These are the areas between the limits of the base flood and the 0.2 percent annual chance (or 500-year) flood.
- **Zone C or Zone X (unshaded)—**Areas of minimal flood hazard, outside the SFHA and at higher elevations than the elevation of the 0.2 percent annual chance flood.

Mapped floodplain boundaries may require updating as a result of changes in land use or the amount of impervious surface, the placement of obstructing structures in floodways, changes in precipitation and runoff patterns, improvements in technology for measuring topographic features, or new hydrologic modeling techniques (USGS 2016). Flooding outside of the SFHA area may include stormwater or urban flooding and flash flooding. Urban and stormwater flooding and future conditions (e.g., sea level rise and rainfall areas) are not reflected in FEMA floodplain mapping. As such, FEMA floodplain maps may underestimate flood risk in many areas.

Flash Flooding

Flash floods are floods caused by heavy rainfall in a short period of time, generally less than 6 hours (NWS 2009). These floods are usually characterized by raging torrents after heavy rains that rip through riverbeds, urban streets, or mountain canyons. They can occur within minutes or a few hours of excessive rainfall.

Stormwater/Urban Flooding

Stormwater/urban flooding is flooding caused by local drainage issues and high groundwater levels in areas other than delineated floodplains or along recognizable channels. It is generally the result of increased water runoff due to urban development and inadequate drainage systems. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems. During winter and spring, frozen ground and snow accumulations may contribute to inadequate drainage and localized ponding. Flooding of this nature generally occurs in areas with flat gradients and generally increases with urbanization, which speeds the accumulation of floodwaters because of impervious areas. Shallow street flooding can occur unless channels have been improved to account for increased flows. Urban flooding can inundate streets, underpasses, low lying areas, or storm drains (FEMA 2007).

Drainage systems are designed to remove surface water from developed areas as quickly as possible to prevent flooding on streets and other urban areas. Such systems often make use of a closed conveyance system that channels water away from an urban area to surrounding streams. This bypasses the natural processes of water filtration through the ground, containment, and evaporation of excess water. Because drainage systems reduce the amount of time the surface water takes to reach surrounding streams, flooding in those streams can occur more quickly and reach greater depths than prior to development in that area (Harris 2008). The growing number of extreme rainfall events that produce intense precipitation are resulting in increased urban flooding (Center for Disaster Resilience 2016).

High groundwater levels can cause problems even where there is no surface flooding. Basements are susceptible to high groundwater levels. Seasonally high groundwater is common in many areas, though it often occurs only after a long period of above-average precipitation (USGS 2016).

Ice Jam Flooding

An ice jam occurs when pieces of floating ice are carried with a stream's current and accumulate behind an obstruction to the stream flow. Obstructions may include river bends, mouths of tributaries, points where the river slope decreases, dams, or bridges. The water held back by this obstruction can cause flooding upstream, and if the obstruction suddenly breaks, flash flooding can occur (NESEC 2021). The formation of ice jams depends on the weather and physical condition of the river and stream channels. They are most likely to occur where the channel slope naturally decreases, in culverts, and along shallows where channels may freeze solidly. There are two types of ice jams (FEMA 2023):

- Freeze-up jams occur in the early to mid-winter when floating ice may slow or stop due to a change in water slope as it reaches an obstruction to movement.
- Breakup jams occur during periods of thaw, generally in late winter and early spring. The breakup of the ice cover is usually associated with a rapid increase in runoff and corresponding river discharge due to a heavy rainfall, snowmelt, or warmer temperatures.

Coastal Flooding and Erosion

Coastal flooding generates two significant forces on structures in impacted areas (FEMA 2011):

- **Hydrostatic forces** are created from the pressure exerted against a structure by standing water. These forces are one of the main causes of flood damage. They include vertical hydrostatic forces (flotation).
- **Hydrodynamic forces** are created when floodwaters move at high velocities. High-velocity flows are capable of destroying solid walls and dislodging buildings with inadequate foundations. These forces can be caused by waves, currents parallel to the shore, or high-velocity inland flows.

Wave forces on coastal buildings include breaking waves, wave run-up, wave reflection and deflection, and wave uplift. The most severe damage is caused by breaking waves. The force created by these types of waves breaking against a vertical surface is often at least 10 times higher than the force created by high winds during a storm. As waves approach a shoreline, they crest and break, losing some initial energy. The remaining wave runs up the beach before pulling back down. Depending on the size of the wave, angle of wave attack, and the wave period, waves can cause erosion or accretion of sediment. Greater water depths near shore result in less loss of wave energy from shoaling.

High-velocity flows can be created or exacerbated by the presence of manmade or natural obstructions along the shoreline and by weak points formed by roads and access paths that cross dunes, bridges or canals, channels, or drainage features. High-velocity flows can also move large quantities of sediment and debris that can cause additional damage. Flood-borne debris produced by coastal flooding events typically includes decks, steps, ramps, breakaway wall panels, portions of or entire houses, heating oil and propane tanks, cars, boats, portions of piers, fences, erosion control structures, and many other types of smaller objects. Debris is capable of destroying unreinforced masonry walls, light wood-frame construction, and small-diameter posts and piles.

Coastal flooding may cause beach erosion; loss or submergence of coastal ecosystems such as wetlands; high water tables; loss of coastal beaches, sand dunes, parks, and open space; and loss of coastal structures (sea walls, piers, bulkheads, bridges, buildings, etc.). Coastal erosion is a natural geological process in which earthen materials are worn away and transported by natural forces such as wind or water. Liquid water is the major agent of erosion. Rain, rivers, floods, and lakes carry away bits of soil and sand and slowly wash away the sediment (National

Geographic 2023). Coastal erosion defines and shapes coastal ecosystems. While it is disruptive, some species rely on the impacts of coastal erosion such as numerous nesting shorebirds.

Sea Level Rise Inundation

Sea level rise associated with climate change will have significant effects on Cape May County. Long-term records show changes in sea level associated with global temperatures, hydrologic cycles, coverage of glaciers and ice sheets, and storm frequency and intensity. There are two types of sea level (U.S. Climate Resilience Toolkit n.d.):

- **Global sea level rise** refers to an increase in the average global sea level, primarily attributed to changes in ocean volume due to two factors:
  - The melting of glaciers and continental ice masses can contribute significant amounts of freshwater input to the earth's oceans.
  - An increase in global atmospheric temperature causes salt water to expand, increasing ocean volume.
- **Local (relative) sea level** refers to the height of the water as measured along the coast relative to a specific point on land. Water level measurements at tide stations are referenced to stable vertical points on the land and a known relationship is established. Measurements at any given tide station include both global sea level rise and vertical land motion (subsidence, glacial rebound, or large-scale tectonic motion). The heights of both the land and water are changing; therefore, the land-water interface can vary spatially and temporally and must be defined over time. Relative sea level trends reflect changes in local sea level over time and are typically the most critical sea level trend for coastal mapping, marine boundary delineation, coastal zone management, coastal engineering, and sustainable habitat restoration.

Short-term variations in sea level that occur on a daily basis include waves, tides, or specific flood events. Long-term variations in sea level occur over various time scales, from monthly to several years and may be repeatable cycles, gradual trends, or intermittent differences. Seasonal weather patterns (changes in the earth's declination), changes in coastal and ocean circulation, anthropogenic influences, vertical land motion, etc. may influence changes in sea level over time (U.S. Climate Resilience Toolkit n.d.).

According to NOAA, sea level rise can amplify factors that currently contribute to coastal flooding: high tides, storm surge, high waves, and high runoff from rivers and creeks. All these factors change during extreme weather and climate events (NOAA 2021). Other secondary hazards that could occur along the mid-Atlantic coast in response to sea level rise include the following:

- Bluff and upland erosion—Shorelines composed of older geologic units that form headland regions of the coast will retreat landward with rising sea level. As sea level rises, the uplands are eroded and sandy materials are incorporated into the beach and dune systems along the shore and adjacent compartments (USGS 2007).
- Overwash, inlet processes, shoreline retreat, and barrier island narrowing—As sea level rise occurs, storm overwash will become more likely. Tidal inlet formation and migration will become important components of future shoreline changes. Barrier islands are subject to inlet formation by storms. If storm surge produces channels that extend below sea level, an inlet may persist after the storm. The combination of rising sea level and stronger storms can create the potential to accelerate shoreline retreat in many locations. Assessments of shoreline change on barrier islands have shown that barrier island narrowing has been observed on some islands over the last 100 years (USGS 2007).
- Threshold behavior—Changes in sea level can lead to conditions where a barrier system becomes less stable and crosses a geomorphic threshold; making the potential for rapid barrier-island migration or segmentation/disintegration high. Unstable barriers may be defined by rapid landward recession of the ocean shoreline, decrease in barrier width and height, increased overwashing during storms, increased

barrier breaching and inlet formation, or chronic loss of beach and dune sand volume. With the rates of sea level rise and climate change, it is very likely that these conditions will worsen (USGS 2007).

- Loss of critical habitat—Natural ecosystems may be impacted by warmer temperatures and associated changes in the water cycle. The changes could lead to loss of critical habitat and further stresses on some threatened and endangered species.

An increase in sea level will cause further issues as stormwater recharge is challenged as sea-levels submerge discharge points, resulting in increases in flooding (Rutgers University 2020).

10.1.2 Location

Flooding potential is influenced by climatology, meteorology, and topography. Significant flooding events have been recorded during hurricanes and nor'easters, which have caused extensive damage. Extensive development can impact flooding potential, as it leaves fewer natural surfaces available to absorb rainwater, forcing water directly into streams, rivers, and existing drainage systems and swelling them more than when natural surfaces are available to buffer the runoff. Areas that are more likely to have an increased risk of flooding include the following:

- Areas with poor drainage
- Locations on or near construction projects
- The FEMA-defined SFHA
- Developed areas with excess amounts of impermeable surfaces

Riverine Flooding

According to the Cape May County Flood Insurance Study (FIS), major floods can occur in the County at any time of year, often resulting from heavy rainfall or coastal storms. Flood problems are most visible in low-lying areas, where high water periodically inundates primary residences and vacation homes. (FEMA 2008). Riverine flooding is most severe around major creeks and riverbeds, including Bidwell Creek, Holmes Creek, Spicer Creek, Skeeter Island Creek, Mickels Run, Fulling Mill Stream, Pond Creek, Beach Creek, Cedar Swamp Creek, Cape Island Creek, Bennett Creek, Mill Creek, and Cox Hall Creek.

Wetlands and low-lying areas throughout the county also experience routine flooding due to their location within the floodplain. Smaller magnitude flooding can occur in areas like the Great Egg Harbor River basin. The lack of elevation in many of these regions hinders drainage, causing water to back up during heavy rainfall.

Locations of flood zones in Cape May County as depicted on the FEMA preliminary Digital Flood Insurance Rate Map (DFIRM) are illustrated in Figure 10-2. Table 10-1 summarizes total land area in the floodplain. A depth grid for the 1 percent annual chance flood event, generated using the DFIRMs and the 2014 post-Sandy 1-meter-resolution digital elevation map, was separated into portions representing the coastal flood hazard area and the riverine flood hazard area. This separation was based on FEMA-defined flood zones and head-of-tide points developed by NJDEP in 1986. The 1 percent annual chance riverine flood event depth grid was used in Hazus to estimate impacts on people and property within the riverine flood hazard area.

Figure 10-2. FEMA Flood Hazard Areas in Cape May County

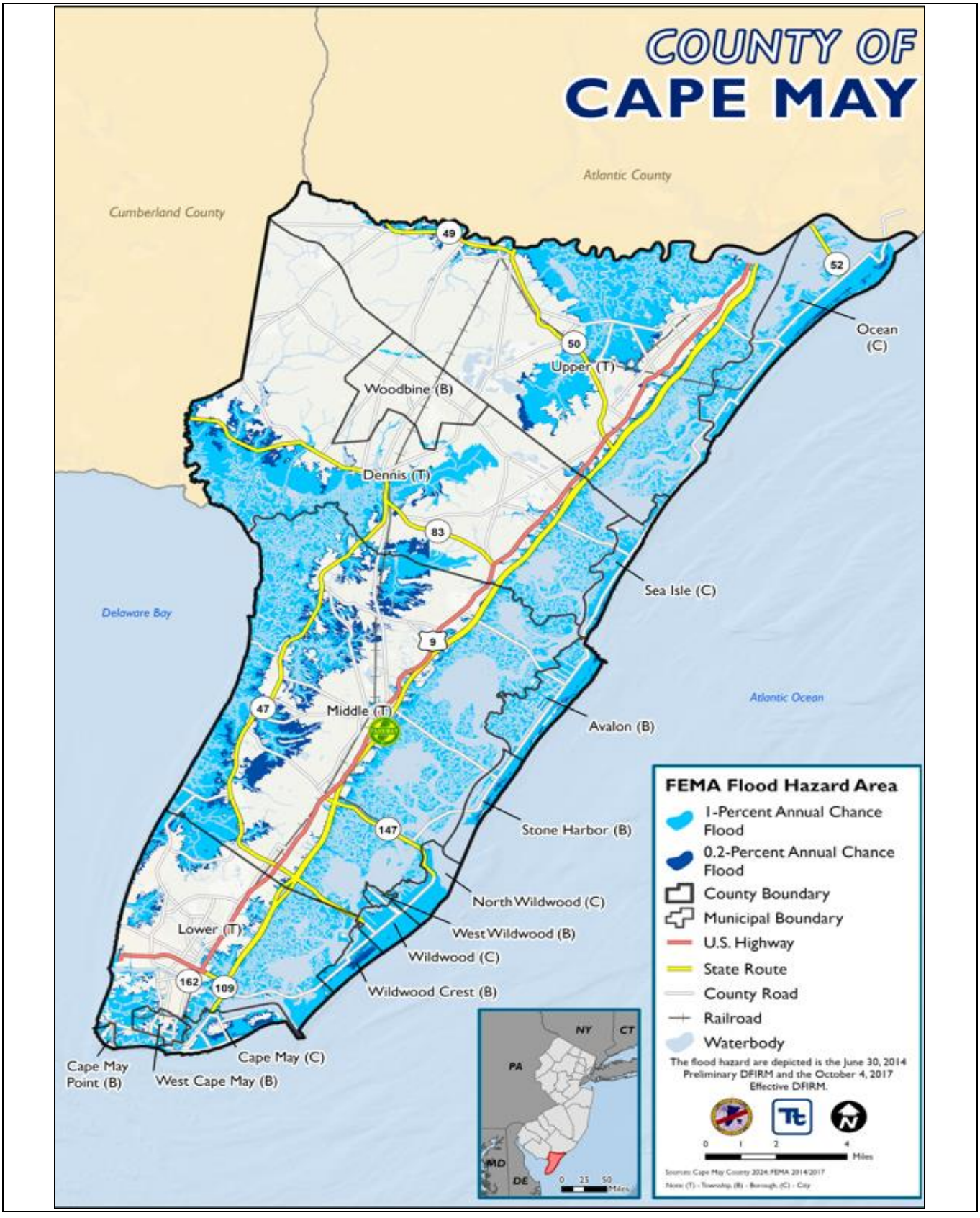


Table 10-1. Cape May County Area Exposed to 1 Percent and 0.2 Percent Annual Chance Flood

Jurisdiction	Total Land Area (acres)	Total Land Area in the Flood Hazard Areas			
		1% Annual Chance Flood Area		0.2% Annual Chance Flood Area	
		Total Acres	% of Jurisdiction Total	Total Acres	% of Jurisdiction Total
Avalon (B)	2,573	2,444	95.0%	2,529	98.3%
Cape May (C)	1,564	951	60.8%	1,237	79.1%
Cape May Point (B)	178	140	79.1%	165	92.6%
Dennis (T)	38,202	12,241	32.0%	13,844	36.2%
Lower (T)	17,255	7,322	42.4%	8,187	47.4%
Middle (T)	43,846	22,373	51.0%	26,814	61.2%
North Wildwood (C)	1,087	1,078	99.2%	1,081	99.5%
Ocean (C)	4,536	4,321	95.3%	4,508	99.4%
Sea Isle (C)	1,395	1,347	96.6%	1,373	98.5%
Stone Harbor (B)	923	822	89.0%	907	98.3%
Upper (T)	38,957	15,570	40.0%	16,621	42.7%
West Cape May (B)	748	413	55.3%	510	68.2%
West Wildwood (B)	182	181	99.6%	182	100.0%
Wildwood (C)	978	965	98.7%	972	99.5%
Wildwood Crest (B)	853	692	81.2%	853	100.0%
Woodbine (B)	5,105	131	2.6%	131	2.6%
Cape May County	**158,380**	**70,991**	**44.8%**	**79,914**	**50.5%**

Source: Cape May County 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Flash Flooding

Flash flooding, like riverine flooding, occurs throughout the County, primarily along the bodies of water that flow through it.

Stormwater/Urban Flooding

Stormwater/urban flooding is not mapped by the state or FEMA but is most likely in highly developed areas with high percentages of impervious surface coverage, which contribute to high rates of runoff. Locations that have undersized stormwater components or stormwater components that are prone to becoming clogged or failing often experience stormwater flooding.

Ice Jam Flooding

Ice jams are common in the northeast United States. However, according to the U.S. Army Corps of Engineers (USACE) Ice Jam Database, New Jersey ranks relatively low in the reported number of ice jams (USACE 2025). The Ice Jam Database, with over 19,000 records from across the United States, indicates that ice jams in Cape May County are rare but can occur in the Delaware Bay during extreme cold weather conditions. These ice jams can lead to significant disruptions and pose risks to navigation and local infrastructure.

Coastal Flooding and Erosion

Cape May County features approximately 30 miles of shoreline along the Atlantic Ocean and Delaware Bay. Coastal flooding in these areas increases residential risk from erosion and wave action, threatens local infrastructure, compromises sensitive environmental features, and contributes to general flooding. The geography along the coast increases the likelihood of thunderstorms repeatedly moving across the same area, particularly along coastal fronts.

Water levels in the Atlantic Ocean and Delaware Bay have long-term, annual, and short-term variations. Long-term variations depend on precipitation and water storage over many years. Annual variations occur with the changing seasons, with an annual high in the late spring and a low in the winter. These changes can be measured in feet per month (NOAA 2020). The most damaging floods in Cape May County occur when water levels are high or during severe storms. Both scenarios create a temporary rise in water levels and wave run-ups. Although these floods may occur throughout the year, they are most probable during the spring (FEMA 2008).

FEMA Flood Mapping of Coastal Zones

For this HMP, two zones based on FEMA mapping and other data were defined for the risk assessment of coastal flooding and erosion risk:

- **1% Annual Chance Coastal Flood Hazard Area**—The depth grid for the 1 percent annual chance coastal flood event, as described in the above section on riverine flooding, was used in Hazus to estimate impacts on people and property within the coastal flood hazard area.
- **Coastal Erosion Hazard Area**—Wave action can be a driver for coastal erosion. The limit of moderate wave action (LiMWA), provided on FEMA flood maps for some coastal areas, indicates areas where wave heights are between 1.5 and 3 feet. It also marks the inland limit of the Coastal A Zone. The LiMWA boundary was selected to assess coastal erosion because it represents land area that is susceptible to wave action. Figure 10-3 displays the coastal erosion hazard area in Cape May County.

Coastal Area Facility Review Act Mapping

The Coastal Area Facility Review Act (CAFRA) is a law that regulates development and protects coastal resources in New Jersey by requiring permits-by-rule for certain projects in the coastal zone of New Jersey. Figure 10-4 illustrates the CAFRA areas along with the tidally influenced waters located in Cape May County. Because of the consistent coastal erosion problems along the New Jersey coastline, the State Legislature passed CAFRA (New Jersey Statutes at NJSA 13:19-1 et seq.). Under this act (NJDEP 2025):

- Development within the coastal zone requires a CAFRA permit
- Regulates site preparation activities such as grading, filling, or excavation of beaches and dunes
- Evaluates the environmental impact of proposed developments to ensure protection of coastal resources
- Ensures public access to beaches and waterfronts is maintained
- Requires effective stormwater management practices to minimize runoff and protect water quality
- Protects habitats for wildlife and preserves natural coastal features
- Implements measures to control coastal erosion and safeguard infrastructure
- Addresses flood hazards and requires mitigation measures to reduce flood risks.

Figure 10-3. Coastal Erosion Hazard Area in Cape May County

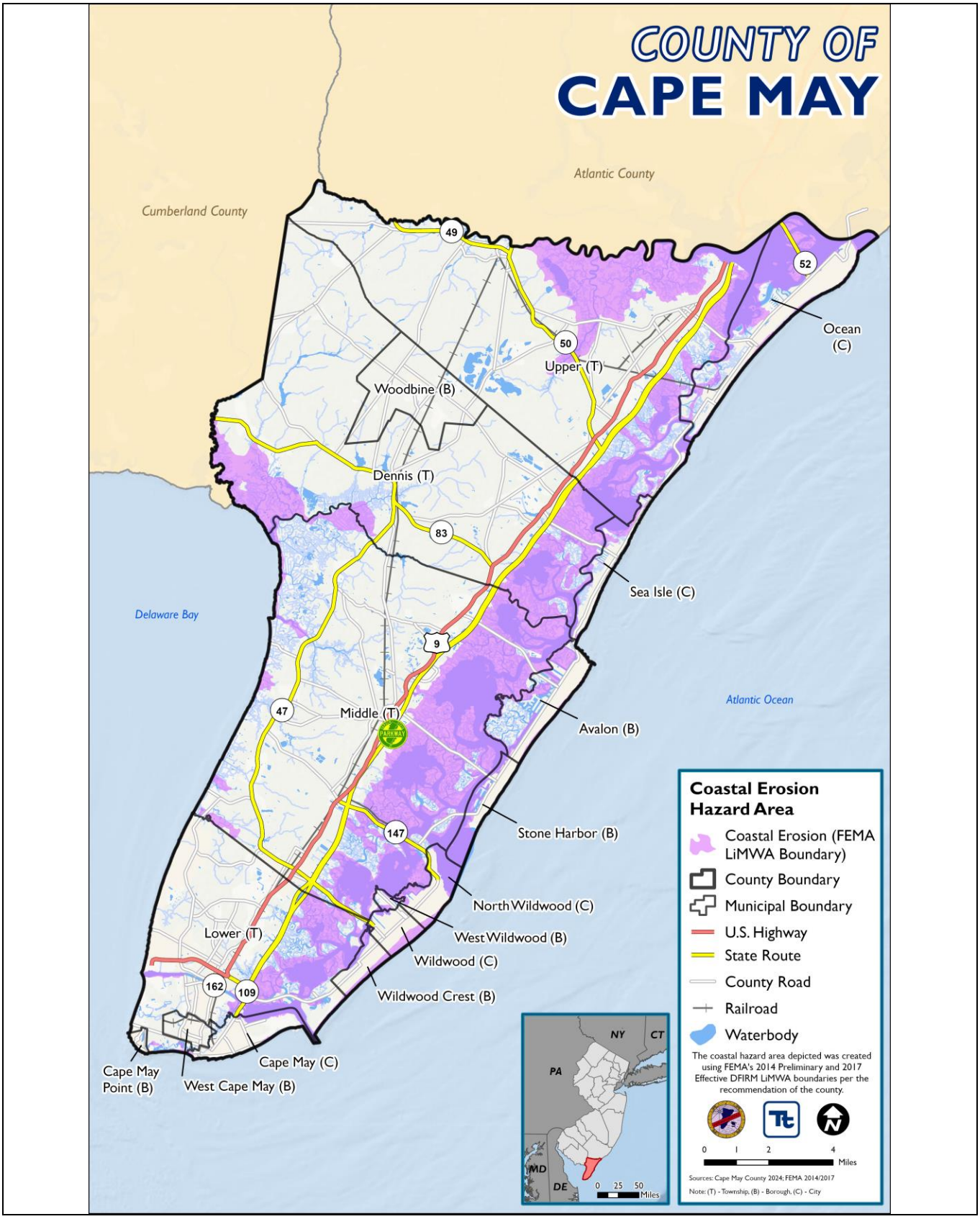
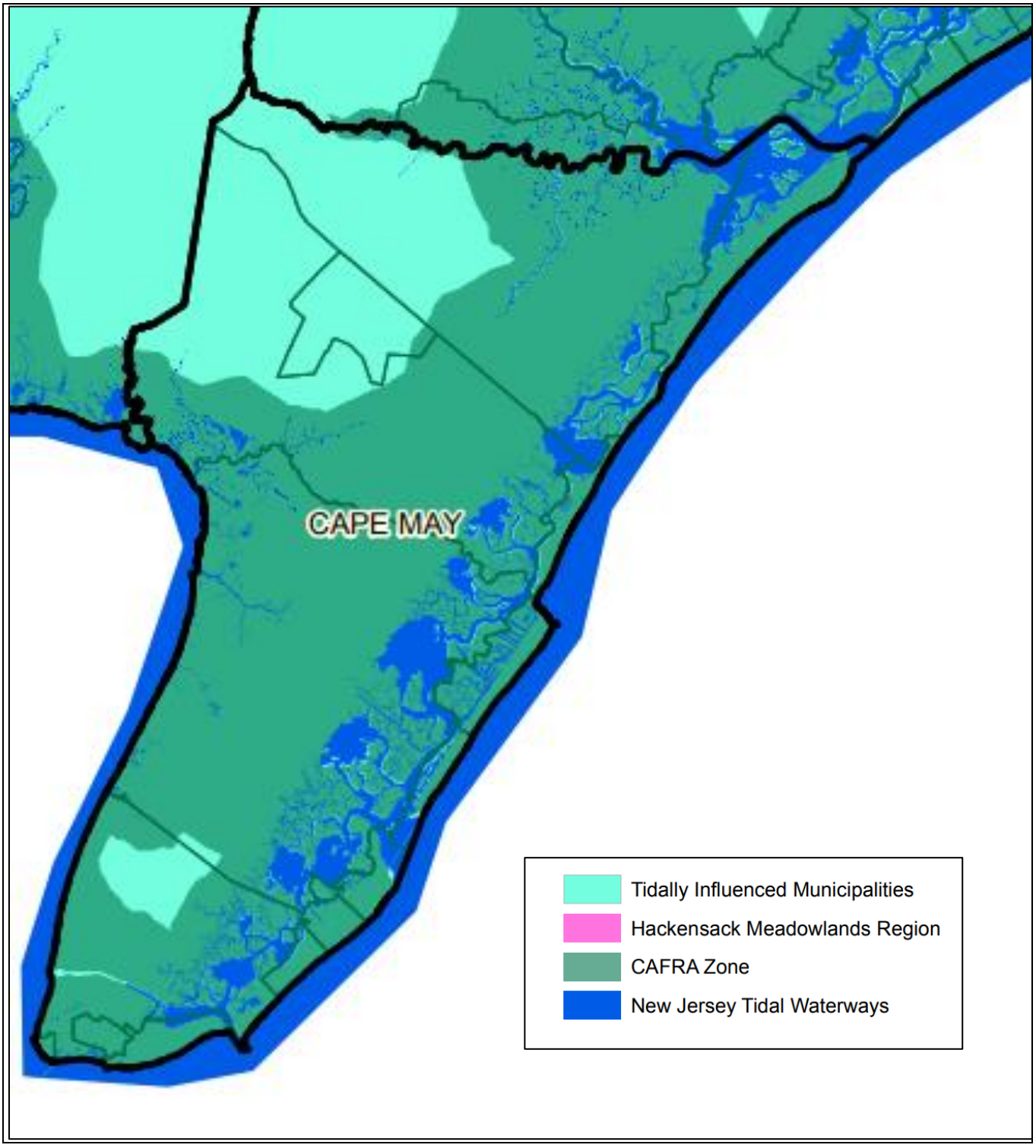


Figure 10-4. CAFRA Areas and with Tidally Influenced Waters in Cape May County



Source: NJCMP 2025

Coastal Vulnerability Index

Cape May County has coastlines designated as areas at risk to coastal erosion from natural and human activities. These areas are regulated under New Jersey's Coastal Management Program (NJCMP). The NJCMP addresses coastal erosion risks and implements measures to protect and manage these vulnerable areas (NJCMP 2025). The Coastal Vulnerability Index (CVI) mapping developed by the NJCMP identifies and assesses the vulnerability of coastal communities to natural hazards, including erosion (NJDEP n.d.). Figure 10-5 illustrates the NJDEP Coastal Vulnerability Index for New Jersey. Much of Cape May County is shaded in red which indicates high probability of coastal vulnerability.

Sea Level Rise Inundation

In this HMP, the risk associated with sea level rise is assessed based on 2022 mapping of projected sea level rise in Cape May County. Sea level rise hazard area extents were referenced to projections for 1-foot through 4-foot rise increments. Figure 10-6 displays the sea level rise hazard areas in Cape May County. Sea level rise projections do not include additional storm surge due to a hurricane or nor'easter

Table 10-2 shows the total acres of land in Cape May County that is exposed to the evaluated sea level rise hazard areas.

Table 10-2. Acres of Land Exposed to the +1-, +2-, +3-, and +4-Foot Sea Level Rise Hazard Areas

Total Acres in County	Hazard Area Type	Number of Acres Exposed	Percent of Total
183,126	Sea Level Rise + 1 foot	44,095	24.1%
	Sea Level Rise + 2 foot	49,577	27.1%
	Sea Level Rise + 3 foot	55,050	30.1%
	Sea Level Rise + 4 foot	60,688	33.1%

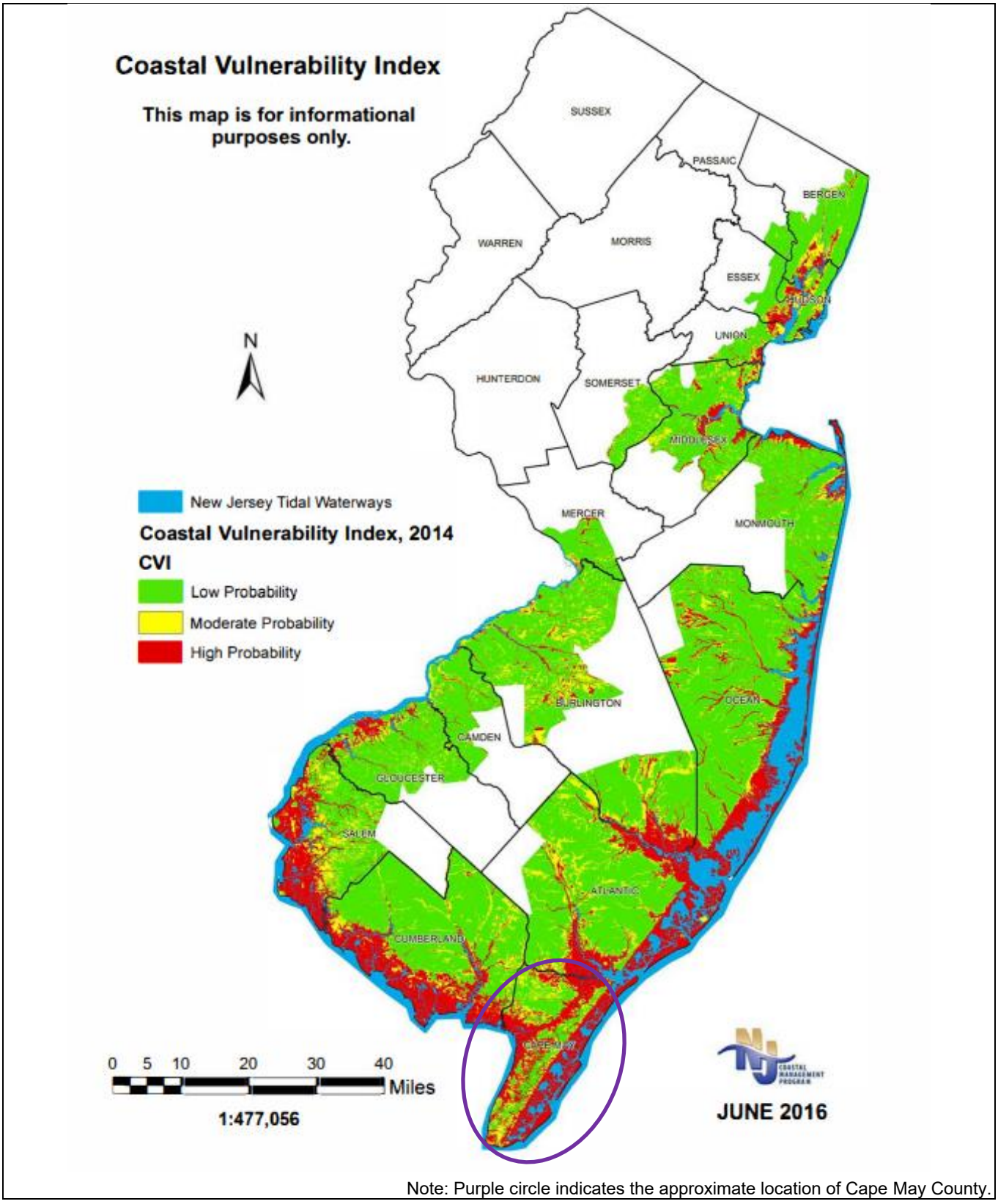
Source: Cape May County 2024; NOAA 2022

10.1.3 Extent

Riverine Flooding

The severity of riverine flooding is determined by a combination of several factors including stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and degree of vegetative clearing and impervious surface. Generally, floods are long-term events that may last for several days. Severity depends on the amount of water that accumulates in a period and on the land's ability to manage this water. When it rains, soil acts as a sponge. When the land is saturated or frozen, infiltration into the ground slows and any more water that accumulates must flow as runoff (Harris 2008).

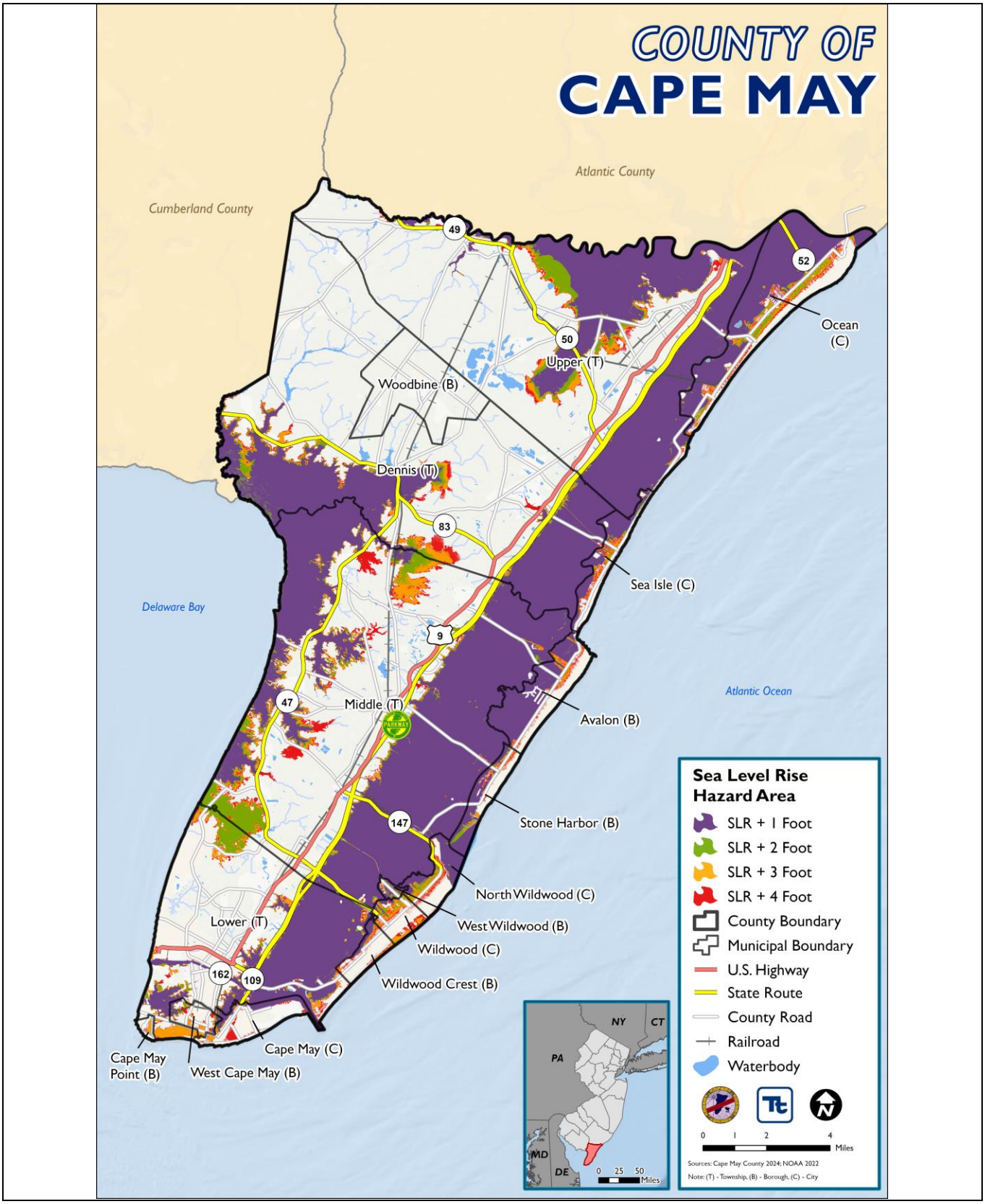
Figure 10-5. NJDEP Coastal Vulnerability Index Map of New Jersey



Note: Purple circle indicates the approximate location of Cape May County.

Source: NJDEP n.d.

Figure 10-6. Sea Level Rise in Cape May County



Riverine flooding is assessed based on the probability that a given river discharge (flow) level will be equaled or exceeded each year. Flood studies use historical records to determine the probability of occurrence for the different discharge levels. In the case of riverine flooding, once a river reaches flood stage, the flood extent or severity categories used by the NWS are as follows (NWS 2011):

- **Minor Flooding**—Minimal or no property damage, but possibly some public threat or inconvenience.
- **Moderate Flooding**—Some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary.
- **Major Flooding**—Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

Flood Gages

USGS uses stream gages to determine the severity of flood at different points along a body of water. The USGS National Water Information System collects surface water data from more than 850,000 stations across the country. The time-series data describes stream levels, stream flow (discharge), reservoir and lake levels, surface water quality, and rainfall. The data is collected by automatic recorders and manual field measurements at the gage locations. There is one gage located in Cape May County, in addition to others just outside of the County's boundary, that provide critical flood data for waterways affecting the County. The gage in the County is on the Tuckahoe River. Table 10-3 summarizes characteristics of that gage.

Table 10-3. USGS Gage in Cape May County as of April 2025

Gage Site Number	Site Name	Latest Discharge (cubic ft/sec)	Latest Flood Height (ft)
01411300	Tuckahoe River at Head of River NJ	20.5	4.07

Source: USGS 2025

Flash Flooding

The extent of a flash flood is consistent with that of a riverine flood as described above.

Stormwater/ Urban Flooding

Locations that have undersized stormwater components or stormwater components that are prone to becoming clogged or failing often experience stormwater flooding. Currently, there is no measurement used to further define the frequency and severity of urban stormwater flooding.

Ice Jam Flooding

Ice jam flooding events often occur suddenly and are difficult to predict, allowing for little time to prepare for and warn of an event. Many factors will control the extent of an ice jam including the size of the snowpack, the rate of snowmelt, the size and flow of the river, and how quickly the jam releases (Rokaya 2018).

Coastal Flooding and Erosion

The extent of coastal flooding due to storms is determined by the storm intensity, duration, and path; tide conditions at the time of the event; and the topography of the impacted area.

Erosion is typically expressed as a rate of linear retreat (feet of shoreline recession per year) or volumetric loss (cubic yards of eroded sediment per linear foot of shoreline frontage per year). Erosion rates are usually computed as long-term, average annual rates. However, the rates can vary substantially, including from one location along the shoreline to another (even when the two locations are only a short distance apart), over time at a single location, or seasonally.

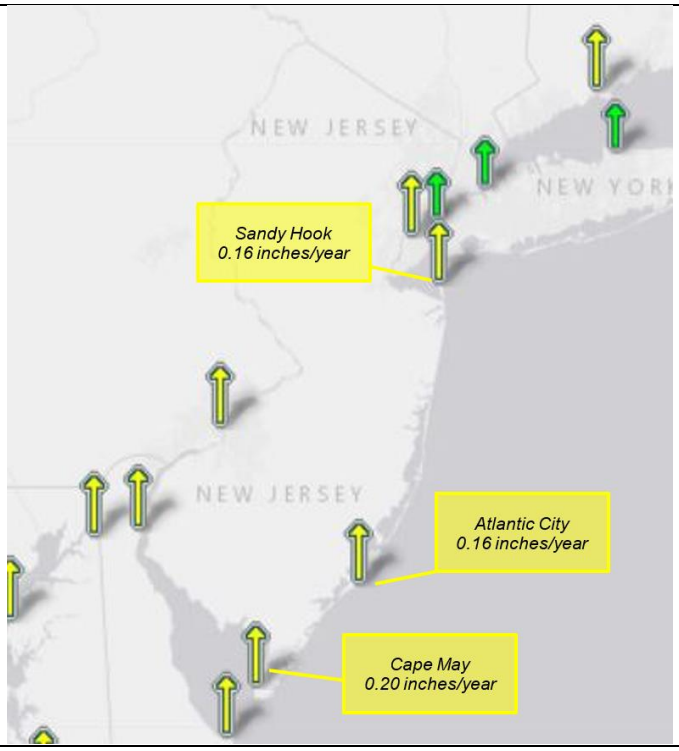
Sea Level Rise Inundation

Understanding how sea level will change in the future is vital to New Jersey's coastal zone because low-lying coastal areas are already experiencing tidal flooding, even in the absence of precipitation events. In New Jersey, sea levels are rising faster than they are globally due to changes in the Gulf Stream, localized land subsidence, and continued geologic influences as land slowly adjusts to the loss of the North American ice sheet at the end of the last ice age. In Atlantic City, Cape May, and Sandy Hook, sea-level has risen at a rate of 0.2 to 0.5 inches per year since the beginning of the 20th century, and this rate will continue to increase (Rutgers University 2020).

A 2013 study noted that sea level rise in New Jersey was faster in the 20th century than during any century in the last 4,300 years. Based on the findings of this article and the 2019 update of the initial study, it is anticipated that the arrival of 1 foot of sea level rise will be experienced before 2050 (Miller, et al. 2013).

The University of Colorado's Sea Level Research Group compares global sea level rates calculated by different research organizations (NOAA 2024). Its map provides an overview of variations in the rates of relative local mean sea level (MSL) at long-term tide stations. There are three NOAA tide gauge stations in New Jersey where tide gauge measurements are made relative to a local fixed reference level on land—Atlantic City, Sandy Hook, and Cape May. Figure 10-7 shows MSL changes at these stations. Table 10-4 presents the history and MSL trends at the three New Jersey stations.

Figure 10-7. Mean Sea Level Trends in New Jersey



Source: NOAA 2024

Table 10-4. Linear MSL Trends and 95% Confidence Intervals

Station Name	First Year	Year Range	For all data to 2024 MSL Trend (inches/year)
Atlantic City	1911	113	0.16
Cape May	1965	59	0.20
Sandy Hook	1932	92	0.16

Source: NOAA 2024

The University of Colorado's map shows areas that experienced little-to-no change in MSL in green, including stations consistent with average global sea level rise rate of 1.7 to 1.8 millimeters per year. These stations do not experience significant vertical land motion. Stations that experienced positive sea level trends (yellow to red) experience both global sea level rise and lowering or sinking of the local land, causing an apparent exaggerated rate of relative sea level rise. Stations that are blue to brown have experienced global sea level rise and a greater vertical rise in local land, causing an apparent decrease in relative sea level (NOAA 2024).

Sea level rise is tied to the amount of greenhouse gases that are emitted. New Jersey will likely experience a 0.9 to 2.1-foot increase above 2000 sea levels by 2050 (for all greenhouse gas emissions scenarios), a 1.4 to 3.1-foot increase by 2070 (for the moderate emissions scenario), and a 2.0 to 5.1-foot increase by 2100 (for the moderate emissions scenario) (Rutgers University 2020). As sea level rise is expected to accelerate in this century, 3 feet of sea level rise is very likely before 2100. Table 10-5 shows the estimates for sea level rise in New Jersey for 2050 through 2150.

Table 10-5. Sea Level Rise Projections for New Jersey under Various Emissions Scenarios

Year and Emissions Scenario	New Jersey Sea Level Increase from 2000 (feet)				
	>95% chance	>83% chance	~50% chance	<17% chance	<5% chance
2030	0.3	0.5	0.8	1.1	1.3
2050	0.7	0.9	1.4	2.1	2.6
2070					
Low Emissions	0.9	1.3	1.9	2.7	3.2
Moderate Emissions	1	1.4	2.2	3.1	3.8
High Emissions	1.1	1.5	2.4	3.5	4.4
2100					
Low Emissions	1	1.7	2.8	3.9	5
Moderate Emissions	1.3	2	3.3	5.1	6.9
High Emissions	1.5	2.3	3.9	6.3	8.8
2150					
Low Emissions	1.3	2.4	4.2	6.3	8
Moderate Emissions	2.1	3.1	5.2	8.3	13.8
High Emissions	2.9	3.8	6.2	10.3	19.6

Source: (Rutgers University 2020)

10.1.4 Previous Occurrences

FEMA Major Disaster and Emergency Declarations

Between 1954 and 2025, Cape May County was included in seven major disaster (DR) or emergency (EM) declarations for flood-related events (FEMA 2025). Table 10-6 lists these declarations.

Table 10-6. FEMA Declarations for Flood Events in Cape May County (1954 to 2025)

FEMA Declaration Number	Date of Event	Date of Declaration	Event Type
DR-310-NJ	September 4, 1971	September 4, 1971	Heavy Rains and Flooding
DR-519-NJ	August 21, 1976	August 21, 1976	Severe Storms, High Winds and Flooding
DR-701-NJ	March 28 – April 8, 1984	April 12, 1984	Coastal Storms and Flooding
DR-973-NJ	December 10-17, 1992	December 18, 1992	Coastal Storm, High Tides, Heavy Rain, and Flooding
DR-1206-NJ	February 4-8, 1998	March 3, 1998	Severe Winter Coastal Storm, High Winds, and Flooding
DR-1867-NJ	November 11-15, 2009	December 22, 2009	Severe Storms and Flooding associated with Tropical Depression Ida and a Nor'easter
DR-1897-NJ	March 12 – April 15, 2010	April 2, 2010	Severe Storms and Flooding

Source: FEMA 2025

USDA Declarations

The USDA can designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in contiguous counties. Between August 2019 and March 2025, Cape May County was not included in any USDA flood-related disaster declarations (USDA 2025).

Previous Events

Known flood events that impacted Cape May County between August 2019 and March 2025 are listed in Table 10-7. For events prior to 2019, refer to the 2019 Cape May County HMP.

Table 10-7. Flood Events in Cape May County (2019 to 2025)

Event Date	Declaration or Proclamation Number	Location Impacted	Description
October 10-11, 2019	N/A	County	Several consecutive high tide cycles caused coastal flooding in the County. The tidal gauge at Ocean City reached up to 6.5 ft MLLW, Sea Isle City reached 7.1 ft mean lower low water (MLLW), Stone Harbor reached 7.2 ft MLLW, Cape May Harbor reached 7.4 ft MLLW, Cape May Ferry Terminal reached 7.9 ft MLLW.
July 1, 2020	N/A	Regional, State, and County	Heavy rain caused flooding of several roadways including Evergreen Drive in Seaville. The Emergency Manager stated that this road is rarely ever flooded. Up to 3 inches of rainfall was recorded.

Event Date	Declaration or Proclamation Number	Location Impacted	Description
July 6, 2020	N/A	State and County	Thunderstorms throughout the state caused flash flooding within the County. Several vehicles were trapped in flood waters in Ocean City on intersection of West Avenue and Third Street and on Asbury Avenue.
July 10, 2020	N/A	Regional, State, and County	Tropical Storm Fay caused flash flooding throughout the County. NJ Route 47 was closed due to flash flooding near the George Redding Bridge in Wildwood and also near US Route 9 in Middle Township. Widespread flash flooding also occurred in Stone Harbor causing many streets to be impassable. Flash floods were also seen throughout Avalon causing streets to be impassable there as well. Several vehicles were stranded in flood waters. Sea Isle City also had flash flood concerns on all roadways.
August 7, 2020	N/A	State and County	Severe thunderstorms caused flash flooding in the County. NJ Route 147 was closed at Maryland Avenue in North Wildwood due to flash flooding.
October 30, 2020	N/A	County	Widespread coastal flooding occurred at high tide in the County. Roads were flooded during high tide. This resulted in road closures. The tide gauge at Ocean City reached 6.3 ft MLLW, Avalon reached 6.9 ft MLLW, Stone Harbor reached 7 ft MLLW, Cape May Harbor reached 7.2 ft MLLW, and Cape May Ferry Terminal reached 7.8 ft MLLW.
February 1, 2021	N/A	State and County	A brisk onshore flow resulted in two consecutive high tide cycled which resulted in coastal flooding along the entire state of New Jersey coastline. Tidal communities within the County experienced coastal flooding resulting in road closures. Ocean City tide gauge reached 6.7 ft MLLW, Sea Isle City reached 7.4 ft MLLW, Avalon reached 7.3 ft MLLW, and Stone Harbor reached 7.4 ft MLLW.
August 29, 2021	N/A	County	Thunderstorms caused localized flooding throughout the County. Ocean City experienced multiple road closures due to flash flooding. Some vehicles were trapped in flood waters.
January 3, 2021	N/A	County	Onshore flow caused moderate flooding along the tidal areas of Cape May County. Roads were closed as a result. The tide gauge at Sea Isle City reached 6.7 ft MLLW, Stone Harbor reached 7.1 ft MLLW, Cape May Harbor reached 7.5 ft MLLW, and Cape May Ferry Terminal reached 8 ft MLLW.
April 18, 2022	N/A	County	Onshore flow caused coastal flooding throughout the State. Widespread roadway flooding caused by coastal flooding was seen throughout the County. The tide gauge at Sea Isle City reached 7.4 ft MLLW, Avalon reached 7.7 ft MLLW, Stone Harbor reached 7.6 ft MLLW, Cape May Harbor reached 7.5 ft MLLW, and Cape May Ferry terminal reached 8.1 ft MLLW.
October 2-3, 2022	N/A	State and County	A low maintained onshore flow along the state caused coastal flooding throughout. Widespread roadway flooding was seen throughout the coastal communities in Cape May County. The Tide gauge at Ocean City reached 6.4 ft MLLW, Sea Isle reached 7.2 ft MLLW, Avalon reached 7.5 ft MLLW, and Stone Harbor reached 7.4 ft MLLW.

Event Date	Declaration or Proclamation Number	Location Impacted	Description
December 23, 2022	N/A	State and County	Moderate to major tidal flooding in New Jersey caused coastal flooding throughout. Widespread roadway flooding was seen throughout the coastal communities in Cape May County. Flood waters affected vulnerable buildings. The tide gauges at Ocean City reached 6.6 ft MLLW, Sea Isle City reached 7 ft MLLW, Avalon reached 7.3 ft MLLW, Stone Harbor reached 7.2 ft MLLW, Cape May Harbor reached 7.2 ft MLLW, and the Cape May Ferry Terminal reached 7.8 ft MLLW.
June 3, 2023	N/A	State and County	Steady onshore winds and moderate tidal flooding occurred throughout the southern portion of the State. Widespread roadway flooding was seen throughout the coastal communities in the County. The tide gauge at Ocean City reached 6.4 ft MLLW, Sea Isle City reached 7 ft MLLW, Stone Harbor reached 7.3 ft MLLW, Cape May Harbor reached 7.3 ft MLLW, and Cape May Ferry Terminal reached 8 ft MLLW.
September 23-26, 2023	N/A	Regional, State, and County	Tropical Storm Ophelia caused coastal flooding and flooding throughout the region. Widespread flooding was seen to roads in coastal communities in Cape May County. There were several road closures due to coastal flooding. Many homes and buildings were surrounded by flood waters. Some minor property damage was recorded. The tide gauge at Ocean city reached 6.4 ft MLLW, Sea Isle City reached 7 ft MLLW, Avalon reached 7 ft MLLW, and Stone Harbor reached 7.3 ft MLLW.
January 13, 2024	N/A	State and County	Strong southeast winds resulted in widespread tidal flooding. Widespread roadway flooding was seen across the coastal communities of Cape May County. The flood waters affected vulnerable buildings. The tide gauges at Ocean City reached 6.4 ft MLLW, Sea Isle City reached 6.8 ft MLLW, Avalone reached 7.2 ft MLLW, Stone Harbor reached 7.2 ft MLLW, Cape May Harbor reached 7.3 ft MLLW, and Cape May Ferry Terminal reached 7.9 ft MLLW.
February 13, 2024	N/A	State and County	A strong coastal system caused surge values up to 3 ft above the astronomical tides which resulted in widespread coastal flooding. Roadway flooding occurred throughout the coastal communities of the County. Flood waters affected vulnerable buildings. The tide gauge at Sea Isle City reached 6.7 ft MLLW, Avalon reached 7 ft MLLW, Stone Harbor reached 7.1 ft MLLW, and Cape May Ferry Terminal reached 7.7 ft MLLW.
September 20, 2024	N/A	State and County	Prolonged period of onshore flow due to an offshore coastal storm and a full moon resulted in high tides and coastal flooding in New Jersey. Roadway flooding was seen throughout the coastal communities in the County. The flood waters affected vulnerable buildings. The tide gauge at Cape May Harbor reached 7.2 ft MLLW, and Cape May Ferry Terminal reached 7.8 ft MLLW.
November 15, 2024	N/A	State and County	High astronomical tides associated with the full moon and a light onshore flow resulted in moderate tidal flooding along the state coast. Roadway flooding was seen throughout the coastal communities of Cape May County. The flood waters affected vulnerable buildings. The tide gauge at Cape May Harbor reached 7.3 ft MLLW, and Cape May Ferry Terminal reached 7.9 ft MLLW.

Source: NOAA NCEI 2024; FEMA 2025

10.1.5 Probability of Future Occurrences

Probability Based on Past Events

Information on previous flood occurrences in the County was used to calculate the probability of future occurrence of such events, as summarized in Table 10-8. Based on historical records and input from the Steering Committee, the probability of occurrence for flood in the County is considered "frequent."

Table 10-8. Probability of Future Flood Events in Cape May County

Hazard Type	Number of Occurrences Between 1950 and 2025	Percent Chance of Occurring in Any Given Year
Coastal Flood	86	100.00%
Flash Flood	16	21.33%
Flood	31	41.33%
Total	133	100.00%

Source: NOAA NCEI 2024

Note: Due to limitations in data, not all drought events occurring between 1950 and 2025 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is calculated using the number of occurrences between 1950 and 2025.
100% probability indicates that it is statistically likely for an event to occur every year. It does not indicate that the occurrence of an event is a certainty in any given year.

Effect of Climate Change on Future Probability

Projections of climate change for New Jersey predict more intense rainfall events and increases in total annual precipitation. This could result in an increased probability of flood events. In New Jersey, extreme storms include spring and summer thunderstorms, tropical storms, and on rare occasions hurricanes. Most of these events occur in the warmer months between April and October.

10.1.6 Cascading Impacts on Other Hazards

Erosion and Landslides

Riverine flooding often results in bank erosion. This is especially true in the upper courses of rivers with steep gradients, where floodwaters may pass quickly, scouring the banks and edging properties closer to the floodplain or causing them to fall in. Flooding is also responsible for hazards such as landslides when high flows over-saturate soils on steep slopes, causing them to fail.

Public Health

Floodwaters also can be contaminated by pollutants such as sewage, human and animal feces, pesticides, fertilizers, oil, asbestos, and rusting building materials. Common public health risks associated with flood events include the following (FEMA 2022):

- Unsafe food
- Contaminated drinking and washing water and poor sanitation
- Mosquitos and animals
- Carbon monoxide poisoning

- Secondary hazards associated with re-entering and cleaning flooded structures
- Mental stress and fatigue

After flood events, excess moisture and standing water contribute to the growth of mold in buildings. Mold may present a health risk to building occupants, especially infants, children, older people, pregnant women, and those with already compromised immune systems. Mold spores can grow in as little as 24 hours in wet and damaged areas of buildings that have not been properly cleaned. Very small mold spores can be inhaled, creating the potential for allergic reactions and respiratory problems (CDC 2020).

The best mitigation for these impacts is to be aware that they can occur, educate the public on prevention, and be prepared to deal with them in flood disaster response.

Utility Disruption

Floodwater picks up debris, bacteria, sewage, and other industrial waste and chemicals and can contaminate private drinking water sources, such as wells and springs. Excess water also makes it more difficult for water treatment plants to treat water adequately. Contamination in the water supply puts consumers at risk of exposure to toxins that could result in serious harm. In extreme cases, death may occur (Andrew 2021).

Consumers without access to clean water are unable to cook or clean in their homes. Depending on the severity of the flood and the storm, this could last for days, weeks, or months. Consumers ultimately become reliant on bottled water, which is especially detrimental in impoverished communities where residents may not have the economic means to purchase bottled water. Moreover, in a flood, retail locations are often inaccessible or low on water supply (Andrew 2021).

Flooded buildings may have their power disrupted if the service panel, generator, meter, etc. are not elevated above the flood level. Oversaturated soils from periods of heavy rain and flooding may cause utility poles to tip over or fall completely, interrupting the power grid for a potentially large area, especially if a transformer is impacted.

Dam Failure

Flooding can result in large quantities of rain upstream of a dam that raise water levels behind the dam, potentially leading to overtopping of the dam or flooding of properties upstream of the dam. Should the flooding result in a dam failure, the water behind the dam, including flood waters, may inundate jurisdictions downstream of the dam.

10.2 VULNERABILITY AND IMPACT ASSESSMENT

Vulnerability and impacts from the types of flooding defined as hazards of concern for this HMP were assessed as follows:

- Vulnerability was assessed by overlaying flood hazard boundaries on centroids of inventoried assets (population, building stock, and critical facilities). Centroids that intersected the flood boundaries were totaled to estimate the building replacement cost value and population vulnerable to the flood inundation areas. The following flood hazard areas were assessed:
  - The effective Cape May County FEMA DFIRM published in 2017 and the preliminary DFIRM published in 2014 were used to evaluate exposure to 1 percent and 0.2 percent annual chance flood events (riverine and coastal combined).
  - The LiMWA boundary from FEMA's 2014 Preliminary DFIRM and 2017 Effective DFIRM flood data was used to assess exposure to coastal erosion

- 2022 projected sea level rise data (in 1-foot increments) from the NOAA Office of Coastal Management was used to assess the assets at risk from future sea level rise for each jurisdiction. These sea level rise projections do not include additional storm surge due to a hurricane or nor'easter.

- A Level 2 Hazus flood analysis was performed to evaluate riverine and coastal flood impacts for the 1 percent annual chance event, using the separated riverine and coastal depth grids described previously.

10.2.1 Life, Health, and Safety

Exposure to Mapped Flood Hazard Areas

Overall Population

Table 10-9 summarizes the population exposed to the flood hazard by jurisdiction. An estimated 36,026 Cape May County residents live in the 1 percent annual chance floodplain—37.8 percent of the County's total population. An estimated 43,345 residents live in the 0.2 percent annual chance floodplain, or 45.5 percent of the County total. Ocean City has the greatest number of residents living in the 1 percent annual chance flood hazard area with 10,144 residents. Ocean City also has the highest number of residents living in the 0.2 percent annual chance flood area: 11,226 people.

Table 10-9. Cape May County Population Exposed to the 1 percent and 0.2 percent Flood Hazard Area

Jurisdiction	Total Population	Population Exposed to the 1 percent Annual Chance Flood Event Hazard Area		Population Exposed to the 0.2 percent Annual Chance Flood Event Hazard Area	
		Number of People	Percent Total	Number of People	Percent Total
Avalon (B)	1,243	1,111	89.4%	1,229	98.9%
Cape May (C)	2,768	1,533	55.4%	2,009	72.6%
Cape May Point (B)	305	225	73.8%	280	91.8%
Dennis (T)	6,285	66	1.1%	224	3.6%
Lower (T)	22,057	3,508	15.9%	5,518	25.0%
Middle (T)	20,380	3,338	16.4%	5,238	25.7%
North Wildwood (C)	3,621	3,613	99.8%	3,615	99.8%
Ocean (C)	11,229	10,144	90.3%	11,226	100.0%
Sea Isle (C)	2,104	1,986	94.4%	2,093	99.5%
Stone Harbor (B)	796	619	77.8%	770	96.7%
Upper (T)	12,539	1,466	11.7%	1,741	13.9%
West Cape May (B)	1,010	377	37.3%	606	60.0%
West Wildwood (B)	540	540	100.0%	540	100.0%
Wildwood (C)	5,157	5,156	100.0%	5,156	100.0%
Wildwood Crest (B)	3,101	2,344	75.6%	3,100	100.0%
Woodbine (B)	2,128	0	0.0%	0	0.0%
Cape May County	**95,263**	**36,026**	**37.8%**	**43,345**	**45.5%**

Source: U.S. Census Bureau 2020; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Coastal erosion is not generally considered an imminent threat to public safety when the changes are gradual over many years. However, drastic changes to the shoreline may occur as a result of a single storm event, which can

threaten homes and public safety. The population living in the coastal erosion hazard area is considered vulnerable to this hazard. As shown in Table 10-10, 1,403 people live in the estimated coastal erosion hazard area. This does not account for an increase in seasonal population along the County's coastal shores.

Table 10-10. Cape May County Population Exposed to the Coastal Erosion Hazard

Jurisdiction	Total Population	Population Exposed to the Coastal Erosion Hazard	
		Number of People	Percent Total
Avalon (B)	1,243	10	0.8%
Cape May (C)	2,768	40	1.4%
Cape May Point (B)	305	0	0.0%
Dennis (T)	6,285	14	0.2%
Lower (T)	22,057	199	0.9%
Middle (T)	20,380	507	2.5%
North Wildwood (C)	3,621	8	0.2%
Ocean (C)	11,229	255	2.3%
Sea Isle (C)	2,104	14	0.7%
Stone Harbor (B)	796	52	6.5%
Upper (T)	12,539	141	1.1%
West Cape May (B)	1,010	0	0.0%
West Wildwood (B)	540	99	18.3%
Wildwood (C)	5,157	26	0.5%
Wildwood Crest (B)	3,101	38	1.2%
Woodbine (B)	2,128	0	0.0%
Cape May County	**95,263**	**1,403**	**1.5%**

Source: U.S. Census Bureau 2020; FEMA Preliminary/Effective DFIRMs, LiMWA Lines 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-11 summarizes the population exposed to the sea level rise hazard areas by jurisdiction. Based on the spatial analysis, there are an estimated 737 residents living in the sea level rise +1 foot hazard area, or 0.8 percent of the County's total population; 3,126 residents living in the sea level rise +2 foot hazard area (3.3 percent); 10,283 residents living in the sea level rise +3 foot hazard area (10.8 percent); and 18,574 residents living in the sea level rise +4 foot hazard area (19.5 percent).

Hazard exposure encompasses the population living in or near floodplain areas that could be affected by a flood event. It is important to consider not only those residing within a defined hazard zone but also all individuals who may be impacted by the event (e.g., people at risk while traveling in flooded areas or those whose access to emergency services is compromised).

Table 10-11. Population in the Sea Level Rise Hazard Areas

Jurisdiction	Total Population (U.S. Census Bureau 2020 Decennial)	Sea Level Rise +1 Foot Hazard Area		Sea Level Rise +2 Foot Hazard Area		Sea Level Rise +3 Foot Hazard Area		Sea Level Rise +4 Foot Hazard Area	
		Number of Persons	% of Jurisdiction Total	Number of Persons	% of Jurisdiction Total	Number of Persons	% of Jurisdiction Total	Number of Persons	% of Jurisdiction Total
Avalon (B)	1,243	1	0.1%	11	0.9%	154	12.4%	418	33.6%
Cape May (C)	2,768	16	0.6%	34	1.2%	233	8.4%	733	26.5%
Cape May Point (B)	305	0	0.0%	64	21.0%	64	21.0%	110	36.1%
Dennis (T)	6,285	2	<0.1%	5	0.1%	22	0.4%	40	0.6%
Lower (T)	22,057	83	0.4%	160	0.7%	666	3.0%	1,405	6.4%
Middle (T)	20,380	271	1.3%	676	3.3%	1,406	6.9%	2,224	10.9%
North Wildwood (C)	3,621	18	0.5%	321	8.9%	1,379	38.1%	2,167	59.8%
Ocean (C)	11,229	31	0.3%	766	6.8%	2,910	25.9%	5,429	48.3%
Sea Isle (C)	2,104	4	0.2%	55	2.6%	477	22.7%	1,192	56.7%
Stone Harbor (B)	796	0	0.0%	18	2.3%	134	16.8%	285	35.8%
Upper (T)	12,539	15	0.1%	89	0.7%	241	1.9%	559	4.5%
West Cape May (B)	1,010	0	0.0%	8	0.8%	132	13.1%	254	25.1%
West Wildwood (B)	540	240	44.4%	473	87.6%	522	96.7%	535	99.1%
Wildwood (C)	5,157	55	1.1%	425	8.2%	1,799	34.9%	2,737	53.1%
Wildwood Crest (B)	3,101	1	<0.1%	21	0.7%	144	4.6%	486	15.7%
Woodbine (B)	2,128	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**95,263**	**737**	**0.8%**	**3,126**	**3.3%**	**10,283**	**10.8%**	**18,574**	**19.5%**

Source: U.S. Census Bureau 2020; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Socially Vulnerable Populations

Economically disadvantaged populations are more vulnerable because they are likely to lack financial resources to evacuate. The population over the age of 65 is more vulnerable because they are more likely to need medical attention, which may not be available due to isolation during a flood event, and they may have more difficulty evacuating. Special consideration should be taken when planning for disaster preparation, response, and recovery for these vulnerable groups.

Table 10-12 and Table 10-13 present the estimated socially vulnerable populations living in the 1- and 0.2 percent annual chance flood hazard areas. There are 11,828 persons over the age of 65 years, 995 persons under the age of 5 years, 571 non-English speakers, 5,588 persons with a disability, and 3,485 living in poverty located in the 1 percent annual chance flood hazard area. There are 14,027 persons over the age of 65 years, 1,285 persons under the age of 5 years, 653 non-English speakers, 6,652 persons with a disability, and 4,128 living in poverty located in the 0.2 percent annual chance flood hazard area.

Table 10-14 presents the estimated socially vulnerable populations living in the coastal erosion hazard area. There are 402 persons over the age of 65 years, 55 persons under the age of 5 years, 14 non-English speakers, 195 persons with a disability, and 109 living in poverty within this hazard area.

Table 10-18 highlights the distribution of socially vulnerable populations residing within the +4-foot sea level rise hazard area. The City of Ocean City has the highest number of persons over the age of 65 (1,847), persons with a disability (714), and persons living in poverty (552), within the +4-foot sea level rise hazard area. The Township of Middle has the highest number of persons under the age of 5 years (104) and non-English speaking persons (54) within that hazard area. For +1-, +2-, and +3-foot sea level rise hazard areas, refer to Table 10-15, Table 10-16, and Table 10-17, respectively.

Flood Impacts on People

The impact of flooding on life, health, and safety is influenced by several factors, including the severity of the event and the adequacy of warning time provided to residents. Floodwaters can cause injuries, displace individuals, or necessitate the need for shelter. Additionally, continued residence in a flooded home may expose occupants to mold and other health hazards. The degree of impact varies and is not strictly measurable.

The total number of injuries and casualties resulting from flooding is generally limited based on advance weather forecasting, blockades, and warnings. Therefore, injuries and deaths generally are not anticipated if proper warning and precautions are in place. Ongoing mitigation efforts should help to avoid the most likely cause of injury, which results from persons trying to cross flooded roadways or channels during a flood.

The Hazus riverine model estimates the potential sheltering needs as a result of a 1 percent annual chance flood event. The demographic data in Hazus has not been updated and the estimated sheltering needs are based on 2020 U.S. Census data. Hazus estimates 1,948 persons may be displaced and 123 people may seek short-term shelter within the 1 Percent Annual Chance Flood (Riverine); and 30,311 persons may be displaced and 1,193 people may seek short-term shelter within the 1 Percent Annual Chance Flood (Coastal). These statistics, by jurisdiction, are presented in Table 10-19.

Table 10-12. Total Number of Vulnerable Persons Located in the 1 percent Annual Chance Flood Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	683	89.4%	18	85.7%	0	0.0%	143	89.4%	63	88.7%
Cape May (C)	428	55.3%	77	55.4%	23	53.2%	92	55.1%	77	55.4%
Cape May Point (B)	87	73.7%	0	0.0%	0	0.0%	31	72.1%	19	73.1%
Dennis (T)	13	1.0%	5	1.0%	0	0.0%	6	1.0%	3	0.9%
Lower (T)	877	15.9%	176	15.8%	34	15.6%	577	15.9%	376	15.9%
Middle (T)	791	16.4%	156	16.3%	81	16.3%	486	16.4%	292	16.4%
North Wildwood (C)	1,689	99.8%	0	0.0%	0	0.0%	700	99.7%	266	99.6%
Ocean (C)	3,451	90.3%	186	90.3%	37	90.2%	1,334	90.3%	1,031	90.3%
Sea Isle (C)	970	94.4%	5	83.3%	12	92.6%	248	94.3%	106	93.8%
Stone Harbor (B)	354	77.8%	14	73.7%	0	0.0%	64	77.1%	44	77.2%
Upper (T)	354	11.7%	82	11.6%	7	10.8%	137	11.6%	25	11.3%
West Cape May (B)	137	37.3%	15	35.7%	4	37.0%	47	37.3%	10	37.0%
West Wildwood (B)	179	100.0%	34	97.1%	0	0.0%	106	99.1%	17	94.4%
Wildwood (C)	798	99.9%	185	100.0%	373	99.8%	1,109	99.9%	902	99.9%
Wildwood Crest (B)	1,017	75.6%	42	75.0%	0	0.0%	508	75.5%	254	75.6%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**11,828**	**44.6%**	**995**	**24.2%**	**571**	**40.5%**	**5,588**	**39.8%**	**3,485**	**41.3%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-13. Total Number of Vulnerable Persons Located in the 0.2 percent Annual Chance Flood Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	755	98.8%	20	95.2%	0	0.0%	158	98.8%	70	98.6%
Cape May (C)	561	72.5%	100	71.9%	31	71.8%	121	72.5%	100	71.9%
Cape May Point (B)	108	91.5%	0	0.0%	0	0.0%	39	90.7%	23	88.5%
Dennis (T)	46	3.5%	17	3.5%	1	2.9%	21	3.5%	11	3.4%
Lower (T)	1,380	25.0%	277	24.9%	54	24.8%	908	25.0%	592	25.0%
Middle (T)	1,242	25.7%	245	25.6%	127	25.6%	763	25.7%	458	25.7%
North Wildwood (C)	1,690	99.8%	0	0.0%	0	0.0%	700	99.7%	266	99.6%
Ocean (C)	3,820	100.0%	205	99.5%	40	97.5%	1,476	99.9%	1,141	99.9%
Sea Isle (C)	1,022	99.4%	5	83.3%	12	92.6%	261	99.2%	112	99.1%
Stone Harbor (B)	440	96.7%	18	94.7%	0	0.0%	80	96.4%	55	96.5%
Upper (T)	421	13.9%	98	13.8%	9	13.9%	163	13.8%	30	13.6%
West Cape May (B)	220	59.9%	25	59.5%	6	55.6%	75	59.5%	16	59.3%
West Wildwood (B)	179	100.0%	34	97.1%	0	0.0%	106	99.1%	17	94.4%
Wildwood (C)	798	99.9%	185	100.0%	373	99.8%	1,109	99.9%	902	99.9%
Wildwood Crest (B)	1,345	99.9%	56	100.0%	0	0.0%	672	99.9%	335	99.7%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**14,027**	**52.9%**	**1,285**	**31.2%**	**653**	**46.4%**	**6,652**	**47.3%**	**4,128**	**48.9%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-14. Estimated Number of Vulnerable Persons Located in the Coastal Erosion Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	6	0.8%	0	0.0%	0	0.0%	1	0.6%	0	0.0%
Cape May (C)	11	1.4%	2	1.4%	0	0.0%	2	1.2%	2	1.4%
Cape May Point (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Dennis (T)	2	0.2%	1	0.2%	0	0.0%	1	0.2%	0	0.0%
Lower (T)	49	0.9%	10	0.9%	1	0.5%	32	0.9%	21	0.9%
Middle (T)	120	2.5%	23	2.4%	12	2.4%	74	2.5%	44	2.5%
North Wildwood (C)	4	0.2%	0	0.0%	0	0.0%	1	0.1%	0	0.0%
Ocean (C)	87	2.3%	4	1.9%	0	0.0%	33	2.2%	26	2.3%
Sea Isle (C)	6	0.6%	0	0.0%	0	0.0%	1	0.4%	0	0.0%
Stone Harbor (B)	30	6.6%	1	5.3%	0	0.0%	5	6.0%	3	5.3%
Upper (T)	34	1.1%	8	1.1%	0	0.0%	13	1.1%	2	0.9%
West Cape May (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
West Wildwood (B)	33	18.4%	6	17.1%	0	0.0%	19	17.8%	3	16.7%
Wildwood (C)	4	0.5%	0	0.0%	1	0.3%	5	0.5%	4	0.4%
Wildwood Crest (B)	16	1.2%	0	0.0%	0	0.0%	8	1.2%	4	1.2%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**402**	**1.5%**	**55**	**1.3%**	**14**	**1.0%**	**195**	**1.4%**	**109**	**1.3%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; FEMA Preliminary/Effective DFIRMs, LiMWA Lines 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-15. Estimated Number of Vulnerable Persons Located in the Sea Level Rise +1 Foot Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	1	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May (C)	4	0.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May Point (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Dennis (T)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Lower (T)	20	0.4%	4	0.4%	0	0.0%	13	0.4%	8	0.3%
Middle (T)	64	1.3%	12	1.3%	6	1.2%	39	1.3%	23	1.3%
North Wildwood (C)	8	0.5%	0	0.0%	0	0.0%	3	0.4%	1	0.4%
Ocean (C)	10	0.3%	0	0.0%	0	0.0%	4	0.3%	3	0.3%
Sea Isle (C)	2	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Stone Harbor (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Upper (T)	3	0.1%	0	0.0%	0	0.0%	1	0.1%	0	0.0%
West Cape May (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
West Wildwood (B)	79	44.1%	15	42.9%	0	0.0%	47	43.9%	8	44.4%
Wildwood (C)	8	1.0%	1	0.5%	4	1.1%	11	1.0%	9	1.0%
Wildwood Crest (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**199**	**0.8%**	**32**	**0.8%**	**10**	**0.7%**	**118**	**0.8%**	**52**	**0.6%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-16. Estimated Number of Vulnerable Persons Located in the Sea Level Rise +2 Foot Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	7	0.9%	0	0.0%	0	0.0%	1	0.6%	0	0.0%
Cape May (C)	9	1.2%	1	0.7%	0	0.0%	2	1.2%	1	0.7%
Cape May Point (B)	24	20.3%	0	0.0%	0	0.0%	9	20.9%	5	19.2%
Dennis (T)	1	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Lower (T)	40	0.7%	8	0.7%	1	0.5%	26	0.7%	17	0.7%
Middle (T)	160	3.3%	31	3.2%	16	3.2%	98	3.3%	59	3.3%
North Wildwood (C)	150	8.9%	0	0.0%	0	0.0%	62	8.8%	23	8.6%
Ocean (C)	260	6.8%	14	6.8%	2	4.9%	100	6.8%	77	6.7%
Sea Isle (C)	27	2.6%	0	0.0%	0	0.0%	6	2.3%	2	1.8%
Stone Harbor (B)	10	2.2%	0	0.0%	0	0.0%	1	1.2%	1	1.8%
Upper (T)	21	0.7%	5	0.7%	0	0.0%	8	0.7%	1	0.5%
West Cape May (B)	3	0.8%	0	0.0%	0	0.0%	1	0.8%	0	0.0%
West Wildwood (B)	157	87.7%	30	85.7%	0	0.0%	93	86.9%	15	83.3%
Wildwood (C)	65	8.1%	15	8.1%	30	8.0%	91	8.2%	74	8.2%
Wildwood Crest (B)	9	0.7%	0	0.0%	0	0.0%	4	0.6%	2	0.6%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**943**	**0.0%**	**104**	**2.5%**	**49**	**3.5%**	**502**	**3.6%**	**277**	**3.3%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-17. Estimated Number of Vulnerable Persons Located in the Sea Level Rise +3 Foot Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	94	12.3%	2	9.5%	0	0.0%	19	11.9%	8	11.3%
Cape May (C)	65	8.4%	11	7.9%	3	6.9%	14	8.4%	11	7.9%
Cape May Point (B)	24	20.3%	0	0.0%	0	0.0%	9	20.9%	5	19.2%
Dennis (T)	4	0.3%	1	0.2%	0	0.0%	2	0.3%	1	0.3%
Lower (T)	166	3.0%	33	3.0%	6	2.8%	109	3.0%	71	3.0%
Middle (T)	333	6.9%	65	6.8%	34	0.0%	205	6.9%	123	6.9%
North Wildwood (C)	644	38.0%	0	0.0%	0	0.0%	267	38.0%	101	37.8%
Ocean (C)	990	25.9%	53	25.7%	10	24.4%	382	25.9%	296	25.9%
Sea Isle (C)	233	22.7%	1	16.7%	2	15.4%	59	22.4%	25	22.1%
Stone Harbor (B)	76	16.7%	3	15.8%	0	0.0%	14	16.9%	9	15.8%
Upper (T)	58	1.9%	13	1.8%	1	1.5%	22	1.9%	4	1.8%
West Cape May (B)	48	13.1%	5	11.9%	1	9.3%	16	12.7%	3	11.1%
West Wildwood (B)	173	96.6%	33	94.3%	0	0.0%	103	96.3%	17	94.4%
Wildwood (C)	278	34.8%	64	34.6%	130	34.8%	387	34.9%	315	34.9%
Wildwood Crest (B)	62	4.6%	2	3.6%	0	0.0%	31	4.6%	15	4.5%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**3,248**	**12.2%**	**286**	**6.9%**	**187**	**13.3%**	**1,639**	**11.7%**	**1,004**	**11.9%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-18. Estimated Number of Vulnerable Persons Located in the Sea Level Rise +4 Foot Hazard Area

Jurisdiction	Persons Over 65	Percent of Total	Persons Under 5	Percent of Total	Non-English Speaking Persons	Percent of Total	Persons with a Disability	Percent of Total	Persons in Poverty	Percent of Total
Avalon (B)	257	33.6%	7	33.3%	0	0.0%	53	33.1%	23	32.4%
Cape May (C)	205	26.5%	36	25.9%	11	25.5%	44	26.3%	36	25.9%
Cape May Point (B)	42	35.6%	0	0.0%	0	0.0%	15	34.9%	9	34.6%
Dennis (T)	8	0.6%	3	0.6%	0	0.0%	3	0.5%	2	0.6%
Lower (T)	351	6.4%	70	6.3%	13	6.0%	231	6.4%	150	6.3%
Middle (T)	527	10.9%	104	10.9%	54	10.9%	324	10.9%	194	10.9%
North Wildwood (C)	1,013	59.8%	0	0.0%	0	0.0%	420	59.8%	159	59.6%
Ocean (C)	1,847	48.3%	99	48.1%	19	46.3%	714	48.3%	552	48.3%
Sea Isle (C)	582	56.6%	3	50.0%	7	54.0%	149	56.7%	64	56.6%
Stone Harbor (B)	162	35.6%	6	31.6%	0	0.0%	29	34.9%	20	35.1%
Upper (T)	135	4.4%	31	4.4%	2	3.1%	52	4.4%	9	4.1%
West Cape May (B)	92	25.1%	10	23.8%	2	18.5%	31	24.6%	6	22.2%
West Wildwood (B)	177	98.9%	34	97.1%	0	0.0%	106	99.1%	17	94.4%
Wildwood (C)	424	53.1%	98	53.0%	198	53.0%	589	53.1%	479	53.0%
Wildwood Crest (B)	211	15.7%	8	14.3%	0	0.0%	105	15.6%	52	15.5%
Woodbine (B)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cape May County	**6,033**	**22.7%**	**509**	**12.4%**	**306**	**21.7%**	**2,865**	**20.4%**	**1,772**	**21.0%**

Source: U.S. Census Bureau, American Community Survey 2018-2022; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-19. Population Displaced or Needing Short-Term Shelter from the 1 Percent Annual Chance Flood Events

	Total Population (2020 Decennial)	1 percent Annual Chance Flood (Riverine)		1 percent Annual Chance Flood (Coastal)	
		Displaced Population	Persons Seeking Short-Term Shelter	Displaced Population	Persons Seeking Short-Term Shelter
Avalon (B)	1,243	0	0	1,088	3
Cape May (C)	2,768	1,158	54	3	0
Cape May Point (B)	305	229	0	1	0
Dennis (T)	6,285	38	8	128	14
Lower (T)	22,057	27	13	2,565	185
Middle (T)	20,380	106	35	2,238	234
North Wildwood (C)	3,621	0	0	3,490	83
Ocean (C)	11,229	1	0	9,592	133
Sea Isle (C)	2,104	0	0	2,012	13
Stone Harbor (B)	796	0	0	631	0
Upper (T)	12,539	15	5	658	103
West Cape May (B)	1,010	371	5	0	0
West Wildwood (B)	540	0	0	538	3
Wildwood (C)	5,157	0	0	5,003	370
Wildwood Crest (B)	3,101	0	0	2,364	52
Woodbine (B)	2,128	3	3	0	0
Cape May County	**95,263**	**1,948**	**123**	**30,311**	**1,193**

Source: Hazus v6.1; Census Bureau 2020; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

10.2.2 General Building Stock

Exposure to Mapped Flood Hazard Areas

Figure 10-8 summarizes the percent of the Cape May County general building stock exposed to the various flood hazards mapped for this risk assessment. The breakdown by jurisdiction is provided in Table 10-20 through Table 10-23.

The exposure by general occupancy class is detailed in Table 10-24 to Table 10-27. Figure 10-9 summarizes which jurisdictions have the greatest number of buildings in each occupancy class exposed for each of the mapped hazard areas.

Figure 10-8. % Exposure of the County General Building Stock to the Mapped Flood Hazard Areas

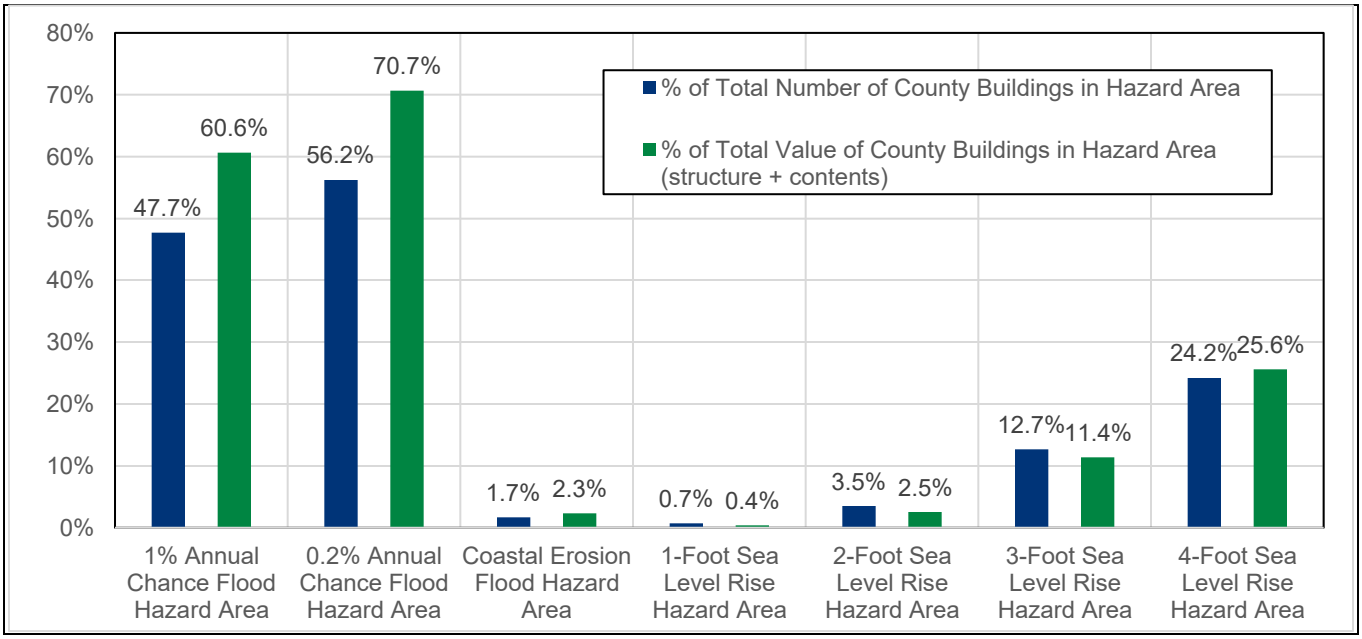


Figure 10-9. Jurisdictions with Greatest Exposure to Flood Hazards by General Occupancy Class

1% Annual Chance Flood	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Ocean City • Most Industrial Properties Exposed: Wildwood • Most Other Properties Exposed: Ocean City
0.2% Annual Chance Flood	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Lower Twp. • Most Industrial Properties Exposed: Wildwood • Most Other Properties Exposed: Middle Twp.
Coastal Erosion Hazard Area	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Lower Twp. • Most Industrial Properties Exposed: None • Most Other Properties Exposed: Wildwood
1-Foot Sea Level Rise	• Most Residential Properties Exposed: West Wildwood • Most Commercial Properties Exposed: Middle Twp. • Most Industrial Properties Exposed: None • Most Other Properties Exposed: Occean City
2-Foot Sea Level Rise	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Middle Twp. • Most Industrial Properties Exposed: Wildwood • Most Other Properties Exposed: Middle Twp.
3-Foot Sea Level Rise	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Ocean City • Most Industrial Properties Exposed: Wildwood • Most Other Properties Exposed: Middle Twp.
4-Foot Sea Level Rise	• Most Residential Properties Exposed: Ocean City • Most Commercial Properties Exposed: Ocean City • Most Industrial Properties Exposed: Wildwood • Most Other Properties Exposed: Middle Twp.

Table 10-20. Estimated General Building Stock Located in the 1- and 0.2- Percent Annual Chance Flood Hazard Area

Jurisdiction	Jurisdiction Total Buildings		1 percent Annual Chance Flood Event Hazard Area				0.2 percent Annual Chance Flood Event Hazard Area			
			Number of Buildings		Replacement Cost Value		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Total	Value	% of Total	Count	% of Total	Value	% of Total
Avalon (B)	6,696	$25,723,512,232	6,013	89.8%	$22,434,373,831	87.2%	6,627	99.0%	$25,217,276,746	98.0%
Cape May (C)	4,650	$16,203,622,284	2,524	54.3%	$8,846,661,221	54.6%	3,322	71.4%	$11,741,693,695	72.5%
Cape May Point (B)	850	$1,686,539,666	634	74.6%	$1,280,915,618	75.9%	787	92.6%	$1,553,685,740	92.1%
Dennis (T)	8,700	$8,299,131,210	95	1.1%	$129,008,313	1.6%	297	3.4%	$354,083,208	4.3%
Lower (T)	25,387	$22,775,836,898	4,094	16.1%	$4,090,274,098	18.0%	6,369	25.1%	$5,868,274,252	25.8%
Middle (T)	20,691	$27,392,475,766	3,291	15.9%	$2,928,395,138	10.7%	5,172	25.0%	$5,459,029,776	19.9%
North Wildwood (C)	5,843	$11,753,681,214	5,831	99.8%	$11,722,993,203	99.7%	5,836	99.9%	$11,726,921,424	99.8%
Ocean (C)	19,235	$44,649,077,467	17,426	90.6%	$38,552,291,730	86.3%	19,227	100.0%	$44,592,069,754	99.9%
Sea Isle (C)	7,416	$23,896,778,328	7,010	94.5%	$22,439,414,266	93.9%	7,370	99.4%	$23,812,873,841	99.6%
Stone Harbor (B)	4,202	$8,177,015,155	3,289	78.3%	$6,186,445,094	75.7%	4,076	97.0%	$7,826,304,389	95.7%
Upper (T)	10,936	$14,864,714,357	1,127	10.3%	$1,855,594,147	12.5%	1,431	13.1%	$2,192,104,210	14.7%
West Cape May (B)	1,760	$2,893,441,733	630	35.8%	$1,012,145,135	35.0%	980	55.7%	$1,646,974,414	56.9%
West Wildwood (B)	920	$1,064,788,340	919	99.9%	$1,060,817,700	99.6%	920	100.0%	$1,064,788,340	100.0%
Wildwood (C)	4,460	$12,875,631,194	4,460	100.0%	$12,875,631,193	100.0%	4,460	100.0%	$12,875,631,193	100.0%
Wildwood Crest (B)	6,159	$11,797,908,652	4,689	76.1%	$8,390,731,419	71.1%	6,159	100.0%	$11,797,908,653	100.0%
Woodbine (B)	2,107	$3,249,453,892	0	0.0%	$0	0.0%	0	0.0%	$0	0.0%
Cape May County	**130,012**	**$237,303,608,388**	**62,032**	**47.7%**	**$143,805,692,106**	**60.6%**	**73,033**	**56.2%**	**$167,729,619,635**	**70.7%**

Source: Cape May County 2024; RS Means 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-21. Estimated General Building Stock Located in the Coastal Erosion Hazard Area

Jurisdiction	Jurisdiction Total Buildings		Coastal Erosion Hazard Area			
			Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Total	Value	% of Total
Avalon (B)	6,696	$25,723,512,232	56	0.8%	$300,929,189	1.2%
Cape May (C)	4,650	$16,203,622,284	81	1.7%	$295,134,272	1.8%
Cape May Point (B)	850	$1,686,539,666	2	0.2%	$3,676,198	0.2%
Dennis (T)	8,700	$8,299,131,210	14	0.2%	$25,134,896	0.3%
Lower (T)	25,387	$22,775,836,898	305	1.2%	$551,401,208	2.4%
Middle (T)	20,691	$27,392,475,766	418	2.0%	$463,679,190	1.7%
North Wildwood (C)	5,843	$11,753,681,214	93	1.6%	$407,319,208	3.5%
Ocean (C)	19,235	$44,649,077,467	444	2.3%	$1,121,946,810	2.5%
Sea Isle (C)	7,416	$23,896,778,328	50	0.7%	$210,432,548	0.9%
Stone Harbor (B)	4,202	$8,177,015,155	264	6.3%	$608,867,485	7.4%
Upper (T)	10,936	$14,864,714,357	115	1.1%	$325,123,788	2.2%
West Cape May (B)	1,760	$2,893,441,733	0	0.0%	$0	0.0%
West Wildwood (B)	920	$1,064,788,340	173	18.8%	$213,304,486	20.0%
Wildwood (C)	4,460	$12,875,631,194	161	3.6%	$742,254,970	5.8%
Wildwood Crest (B)	6,159	$11,797,908,652	76	1.2%	$165,158,780	1.4%
Woodbine (B)	2,107	$3,249,453,892	0	0.0%	$0	0.0%
Cape May County	**130,012**	**$237,303,608,388**	**2,252**	**1.7%**	**$5,434,363,029**	**2.3%**

Source: Cape May County 2024; RS Means 2024; FEMA Preliminary/Effective DFIRMs, LiMWA Lines 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-22. Estimated General Building Stock Located in the Sea Level Rise +1- and +2-Foot Hazard Area

Jurisdiction	Jurisdiction Total Buildings		Sea Level Rise +1 Foot Hazard Area				Sea Level Rise +2 Foot Hazard Area			
			Number of Buildings		Replacement Cost Value		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Total	Value	% of Total	Count	% of Total	Value	% of Total
Avalon (B)	6,696	$25,723,512,232	11	0.2%	$13,415,814	0.1%	62	0.9%	$194,854,187	0.8%
Cape May (C)	4,650	$16,203,622,284	27	0.6%	$110,183,997	0.7%	57	1.2%	$185,945,847	1.1%
Cape May Point (B)	850	$1,686,539,666	0	0.0%	$0	0.0%	181	21.3%	$382,392,108	22.7%
Dennis (T)	8,700	$8,299,131,210	3	<0.1%	$4,877,808	0.1%	9	0.1%	$18,169,827	0.2%
Lower (T)	25,387	$22,775,836,898	95	0.4%	$61,964,890	0.3%	197	0.8%	$135,290,151	0.6%
Middle (T)	20,691	$27,392,475,766	251	1.2%	$148,609,275	0.5%	691	3.3%	$417,670,086	1.5%
North Wildwood (C)	5,843	$11,753,681,214	27	0.5%	$38,436,393	0.3%	496	8.5%	$650,106,155	5.5%
Ocean (C)	19,235	$44,649,077,467	59	0.3%	$75,197,487	0.2%	1,369	7.1%	$1,974,955,805	4.4%
Sea Isle (C)	7,416	$23,896,778,328	20	0.3%	$37,010,579	0.2%	189	2.5%	$422,551,142	1.8%
Stone Harbor (B)	4,202	$8,177,015,155	0	0.0%	$0	0.0%	92	2.2%	$175,361,527	2.1%
Upper (T)	10,936	$14,864,714,357	18	0.2%	$17,320,249	0.1%	72	0.7%	$113,764,704	0.8%
West Cape May (B)	1,760	$2,893,441,733	0	0.0%	$0	0.0%	14	0.8%	$11,556,369	0.4%
West Wildwood (B)	920	$1,064,788,340	403	43.8%	$352,791,247	33.1%	805	87.5%	$832,181,586	78.2%
Wildwood (C)	4,460	$12,875,631,194	45	1.0%	$68,687,228	0.5%	325	7.3%	$438,156,972	3.4%
Wildwood Crest (B)	6,159	$11,797,908,652	3	<0.1%	$921,784	<0.1%	37	0.6%	$69,967,745	0.6%
Woodbine (B)	2,107	$3,249,453,892	0	0.0%	$0	0.0%	0	0.0%	$0	0.0%
Cape May County	**130,012**	**$237,303,608,388**	**962**	**0.7%**	**$929,416,751**	**0.4%**	**4,596**	**3.5%**	**$6,022,924,211**	**2.5%**

Source: Cape May County 2024; RS Means 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-23. Estimated General Building Stock Located in the Sea Level Rise +3- and +4-Foot Hazard Area

Jurisdiction	Jurisdiction Total Buildings		Sea Level Rise +3 Foot Hazard Area				Sea Level Rise +4 Foot Hazard Area			
			Number of Buildings		Replacement Cost Value		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Total	Value	% of Total	Count	% of Total	Value	% of Total
Avalon (B)	6,696	$25,723,512,232	824	12.3%	$2,558,198,184	9.9%	2,270	33.9%	$7,271,639,956	28.3%
Cape May (C)	4,650	$16,203,622,284	398	8.6%	$1,005,648,725	6.2%	1,215	26.1%	$3,658,784,055	22.6%
Cape May Point (B)	850	$1,686,539,666	181	21.3%	$382,392,108	22.7%	306	36.0%	$695,760,283	41.3%
Dennis (T)	8,700	$8,299,131,210	29	0.3%	$37,602,960	0.5%	55	0.6%	$93,930,162	1.1%
Lower (T)	25,387	$22,775,836,898	826	3.3%	$610,870,858	2.7%	1,721	6.8%	$1,519,791,629	6.7%
Middle (T)	20,691	$27,392,475,766	1,447	7.0%	$1,076,849,419	3.9%	2,242	10.8%	$1,857,756,477	6.8%
North Wildwood (C)	5,843	$11,753,681,214	2,171	37.2%	$2,981,782,433	25.4%	3,435	58.8%	$5,125,289,580	43.6%
Ocean (C)	19,235	$44,649,077,467	5,189	27.0%	$8,074,374,292	18.1%	9,553	49.7%	$17,254,595,218	38.6%
Sea Isle (C)	7,416	$23,896,778,328	1,667	22.5%	$4,789,446,700	20.0%	4,193	56.5%	$12,784,945,948	53.5%
Stone Harbor (B)	4,202	$8,177,015,155	725	17.3%	$1,334,251,438	16.3%	1,541	36.7%	$2,810,523,878	34.4%
Upper (T)	10,936	$14,864,714,357	191	1.7%	$303,193,304	2.0%	441	4.0%	$833,826,211	5.6%
West Cape May (B)	1,760	$2,893,441,733	214	12.2%	$340,994,083	11.8%	423	24.0%	$656,989,484	22.7%
West Wildwood (B)	920	$1,064,788,340	885	96.2%	$986,848,742	92.7%	909	98.8%	$1,043,039,260	98.0%
Wildwood (C)	4,460	$12,875,631,194	1,451	32.5%	$1,975,233,224	15.3%	2,230	50.0%	$3,426,273,937	26.6%
Wildwood Crest (B)	6,159	$11,797,908,652	260	4.2%	$520,447,504	4.4%	918	14.9%	$1,725,994,995	14.6%
Woodbine (B)	2,107	$3,249,453,892	0	0.0%	$0	0.0%	0	0.0%	$0	0.0%
Cape May County	**130,012**	**$237,303,608,388**	**16,458**	**12.7%**	**$26,978,133,974**	**11.4%**	**31,452**	**24.2%**	**$60,759,141,073**	**25.6%**

Source: Cape May County 2024; RS Means 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-24. Buildings in the 1- and 0.2- Percent Annual Chance Flood Hazard Areas, by General Occupancy Class

	1 percent Annual Chance Flood Event Hazard Area				0.2 percent Annual Chance Flood Event Hazard Area			
	Residential	Commercial	Industrial	Other	Residential	Commercial	Industrial	Other
Avalon (B)	5,200	772	0	41	87	38	0	1
Cape May (C)	2,247	218	0	59	111	61	9	0
Cape May Point (B)	576	49	0	9	25	19	2	0
Dennis (T)	61	23	0	11	65	89	12	1
Lower (T)	2,974	1,053	0	67	635	143	19	3
Middle (T)	2,407	758	0	126	34	11	0	0
North Wildwood (C)	4,591	1,144	0	96	133	61	9	6
Ocean (C)	16,102	1,181	1	142	1,075	246	37	20
Sea Isle (C)	6,281	693	0	36	931	86	10	2
Stone Harbor (B)	2,964	304	0	21	15	5	0	0
Upper (T)	930	183	0	14	31	13	1	1
West Cape May (B)	515	103	0	12	436	87	16	2
West Wildwood (B)	785	123	0	11	79	13	0	0
Wildwood (C)	3,270	1,067	10	113	920	453	29	14
Wildwood Crest (B)	4,076	605	0	8	219	43	1	4
Woodbine (B)	0	0	0	0	453	157	10	1
Cape May County	**52,979**	**8,276**	**11**	**766**	**5,249**	**1,525**	**155**	**55**

Source: Cape May County 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township
Other = Government, Religion, Agricultural, and Education

Table 10-25. Buildings in the Coastal Erosion Hazard Area, by General Occupancy Class

	Coastal Erosion Hazard Area			
	Residential	Commercial	Industrial	Other
Avalon (B)	51	1	0	4

	Coastal Erosion Hazard Area			
	Residential	Commercial	Industrial	Other
Cape May (C)	59	6	0	16
Cape May Point (B)	2	0	0	0
Dennis (T)	13	0	0	1
Lower (T)	169	136	0	0
Middle (T)	366	49	0	3
North Wildwood (C)	11	66	0	16
Ocean (C)	406	23	0	15
Sea Isle (C)	45	4	0	1
Stone Harbor (B)	251	8	0	5
Upper (T)	90	20	0	5
West Cape May (B)	0	0	0	0
West Wildwood (B)	145	25	0	3
Wildwood (C)	17	104	0	40
Wildwood Crest (B)	67	6	0	3
Woodbine (B)	0	0	0	0
Cape May County	**1,692**	**448**	**0**	**112**

Source: Cape May County 2024; FEMA Preliminary/Effective DFIRMs, LiMWA Lines 2014/2017
Note: (B) Borough; (C) City; (T) Township
Other = Government, Religion, Agricultural, and Education

Table 10-26. Buildings in the Sea Level Rise +1- and +2-Foot Hazard Areas, by General Occupancy Class

	Sea Level Rise +1 Foot Hazard Area				Sea Level Rise +2 Foot Hazard Area			
	Residential	Commercial	Industrial	Other	Residential	Commercial	Industrial	Other
Avalon (B)	8	2	0	1	54	7	0	1
Cape May (C)	24	2	0	1	50	6	0	1
Cape May Point (B)	0	0	0	0	165	15	0	1
Dennis (T)	2	1	0	0	5	3	0	1
Lower (T)	71	23	0	1	136	56	0	5
Middle (T)	196	50	0	5	488	180	0	23
North Wildwood (C)	23	4	0	0	409	85	0	2
Ocean (C)	50	4	0	5	1,217	131	0	21
Sea Isle (C)	14	6	0	0	175	12	0	2
Stone Harbor (B)	0	0	0	0	87	5	0	0
Upper (T)	10	6	0	2	57	13	0	2
West Cape May (B)	0	0	0	0	12	0	0	2
West Wildwood (B)	349	50	0	4	689	107	0	9
Wildwood (C)	35	7	0	3	270	51	1	3
Wildwood Crest (B)	3	0	0	0	37	0	0	0
Woodbine (B)	0	0	0	0	0	0	0	0
Cape May County	**785**	**155**	**0**	**22**	**3,851**	**671**	**1**	**73**

Source: Cape May County 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township
Other = Government, Religion, Agricultural, and Education

Table 10-27. Buildings in the Sea Level Rise +3- and +4-Foot Hazard Areas, by General Occupancy Class

	Sea Level Rise +3 Foot Hazard Area				Sea Level Rise +4 Foot Hazard Area			
	Residential	Commercial	Industrial	Other	Residential	Commercial	Industrial	Other
Avalon (B)	722	99	0	3	1,957	304	0	9
Cape May (C)	342	52	0	4	1,075	123	0	17
Cape May Point (B)	165	15	0	1	281	23	0	2
Dennis (T)	21	7	0	1	37	13	0	5
Lower (T)	565	245	0	16	1,191	490	0	40
Middle (T)	1,014	369	0	64	1,604	549	0	89
North Wildwood (C)	1,752	409	0	10	2,753	646	0	36
Ocean (C)	4,620	521	0	48	8,619	856	1	77
Sea Isle (C)	1,511	151	0	5	3,771	405	0	17
Stone Harbor (B)	644	80	0	1	1,363	173	0	5
Upper (T)	153	35	0	3	355	78	0	8
West Cape May (B)	181	27	0	6	347	68	0	8
West Wildwood (B)	760	115	0	10	779	119	0	11
Wildwood (C)	1,141	291	6	13	1,736	441	8	45
Wildwood Crest (B)	252	7	0	1	846	67	0	5
Woodbine (B)	0	0	0	0	0	0	0	0
Cape May County	**13,843**	**2,423**	**6**	**186**	**26,714**	**4,355**	**9**	**374**

Source: Cape May County 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township
Other = Government, Religion, Agricultural, and Education

Table 10-28 shows the total acres of land use type category in Cape May County (Residential Land Use, Non-Residential Land Use, Natural Land Use Type) that is exposed to the 1- or 0.2 percent annual chance flood hazard areas and the +1-, +2-, +3-, and +4-foot sea level rise hazard areas.

Table 10-28. Land Use Exposed to the FEMA-Mapped Flood and Predicted Sea Level Rise Hazard Areas

		Non-Residential Land Use		
	Residential Land Use	Total	Natural Areas	Total
Total County Area (acres)	**22,646**	**160,458**	**142,219**	**183,126**
1% Annual Chance Flood Hazard Area				
Area (acres)	6,871	87,216	81,986	94,087
% of Land Use Type Total	30.3%	54.4%	57.6%	51.4%
0.2% Annual Chance Flood Hazard Area				
Area (acres)	8,390	94,796	88,378	103,186
% of Land Use Type Total	37.0%	59.1%	62.1%	56.3%
1-Foot Sea Level Rise Flood Hazard Area				
Area (acres)	161	66,473	65,712	66,634
% of Land Use Type Total	0.7%	41.4%	46.2%	36.4%
2-Foot Sea Level Rise Flood Hazard Area				
Area (acres)	780	71,672	70,581	72,452
% of Land Use Type Total	3.4%	44.7%	49.6%	39.6%
3-Foot Sea Level Rise Flood Hazard Area				
Area (acres)	2,190	75,872	74,133	78,062
% of Land Use Type Total	9.7%	47.3%	52.1%	42.6%
4-Foot Sea Level Rise Flood Hazard Area				
Area (acres)	3,727	80,050	77,586	83,777
% of Land Use Type Total	16.5%	49.9%	54.6%	45.7%

Source: Cape May County 2024; NJDEP 2020; FEMA Preliminary/Effective DFIRMs 2014/2017; NOAA 2022

Flood Impacts on Buildings

Table 10-29 shows Hazus-estimated building losses by jurisdiction for the 1 percent annual chance flood (riverine). The countywide total is $27.8 million, or less than 0.1 percent of the total building replacement cost value. The City of Cape May has the greatest estimated building loss—$27 million (0.2 percent of the total replacement cost value).

Table 10-30 shows Hazus-estimated building losses by jurisdiction for the 1 percent annual chance flood (coastal). The countywide total is $424 million or 0.2 percent of the total building replacement cost value. The City of Ocean City has the greatest estimated building loss—$140 million (0.3 percent of the total replacement cost value).

Table 10-29. Estimated General Building Stock Potential Loss to the 1 Percent Annual Chance Flood (Riverine) Event

Jurisdiction	Total Replacement Cost Value	1 percent Annual Chance Flood (Riverine) Impacts on Buildings				
		Estimated Loss for All Occupancies	Percent of Total	Estimated Loss for Residential Properties	Estimated Loss for Commercial Properties	Estimated Loss for All Other Occupancies
Avalon (B)	$25,723,512,232	$0	<0.1%	$0	$0	$0
Cape May (C)	$16,203,622,284	$27,060,613	0.2%	$22,586,752	$4,400,817	$73,045
Cape May Point (B)	$1,686,539,666	$174,116	<0.1%	$173,901	$215	$0
Dennis (T)	$8,299,131,210	$0	0.0%	$0	$0	$0
Lower (T)	$22,775,836,898	$0	0.0%	$0	$0	$0
Middle (T)	$27,392,475,766	$13,477	<0.1%	$13,477	$0	$0
North Wildwood (C)	$11,753,681,214	$0	0.0%	$0	$0	$0
Ocean (C)	$44,649,077,467	$0	0.0%	$0	$0	$0
Sea Isle (C)	$23,896,778,328	$0	0.0%	$0	$0	$0
Stone Harbor (B)	$8,177,015,155	$0	0.0%	$0	$0	$0
Upper (T)	$14,864,714,357	$0	0.0%	$0	$0	$0
West Cape May (B)	$2,893,441,733	$649,607	<0.1%	$649,004	$603	$0
West Wildwood (B)	$1,064,788,340	$0	0.0%	$0	$0	$0
Wildwood (C)	$12,875,631,194	$0	0.0%	$0	$0	$0
Wildwood Crest (B)	$11,797,908,652	$0	0.0%	$0	$0	$0
Woodbine (B)	$3,249,453,892	$0	0.0%	$0	$0	$0
Cape May County	**$237,303,608,388**	**$27,897,813**	**<0.1%**	**$23,423,133**	**$4,401,635**	**$73,045**

Source: Hazus v6.1; Cape May County 2024; RS Means 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-30. Estimated General Building Stock Potential Loss to the 1 Percent Annual Chance Flood (Coastal) Event

Jurisdiction	Total Replacement Cost Value	1 percent Annual Chance Flood (Coastal) Impacts on Buildings				
		Estimated Loss for All Occupancies	Percent of Total	Estimated Loss for Residential Properties	Estimated Loss for Commercial Properties	Estimated Loss for All Other Occupancies
Avalon (B)	$25,723,512,232	$9,384,624	<0.1%	$8,884,664	$84,539	$415,421
Cape May (C)	$16,203,622,284	$0	0.0%	$0	$0	$0
Cape May Point (B)	$1,686,539,666	$0	0.0%	$0	$0	$0
Dennis (T)	$8,299,131,210	$3,930,976	<0.1%	$3,930,976	$0	$0
Lower (T)	$22,775,836,898	$19,741,396	0.1%	$14,555,410	$5,048,344	$137,643
Middle (T)	$27,392,475,766	$30,365,979	0.1%	$28,638,454	$1,577,919	$149,607
North Wildwood (C)	$11,753,681,214	$27,073,954	0.2%	$14,433,685	$9,424,390	$3,215,879
Ocean (C)	$44,649,077,467	$140,839,074	0.3%	$129,396,698	$9,702,737	$1,739,640
Sea Isle (C)	$23,896,778,328	$39,490,938	0.2%	$38,849,076	$633,909	$7,954
Stone Harbor (B)	$8,177,015,155	$10,766,913	0.1%	$10,654,959	$111,954	$0
Upper (T)	$14,864,714,357	$17,867,372	0.1%	$13,672,478	$2,233,182	$1,961,712
West Cape May (B)	$2,893,441,733	$0	0.0%	$0	$0	$0
West Wildwood (B)	$1,064,788,340	$61,179,985	5.7%	$58,095,784	$1,777,082	$1,307,119
Wildwood (C)	$12,875,631,194	$62,944,168	0.5%	$29,564,755	$12,056,629	$21,322,785
Wildwood Crest (B)	$11,797,908,652	$487,507	<0.1%	$487,507	$0	$0
Woodbine (B)	$3,249,453,892	$0	0.0%	$0	$0	$0
Cape May County	**$237,303,608,388**	**$424,072,887**	**0.2%**	**$351,164,445**	**$42,650,684**	**$30,257,758**

Source: Hazus v6.1; Cape May County 2024; RS Means 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

NFIP Statistics

Participating in the NFIP is voluntary. Communities that choose to participate agree to adopt and implement local floodplain management regulations that protect lives and reduce risk from future flooding. In return, the federal government makes flood insurance available to property owners throughout the community. To join, a community must complete an application; adopt a resolution of intent to participate and cooperate with FEMA; and adopt and submit a floodplain management ordinance that meets or exceeds the minimum NFIP criteria. The ordinance must adopt any FEMA-approved flood mapping for the community (FEMA 2020, FEMA 2022).

To inform this risk assessment, FEMA provided a list of residential properties with NFIP policies, past claims, and multiple claims (repetitive loss [RL] properties). Properties with multiple claims are defined as repetitive loss (RL) properties or severe repetitive loss (SRL) properties, based on definitions from two FEMA programs as follows:

- The NFIP defines RL properties as structures that meet either of the following qualifiers:
  - Two or more claims of more than $1,000 paid by NFIP within any rolling 10-year period since 1978
  - Two or more claims (building payments only) that, on average, equal or exceed 25 percent of the current value of the property
- FEMA's Flood Mitigation Assistance (FMA) grant program defines RL properties as structures covered by a contract for flood insurance made available under the NFIP that meet both of the following qualifiers:
  - 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 flood event
  - At the time of the second incidence of flood-related damage, the contract for flood insurance contained increased cost of compliance coverage.
- The NFIP defines SRL properties as residential properties covered under an NFIP flood insurance policy that satisfy the third condition below and either of the first two:
  - Four or more separate claim payments for the property (including building and contents) over $5,000 each have occurred, and the cumulative amount of such claims payments exceeded $20,000.
  - At least two separate claims payments for the property (building payments only) have occurred, and the cumulative amount of the building portion of such claims exceeded the current value of the property.
  - For either of the above, at least two of the referenced claims must have occurred within any 10-year- period and must have occurred more than 10 days apart.
- The FMA defines SRL properties as structures covered by a contract for flood insurance that meet one of two qualifiers:
  - Four or separate claims payments (includes building and contents) have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000.
  - At least two separate claim payments (includes only building) have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structured.

Table 10-31 summarizes NFIP claims, payments, and repetitive loss (RL) and severe repetitive loss (SRL) statistics for Cape May County. Table 10-32 further details the RL and SRL properties by occupancy class.

Table 10-31. NFIP Claims, Payments, and Repetitive Loss Statistics for Cape May County

Jurisdiction	Total Claims	Total Payments	Number of NFIP RL Properties	Number of FMA RL Properties	Number of NFIP SRL Properties	Number of FMA SRL Properties
Avalon (B)	745	$15,793,038.46	106	5	17	33
Cape May (C)	441	$5,773,051.77	61	0	6	10
Cape May Point (B)	43	$333,147.05	8	0	0	0
Dennis (T)	4	$969,216.22	2	0	0	0
Lower (T)	72	$3,038,325.72	7	1	3	4
Middle (T)	368	$5,222,015.86	75	2	13	15
North Wildwood (C)	2,055	$31,962,755.43	542	18	86	97
Ocean (C)	2,808	$72,025,255.46	535	11	52	74
Sea Isle (C)	1,153	$23,216,000.01	194	9	27	61
Stone Harbor (B)	724	$14,898,473.53	124	2	24	40
Upper (T)	176	$5,076,431.66	31	1	6	8
West Cape May (B)	50	$361,541.68	15	0	1	2
West Wildwood (B)	1,599	$24,055,797.36	315	24	97	119
Wildwood (C)	1,168	$22,507,049.74	236	11	59	78
Wildwood Crest (B)	127	$2,114,999.49	24	0	3	3
Woodbine (B)[a]	N/A	N/A	N/A	N/A	N/A	N/A
Cape May County	**11,533**	**$227,347,099.44**	**2,275**	**84**	**394**	**544**

Source: FEMA 2024
Note: (B) Borough; (C) City; (T) Township
a. Information for the Borough of Woodbine was not provided in the data from FEMA

Table 10-32. Summary of Repetitive Loss Properties by Jurisdiction

Jurisdiction	NFIP Repetitive Loss Properties					NFIP Severe Repetitive Loss Properties				
	Single Family	2-4 Family	Business	Other Residential	Other Non-Residential	Single Family	2-4 Family	Business	Other Residential	Other Non-Residential
Avalon (B)	55	17	17	2	15	5	1	8	1	2
Cape May (C)	33	5	0	4	19	1	0	0	0	5
Cape May Point (B)	6	2	0	0	0	0	0	0	0	0
Dennis (T)	1	0	1	0	0	0	0	0	0	0
Lower (T)	3	0	3	0	1	0	0	2	0	1
Middle (T)	73	1	0	0	1	12	1	0	0	0
North Wildwood (C)	291	155	24	18	54	41	23	8	5	9
Ocean (C)	217	194	22	64	38	30	8	6	4	4
Sea Isle (C)	45	95	16	23	15	3	10	6	5	3
Stone Harbor (B)	61	16	20	7	20	5	5	7	2	5
Upper (T)	21	7	2	0	1	4	1	1	0	0
West Cape May (B)	12	2	1	0	0	75	1	0	0	0
West Wildwood (B)	251	55	1	1	7	0	21	0	0	1
Wildwood (C)	132	61	12	9	22	28	21	4	1	5
Wildwood Crest (B)	13	6	2	2	1	1	2	0	0	0
Woodbine (B)[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cape May County	**1,214**	**616**	**121**	**130**	**194**	**205**	**94**	**42**	**18**	**35**

Source: FEMA 2024
Note: (B) Borough; (C) City; (T) Township
a. Information for the Borough of Woodbine was not provided in the data from FEMA

10.2.3 Community Lifelines and Other Critical Facilities

Critical services during and after a flood event may not be available if critical facilities are directly damaged or transportation routes to access these critical facilities are impacted. Roads that are blocked or damaged can isolate residents and can prevent access throughout the planning area to many service providers needing to get to vulnerable populations or to make repairs. Utilities such as overhead power, cable, and phone lines could also be vulnerable due to utility poles damaged by standing water or the surge of water from a dam failure event. Loss of these utilities could create additional isolation issues.

In cases where short-term functionality is impacted by flooding, other facilities of neighboring municipalities may need to increase support response functions during a disaster event. Mitigation planning should consider means to reduce flood impacts to critical facilities and ensure sufficient emergency and school services remain when a significant event occurs.

The number of community lifelines in each jurisdiction exposed to the various mapped flood hazard areas is presented in Table 10-33 through Table 10-39. For each flood hazard, the category with the greatest number of exposed critical facilities is “other critical facilities.” The percentage of all County critical facilities exposed to each flood hazard is shown in Figure 10-10.

Figure 10-10. % Exposure of County Critical Facilities to the Mapped Flood Hazard Areas

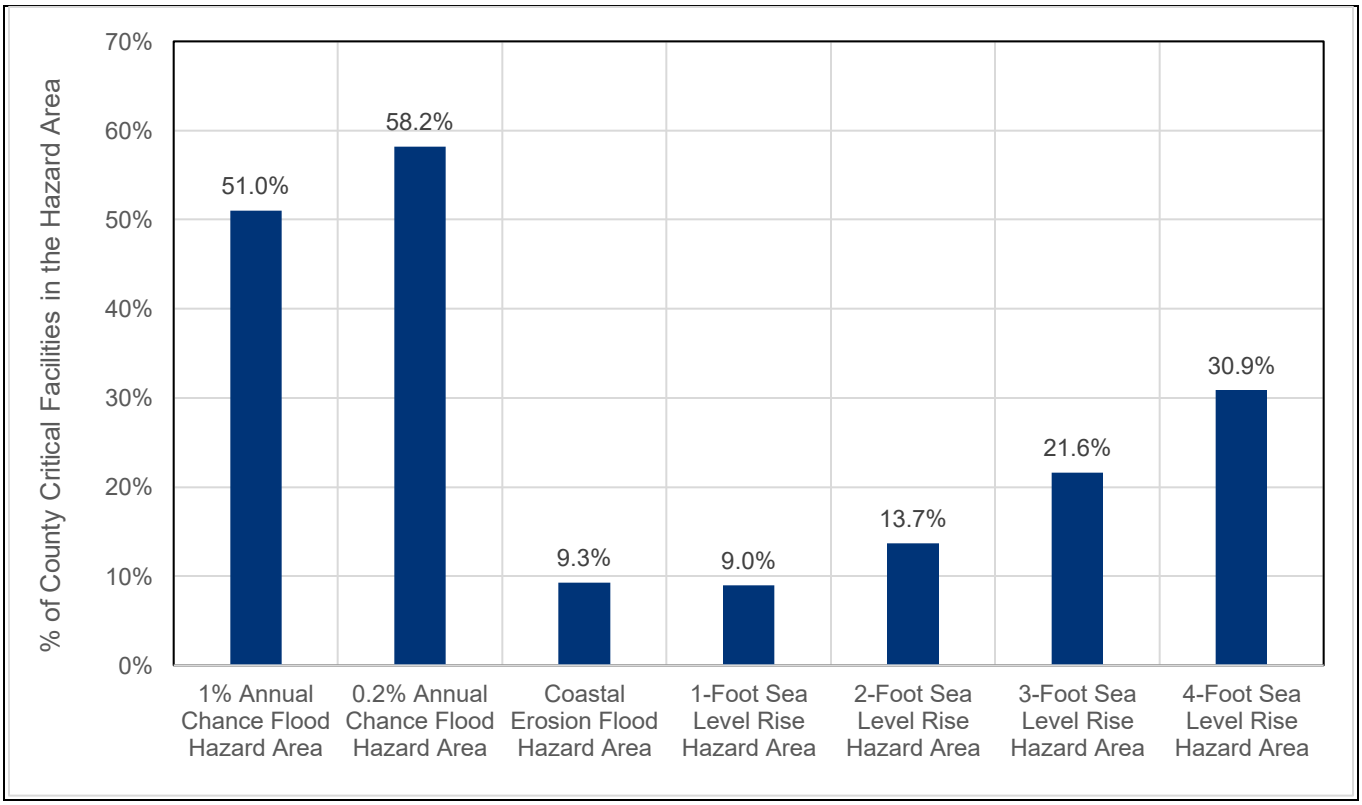


Table 10-33. Number of Facilities in the 1 Percent Annual Chance Flood Hazard Area, by Lifeline Category

Jurisdiction	Number of Facilities in the 1- Percent Annual Chance Flood Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	1	0	0	0	1	6	3	12	7	30	93.8%
Cape May (C)	0	0	0	1	1	2	0	10	5	19	45.2%
Cape May Point (B)	0	0	0	0	0	2	0	3	1	6	60.0%
Dennis (T)	3	0	0	0	0	2	2	1	2	10	17.2%
Lower (T)	0	0	2	1	0	1	4	20	17	45	36.9%
Middle (T)	2	0	0	1	0	7	9	7	11	37	24.0%
North Wildwood (C)	6	0	1	0	3	13	0	4	8	35	100.0%
Ocean (C)	1	0	0	3	8	10	6	16	29	73	94.8%
Sea Isle (C)	0	0	0	1	2	5	1	11	9	29	100.0%
Stone Harbor (B)	5	0	0	0	0	2	1	6	5	19	73.1%
Upper (T)	1	0	0	0	0	5	7	2	6	21	29.2%
West Cape May (B)	0	0	0	0	1	0	1	0	0	2	28.6%
West Wildwood (B)	0	0	0	0	0	2	0	1	6	9	90.0%
Wildwood (C)	0	1	2	2	7	10	2	6	15	45	100.0%
Wildwood Crest (B)	8	0	0	0	1	1	0	2	4	16	55.2%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**27**	**1**	**5**	**9**	**24**	**68**	**36**	**101**	**125**	**396**	**51.0%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-34. Number of Facilities in the 0.2 Percent Annual Chance Flood Hazard Area, by Lifeline Category

Jurisdiction	Number of Facilities in the 0.2- Percent Annual Chance Flood Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	1	0	0	0	1	6	3	12	9	32	100.0%
Cape May (C)	0	0	0	3	2	4	0	10	7	26	61.9%
Cape May Point (B)	0	0	0	0	0	3	0	5	1	9	90.0%
Dennis (T)	3	0	0	0	1	4	2	1	2	13	22.4%
Lower (T)	0	0	2	1	0	1	4	24	17	49	40.2%
Middle (T)	3	0	0	2	0	11	9	10	11	46	29.9%
North Wildwood (C)	6	0	1	0	3	13	0	4	8	35	100.0%
Ocean (C)	2	0	0	3	8	11	6	16	31	77	100.0%
Sea Isle (C)	0	0	0	1	2	5	1	11	9	29	100.0%
Stone Harbor (B)	5	0	0	0	1	5	1	7	7	26	100.0%
Upper (T)	1	0	0	2	0	5	7	3	6	24	33.3%
West Cape May (B)	0	0	0	0	1	0	1	0	0	2	28.6%
West Wildwood (B)	0	0	0	0	0	3	0	1	6	10	100.0%
Wildwood (C)	0	1	2	2	7	10	2	6	15	45	100.0%
Wildwood Crest (B)	14	0	0	0	1	4	0	2	8	29	100.0%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**35**	**1**	**5**	**14**	**27**	**85**	**36**	**112**	**137**	**452**	**58.2%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-35. Number of Facilities in the Coastal Erosion Hazard Area, by Lifeline Category

Jurisdiction	Number of Facilities in the Coastal Erosion Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	0	0	0	0	0	0	0	1	2	3	9.4%
Cape May (C)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May Point (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Dennis (T)	1	0	0	0	0	0	2	0	0	3	5.2%
Lower (T)	0	0	0	0	0	0	0	2	14	16	13.1%
Middle (T)	1	0	0	0	0	0	7	1	8	17	11.0%
North Wildwood (C)	0	0	1	0	0	1	0	0	0	2	5.7%
Ocean (C)	0	0	0	1	0	0	2	3	5	11	14.3%
Sea Isle (C)	0	0	0	0	0	0	1	0	3	4	13.8%
Stone Harbor (B)	0	0	0	0	0	0	0	0	1	1	3.8%
Upper (T)	0	0	0	0	0	0	4	0	3	7	9.7%
West Cape May (B)	0	0	0	0	0	0	0	0	0	0	0.0%
West Wildwood (B)	0	0	0	0	0	0	0	0	3	3	30.0%
Wildwood (C)	0	0	0	1	0	0	0	0	3	4	8.9%
Wildwood Crest (B)	0	0	0	0	0	0	0	0	1	1	3.4%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**2**	**0**	**1**	**2**	**0**	**1**	**16**	**7**	**43**	**72**	**9.3%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; FEMA Preliminary/Effective DFIRMs, LiMWA Lines 2014/2017
Note: (B) Borough; (C) City; (T) Township

Table 10-36. Number of Facilities in the Sea Level Rise +1-Foot, by Lifeline Category

Jurisdiction	Number of Facilities in the Sea Level Rise +1-Foot Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	0	0	0	0	0	0	3	0	2	5	15.6%
Cape May (C)	0	0	0	0	0	2	0	4	1	7	16.7%
Cape May Point (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Dennis (T)	1	0	0	0	0	0	2	0	0	3	5.2%
Lower (T)	0	0	0	0	0	0	3	0	9	12	9.8%
Middle (T)	0	0	0	0	0	0	9	1	6	16	10.4%
North Wildwood (C)	0	0	0	0	0	0	0	0	0	0	0.0%
Ocean (C)	0	0	0	0	0	0	1	2	4	7	9.1%
Sea Isle (C)	0	0	0	0	0	0	1	1	1	3	10.3%
Stone Harbor (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Upper (T)	0	0	0	0	0	0	5	0	3	8	11.1%
West Cape May (B)	0	0	0	0	0	0	1	0	0	1	14.3%
West Wildwood (B)	0	0	0	0	0	0	0	0	5	5	50.0%
Wildwood (C)	0	0	0	0	0	0	0	1	1	2	4.4%
Wildwood Crest (B)	0	0	0	0	0	0	0	0	1	1	3.4%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**1**	**0**	**0**	**0**	**0**	**2**	**25**	**9**	**33**	**70**	**9.0%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-37. Number of Facilities in the Sea Level Rise +2-Foot, by Lifeline Category

Jurisdiction	Number of Facilities in the Sea Level Rise +2-Foot Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	0	0	0	0	0	0	3	4	2	9	28.1%
Cape May (C)	0	0	0	0	0	2	0	4	1	7	16.7%
Cape May Point (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Dennis (T)	1	0	0	0	0	0	2	0	0	3	5.2%
Lower (T)	0	0	0	0	0	0	3	2	12	17	13.9%
Middle (T)	0	0	0	0	0	0	9	1	7	17	11.0%
North Wildwood (C)	1	0	0	0	0	0	0	1	1	3	8.6%
Ocean (C)	0	0	0	2	1	0	2	8	7	20	26.0%
Sea Isle (C)	0	0	0	0	0	0	1	3	1	5	17.2%
Stone Harbor (B)	0	0	0	0	0	0	0	0	2	2	7.7%
Upper (T)	0	0	0	0	0	0	5	1	3	9	12.5%
West Cape May (B)	0	0	0	0	0	0	1	0	0	1	14.3%
West Wildwood (B)	0	0	0	0	0	2	0	0	6	8	80.0%
Wildwood (C)	0	0	0	0	1	0	1	1	1	4	8.9%
Wildwood Crest (B)	0	0	0	0	0	0	0	0	1	1	3.4%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**2**	**0**	**0**	**2**	**2**	**4**	**27**	**25**	**44**	**106**	**13.7%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-38. Number of Facilities in the Sea Level Rise +3-Foot, by Lifeline Category

Jurisdiction	Number of Facilities in the Sea Level Rise +3-Foot Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	0	0	0	0	0	1	3	6	3	13	40.6%
Cape May (C)	0	0	0	0	0	2	0	6	1	9	21.4%
Cape May Point (B)	0	0	0	0	0	0	0	1	0	1	10.0%
Dennis (T)	1	0	0	0	0	0	2	0	0	3	5.2%
Lower (T)	0	0	0	0	0	0	3	8	13	24	19.7%
Middle (T)	1	0	0	0	0	0	9	2	11	23	14.9%
North Wildwood (C)	1	0	0	0	0	2	0	1	3	7	20.0%
Ocean (C)	0	0	0	3	4	1	4	13	13	38	49.4%
Sea Isle (C)	0	0	0	1	1	0	1	5	3	11	37.9%
Stone Harbor (B)	2	0	0	0	0	0	1	1	4	8	30.8%
Upper (T)	0	0	0	0	0	0	5	1	5	11	15.3%
West Cape May (B)	0	0	0	0	0	0	1	0	0	1	14.3%
West Wildwood (B)	0	0	0	0	0	2	0	0	6	8	80.0%
Wildwood (C)	0	1	0	0	1	0	1	3	3	9	20.0%
Wildwood Crest (B)	1	0	0	0	0	0	0	0	1	2	6.9%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**6**	**1**	**0**	**4**	**6**	**8**	**30**	**47**	**66**	**168**	**21.6%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Table 10-39. Number of Facilities in the Sea Level Rise +4-Foot, by Lifeline Category

Jurisdiction	Number of Facilities in the Sea Level Rise +4-Foot Hazard Area, by Lifeline Category									Total Facilities in Hazard Area	
	Communications	Energy	Food, Hydration, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Water Systems	Other Critical Facilities	Count	% of Total
Avalon (B)	1	0	0	0	0	2	3	10	4	20	62.5%
Cape May (C)	0	0	0	0	0	2	0	8	1	11	26.2%
Cape May Point (B)	0	0	0	0	0	1	0	1	1	3	30.0%
Dennis (T)	2	0	0	0	0	0	2	0	1	5	8.6%
Lower (T)	0	0	1	1	0	0	3	11	14	30	24.6%
Middle (T)	2	0	0	0	0	1	9	3	11	26	16.9%
North Wildwood (C)	2	0	0	0	3	6	0	2	6	19	54.3%
Ocean (C)	0	0	0	3	6	4	4	14	21	52	67.5%
Sea Isle (C)	0	0	0	1	1	3	1	8	7	21	72.4%
Stone Harbor (B)	2	0	0	0	0	1	1	4	4	12	46.2%
Upper (T)	0	0	0	0	0	1	5	1	6	13	18.1%
West Cape May (B)	0	0	0	0	1	0	1	0	0	2	28.6%
West Wildwood (B)	0	0	0	0	0	2	0	0	6	8	80.0%
Wildwood (C)	0	1	0	0	1	1	1	4	6	14	31.1%
Wildwood Crest (B)	2	0	0	0	0	0	0	1	1	4	13.8%
Woodbine (B)	0	0	0	0	0	0	0	0	0	0	0.0%
Cape May County	**11**	**1**	**1**	**5**	**12**	**24**	**30**	**67**	**89**	**240**	**30.9%**

Source: Cape May County 2022,2024; HIFLD 2024; USACE 2024; NOAA 2022
Note: (B) Borough; (C) City; (T) Township

Flooding, coastal erosion, and sea level rise can all severely impact roads and roadway infrastructure, which are included in the transportation lifeline. Table 10-40 shows the total miles of evacuation routes within the County that are exposed to the flood-related hazard areas evaluated for this risk assessment.

Table 10-40. Evacuation Routes Exposed to the 1- and 0.2- Percent Annual Chance Flood Hazard Areas

Hazard Area Type	Total Miles of Evacuation Routes Exposed	Percent of Total
Cape May County Total	**224**	**100%**
1 percent Annual Chance of Flood	81	36.4%
0.2 percent Annual Chance of Flood	101	45.0%
Coastal Erosion	15	6.6%
Sea Level Rise + 1 foot	3	1.5%
Sea Level Rise + 2 foot	8	3.4%
Sea Level Rise + 3 foot	23	10.3%
Sea Level Rise + 4 foot	36	16.1%

Source: Cape May County 2024; FEMA Preliminary/Effective DFIRMs 2014/2017; LiMWA Lines 2014/2017; NOAA 2022

10.2.4 Economy

Flood events can significantly impact the local and regional economy. This includes but is not limited to general building stock damage and associated tax loss, impacts on utilities and infrastructure, business interruption, impacts on tourism, and impacts on the Cape May County tax base. In areas that are directly flooded, renovations of commercial and industrial buildings may be necessary, disrupting associated services. Other economic components such as loss of facility use, functional downtime and socio-economic factors are less measurable with a high degree of certainty.

Debris management can be costly and impact the local economy. Hazus estimated the debris produced as result of the 1 percent annual chance flood (riverine and coastal), as listed in Table 10-41. The estimates do not include debris generated by wind, so this is likely a conservative estimate and could be higher if multiple impacts occur. For all events, debris production from finish materials is the greatest, with the riverine flood creating 21,727 tons, and coastal flood creating 421,116 tons.

10.2.5 Natural Resources

Flood events will impact Cape May County's natural and local environment. The environmental impacts of a flood can include significant water quality and debris-disposal issues. Unsecured containers of oil, fertilizers, pesticides, and other chemicals can add their contents to the floodwaters, releasing hazardous materials that may be widely distributed across the floodplain. Severe erosion is also likely, which can negatively impact local ecosystems. The erosion of sediment can deteriorate riverbanks, causing additional flooding impacts in areas that might not have otherwise experienced such conditions.

Parks and recreational areas, although often located near waterways and designed with flooding in mind, are also vulnerable. Flood events can lead to closures of parks, recreation, and community spaces, disrupting residents' lives and hindering access to critical community services.

Table 10-41. Debris Production for the 1 Percent Annual Chance Flood (Riverine, Coastal) Events

Jurisdiction	Total (tons)		Finish (tons)		Structure (tons)		Foundation (tons)	
	Riverine	Coastal	Riverine	Coastal	Riverine	Coastal	Riverine	Coastal
Avalon (B)	3	67,442	3	44,531	0	13,198	0	9,712
Cape May (C)	24,228	5,023	18,259	1,180	3,583	2,263	2,386	1,580
Cape May Point (B)	1,771	6	1,754	6	10	0	7	0
Dennis (T)	33	905	19	569	9	205	5	131
Lower (T)	1	16,498	1	10,410	0	3,274	0	2,814
Middle (T)	105	35,423	34	20,199	26	9,105	45	6,119
North Wildwood (C)	0	58,103	0	43,548	0	8,992	0	5,563
Ocean (C)	0	192,456	0	137,174	0	32,815	0	22,467
Sea Isle (C)	0	103,237	0	83,764	0	11,204	0	8,268
Stone Harbor (B)	0	18,214	0	14,475	0	2,242	0	1,497
Upper (T)	1	23,866	1	10,704	0	8,024	0	5,137
West Cape May (B)	1,783	1	1,651	1	80	0	51	0
West Wildwood (B)	0	25,837	0	9,895	0	9,758	0	6,183
Wildwood (C)	0	36,273	0	31,741	0	2,730	0	1,801
Wildwood Crest (B)	4	14,958	4	12,919	0	1,228	0	811
Woodbine (B)	<1	0	<1	0	0	0	0	0
Cape May County	**27,929**	**598,240**	**21,727**	**421,116**	**3,707**	**105,040**	**2,495**	**72,084**

Source: Hazus v6.1; Cape May County 2024; FEMA Preliminary/Effective DFIRMs 2014/2017
Note: (B) Borough; (C) City; (T) Township

Severe coastal erosion can lead to the destruction of current ecosystems. However, the destruction of one ecosystem leads to the creation of a different ecosystem (i.e., dune systems convert to sand flats or overwash fans). Negative overall impacts on the environment occur when coastal erosion eliminates critical habitat that is unlikely to be restored over time. Elimination of critical habitat is more likely to occur when shore-parallel structures like seawalls obstruct the natural evolution of shoreline ecosystems.

New Jersey's Wetlands Act of 1970 provides regulations to safeguard coastal and flood-prone areas. The Wetlands Act of 1970 (NJDEP 2016):

- Requires the creation of maps showing the boundaries of all tidal wetlands within New Jersey
- Regulates activities such as dredging, filling, removing, or altering wetlands, requiring permits for these actions
- Aims to preserve the ecological balance of wetlands and prevent their deterioration and destruction
- Protects public and private property, wildlife, and marine fisheries from adverse impacts
- Grants the NJDEP commissioner authority to adopt, amend, modify, or repeal orders regulating coastal wetlands
- Defines coastal wetlands as any bank, marsh, swamp, meadow, flat, or other low land subject to tidal action

10.2.6 Historic and Cultural Resources

Historic and cultural resources, such as historic places, community facilities, and religious institutions, are all vulnerable to impacts from flooding because they often are not built to modern building code requirements, including design flood elevation and construction standards. Historic resources and structures were often built closely to waterways, increasing their flood risk. Flood events affecting the County could bring devastating loss of life and property to the area in and around historical landmarks.

Additionally, historic buildings subject to landmark laws can pose challenges in restoring buildings to their pre-flood status. These laws often require adherence to strict preservation standards, which can complicate and prolong the recovery process. Ensuring that repairs and restorations meet these standards can be costly and time-consuming, further delaying the return of these important structures to their original condition.

Historic and cultural facilities often serve multiple functions, acting as communal spaces for different groups, which makes their loss particularly impactful. Flood events can lead to closures of these vital community spaces, disrupting residents' lives and hindering access to critical services. The unique role these cultural facilities play in fostering community cohesion and providing essential services makes their preservation crucial. If severely damaged or destroyed by a flood, these cultural resources are difficult to recreate, leading to a profound loss for the community.

10.3 FUTURE CHANGES THAT MAY AFFECT RISK

As Cape May County communities grow, flood events may increase in frequency and severity due to land use changes, the construction of more structures, and the expansion of impervious surfaces. Additionally, the flood extents for the 1 percent and 0.2 percent annual flood events will continue to evolve alongside natural occurrences such as climate change and the increasing severity of storms.

10.3.1 Potential or Planned Development

Areas of recent and new development are indicated in the jurisdictional annexes in Volume II of this HMP. New development changes the landscape, where buildings, roads, and other infrastructure potentially replace open land and vegetation. This transformation of pervious surfaces (including vegetation) to impervious surfaces increases runoff and the potential for flooding.

The ability of new development to withstand flooding can be enhanced through land use practices and consistent enforcement of codes and regulations for new construction. Proper implementation of green infrastructure can help mitigate these effects by promoting natural water absorption and reducing the risk of flood events.

Cape May County has already begun mitigation projects to help reduce the future impacts that sea level rise will have on future development. The New Jersey State Hazard Mitigation Plan lists several projects that have been proposed, are ongoing, or have been complete in Cape May County, such as beach nourishment projects, inlet flood reduction projects, and coastal habitat restoration and protection projects.

10.3.2 Projected Changes in Population

Changes in population density can significantly alter the ability of residents in the County to mobilize or receive essential services during severe flood events, as there could be a decrease in emergency response staff to provide services which can overwhelm infrastructure and emergency response systems. The County has a highly variable seasonal population that is estimated to be an eight-fold increase from its year-round population. These population increases are most noticeable in barrier island communities such as Ocean City. Increases in seasonal population will increase the overall number of persons at risk to future impacts.

10.3.3 Climate Change

Most studies project that the State of New Jersey will see an increase in average annual temperatures and precipitation. Annual precipitation amounts in the region are projected to increase primarily in the form of heavy rainfalls, which have the potential to increase the risk of flash flooding and riverine flooding and flood critical transportation corridors and infrastructure. Increases in precipitation may alter and expand the floodplain boundaries and runoff patterns, resulting in the exposure of populations, buildings, and critical facilities and infrastructure that were previously outside the floodplain. This increase in exposure would result in an increased risk to life and health, an increase in structural losses, a diversion of additional resources to response and recovery efforts, and an increase in business closures affected by future flooding events due to loss of service or access.

Impacts of climate change can lead to shoreline erosion, coastal flooding, and water pollution, affecting man-made coastal infrastructure and coastal ecosystems. Coastal areas may be impacted by climate change in different ways. Coastal areas are sensitive to sea level rise, changes in the frequency and intensity of storms, increase in precipitation, and warmer ocean temperatures. Additionally, oceans are absorbing more carbon dioxide from the rising atmospheric concentrations of the gas, resulting in oceans becoming more acidic. This could have significant impacts on coastal and marine ecosystems. As the coastline recedes inland as a result of climate change and sea level rise, the County's vulnerability to other hazards, including hurricanes and coastal erosion, may increase.

Based on projections provided in the New Jersey 2024 State Hazard Mitigation Plan, climate change may exacerbate the effects of sea level rise in the state. Persons that are living in the projected inundation areas caused by future sea level rise may experience greater risk due to the fluctuations in climate and areas bordering inundation areas may be at higher risk to flooding events (NJOEM 2024).