Resilience. Action. Plan.

Upper Township, Cape May County

Prepared: December 19, 2023

Colliers Engineering & Design

UPPER TOWNSHIP 1798

Acknowledgments

This work was made possible with financial assistance from the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management, National Oceanic and Atmospheric Administration (NOAA) through the New Jersey Department of Environmental Protection, Coastal Management Program.

The environmental assessments, data, and actions in this plan do not represent guidance or policy of the New Jersey Department of Environmental Protection or the National Oceanic and Atmospheric Administration and does not replace the need for regulatory review by the appropriate local, state, and federal agencies.

The Township of Upper provided additional financial assistance to supplement the public engagement used to inform and develop this report.

RESILIENT NJ

Note: Unless otherwise noted, all aerial imagery is of Upper Township, source: Nearmap.
All photos were taken by Colliers Engineering & Design.

CONTENTS

Introduction

In 2023, Upper Township, in coordination with New Jersey Department of Environmental Protection (NJDEP) prepared a Climate Change-Related Hazard Vulnerability Assessment report identifying the environmental threats that Upper Township may be expected to face in coming years. The Assessment reviews potential impacts to physical assets of the community such as structures, infrastructure and utilities; natural system assets; and socio-economic assets associated with residents and businesses with particular emphasis on addressing environmental justice, at risk neighborhoods and vulnerable populations, where applicable.

The Assessment considered geography, land use, and other local factors to determine which hazards are most critical to the township, ultimately determining that increased temperatures, droughts, wildfire, precipitation and flooding, hurricanes, and sea level rise as the most pressing threats.

This Action Plan takes these six threats and provides recommended, specific actions to mitigate or eliminate the potential damages of each.

Above Photo: Strathmere Bay

Municipal Land Use Law (MLUL)

The Municipal Land Use Law (MLUL) instructs planning boards to prepare and adopt master plans and components thereof to "guide the use of lands within the municipality in a matter which protects public health and safety and promotes the general welfare." In 2021, a requirement was added (40:55D-28.b(2(h))), mandating that all land use plan elements include a climate change-related hazard vulnerability assessment which would do the following:

(i) analyze current and future threats to, and vulnerabilities of, the municipality associated with climate change-related natural hazards, including, but not limited to increased temperatures, drought, flooding, hurricanes, and sea-level rise;

(ii) include a build-out analysis of future residential, commercial, industrial, and other development in the municipality, and an assessment of the threats and vulnerabilities identified in subsubparagraph (i) of this subparagraph related to that development;

(iii) identify critical facilities, utilities, roadways, and other infrastructure that is necessary for evacuation purposes and for sustaining quality of life during a natural disaster, to be maintained at all times in an operational state;

(iv) analyze the potential impact of natural hazards on relevant components and elements of the master plan;

(v) provide strategies and design standards that may be implemented to reduce or avoid risks associated with natural hazards;

(vi) include a specific policy statement on the consistency, coordination, and integration of the climate-change related hazard vulnerability assessment with any existing or proposed natural hazard mitigation plan, floodplain management plan, comprehensive emergency management plan, emergency response plan, post-disaster recovery plan, or capital improvement plan; and

(vii) rely on the most recent natural hazard projections and best available science provided by the New Jersey Department of Environmental Protection.

This report addresses the fifth requirement therein: "provide strategies and design standards that may be implemented to reduce or avoid risks associated with natural hazards."

State Climate Resilience Priorities

In 2019, Governor Phil Murphy signed Executive Order 89 establishing the Interagency Council on Climate Resilience, creating an interagency council of seventeen agencies with responsibilities for maintaining the physical, environmental, and economic health of New Jersey's precious resources and communities. The executive order also created the position of the Chief Resilience Officer for New Jersey and charged this position with delivering the state's first Climate Change Resilience Strategy and Coastal Resilience Plan.

The Climate Change Resilience Strategy was adopted in 2021. Six resilience priority are established therein, and are used to inform this municipal document to ensure that local actions align with state-wide priorities. These priorities, along with strategies, are as follows:

1. Build Resilient and Healthy Communities
    - 1.1 Integrate Resilience into Local and Regional Planning
    - 1.2 Increase Technical Assistance Programs to Address Community Resilience
    - 1.3 Modify Regulatory Programs to Address Climate Change Impacts and Encourage Adaptation Over Time
    - 1.4 Decrease Vulnerability of Existing Infrastructure and Development
    - 1.5 Incentivize Sustainable Growth and Redevelopment that Incorporates Resilience and Relocation to Safer Places
    - 1.6 Integrate Public Health into Community Resilience Planning and Activities
2. Strengthen The Resilience Of New Jersey's Ecosystems
    - 2.1 Promote Resource Conservation and Natural Lands Management to Strengthen Ecological Resilience
    - 2.2 Manage Agricultural Lands, Forests, and Other Ecosystems for Climate Impacts and Environmental Stressors
    - 2.3 Deploy Natural and Nature-based Solutions for Resilience
3. Promote Coordinated Governance
    - 3.1 Ensure Continuing Efforts by the Interagency Council on Climate Resilience to Lead a Coordinated, Whole-of-government Approach to Resilience
    - 3.2 Actively Engage Local Governments and Other Partners to Develop Resilience Solutions
    - 3.3 Incorporate Equity and Inclusion in Resilience Decision-making
4. Invest In Information and Increase Public Understanding
    - 4.1 Expand Public Communication

Left Photo: Ocean access from Strathmere

Right Photo: Ocean access from Strathmere

Vulnerability Assessment Summary

The Upper Township Climate Change-Related Hazard Vulnerability Assessment used prior studies and public input to inform the conclusions drawn therein. As discussed above, the Assessment focused on the hazards deemed to be most critical to the township: increased temperatures, droughts, wildfire, precipitation and flooding, hurricanes, and sea level rise as the most pressing threats. The impact that each hazard would have on critical facilities, natural resources, and vulnerable populations during an emergency was considered, as well as the impact that climate emergencies could have on the future development of the community.

Above Photo: View of Garden State Parkway from Beesley's Point Park

Critical Facilities and Infrastructure

Hazards will impact critical facilities as follows:

- Increased temperatures: Bulking of pavement, misalignment of rail lines, increased demands on the electrical grid
- Drought: No direct impact, though secondary impacts from saltwater intrusion of wells and overall water capacity.
- Wildfire: Eight critical facilities are noted as being in high, very high, or extreme fuel hazard areas.[1]
- Flood: Evacuation routes and critical facilities throughout the township are located in flood prone areas, including but not limited to dams, an energy generation site, a communication facility, two electric sub-stations, and an evacuation shelter.[2]
- Hurricane: Numerous critical facilities and lifelines are at risk with hurricanes. Depending on the force of the hurricane, as few as 9 critical facilities may be at risk (Category 1) or as many as 42 (Category 4).[3]
- Sea Level Rise: 7 facilities are exposed at 1 foot of sea level rise, 9 are exposed at 2 feet, 10 are exposed at 3 feet, and 13 are exposed at 4 feet.[4]

Natural Resources

Upper Township has significant forests and wetlands (73 percent of township), along with water, tidal marshes, beaches and dunes, and agricultural land, all of which will be affected by climate change.

Hazards will impact natural resources as follows:

- Extreme temperatures, Drought, Wildfire: Plant hardiness and heat zones will shift based on the number of days with temperatures over 86 degrees Fahrenheit. As temperatures increase and the growing season lengthens, there will be greater demand for water for

irrigation use, putting more stress on the water supply and increased risk of wildfire. Habitat disruption will lead to the loss of forest ecosystems, including plant and animal species, and impact the carbon balance. Secondary impacts from saltwater intrusion of wells and an overall decrease in water capacity.

- Precipitation and Flooding, Hurricane: Between 45 and 47.4 percent of the township is exposed to the 1 percent and 0.2 percent annual flood chance events.
- Sea Level Rise: under a moderate emissions scenario, there is at least a 66 percent chance that by 2100 sea levels will rise by between 2 and 5.1 feet. Coastal erosion will lead to loss of natural habitats; sea level rise will result in saltwater intrusion of wells and loss of species not adaptable to salt water. Overall, sea level rise can affect coastal ecosystems, with cascading effects on food webs and habitats.

Vulnerable Populations

Specific to Upper, the populations considered potentially vulnerable include the seasonal tourist population, the low-income populations, the unemployed population, the concentrations of older and younger households, persons with disabilities, single parent households, and the high percentage of mobile homes.

Each of the six hazards will have similar impacts on those identified as vulnerable. As noted in the County Hazard Mitigation Plan, "economically disadvantaged populations may be more vulnerable because they are likely to evaluate their risk and make decisions to evacuate based on net economic impacts on their families." Older and younger populations, such as those over 65 and those under 17, may not have the ability to prepare for hazardous conditions, and may need assistance from others when such conditions occur. These populations also may be at elevated risk to health impacts from poor air quality and heat stress from increased temperatures.

Future Development

The Assessment analyzed the municipal build-out under current zoning, and anticipates that most future development will occur west of the Garden State Parkway, where there are fewer environmental vulnerabilities and where new development can be built to higher standards. By contrast, older areas such as Strathmere should be looked at through the lens of improving resilience or resolving past development which no longer aligns with current standards.

Hazards will impact future development as follows:

- Increased temperatures, Drought, Wildfire: The areas at risk of wildfire in the eastern section of the township include significant portions of the Garden State Parkway median, as well as many of the areas anticipated for future development adjacent to the Parkway.
- Precipitation and Flooding, Hurricane, Sea Level Rise: Two feet sea level rise above the existing mean higher high-water level would affect many of the low-lying areas in Strathmere and areas immediately west of the Parkway. As described in detail in the Climate Change-Related Hazard Vulnerability Assessment, the "high end" sea level rise estimate for 2100 under a moderate emissions scenario is 6.9 feet. Although a high end estimate, it is similar to what could be expected from a 10 year flood event (approximately 3.3 feet above the mean higher high water mark) if sea level rise reaches 3.3 feet by 2100. This amount of water would inundate most of Strathmere, coastal areas of the mainland west of the Garden State Parkway, as well as areas further inland around the Cedar Swamp Creek and Tuckahoe River.

This Page Intentionally Left Blank

Actions

This Action Plan brings together the aforementioned State Climate Resilience Priorities and the points of exposure identified in the Vulnerability Assessment to recommend specific programs, projects, and priorities that Upper should pursue to mitigate climate risks.

A series of Goals (lettered A through G) are established with overarching themes that envelop a number of specified Actions. Each series of Goals has been assigned a color for ease of navigation.

Goal A: Protecting Vulnerable Populations

Goal B: Ensuring our Shoreline is Strong

Goal C: Mitigating the Threat of Fire

Goal D: Preparing for Floods

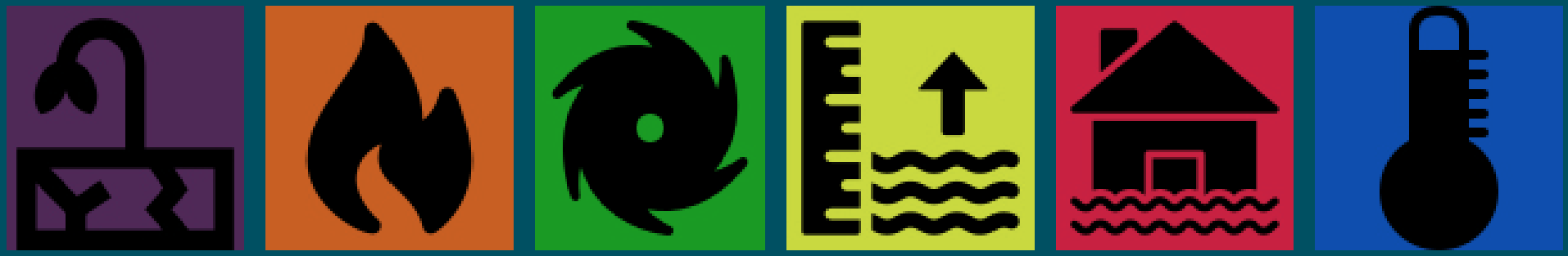
Goal E: Guiding Development and Protecting Infrastructure

Goal F: Conserving our Environment

Goal G: Creating a Roadmap for our Future

Each Action is then analyzed in terms of the problem or issue faced, recommended solutions, expected outcomes, potential challenges, and the state priorities addressed through the action. Each Action also identifies the threats mitigated, both in the narrative and through the use of at-a-glance icons, illustrated in the figure on the next page.

Figure 1: At-A-Glance Icons



Goals and Actions Summary

This Action Plan is divided into seven goals, each of which containing a series of implementable actions intended to promote Upper Township's resilience. They include:

Goal A: Protecting Vulnerable Populations

Identifying and prioritizing populations that may otherwise not be aware of or may not typically benefit from protective measures available to the population at large is a key component to the actions recommended. This includes breaking down agency "silos" by using resident information already in the system and coordinating across agencies to disseminate information on programs intended to assist at-risk communities, improving outreach with OEM, paying special attention to mobile home and campground communities where both people and structures are more vulnerable, coordinating with landlords, and establishing an extreme temperature event plan to protect those most susceptible to extreme temperature and weather events.

Action A.1: Ensure cross-agency coordination.

Action A.2: Launch local outreach campaign for NJOEM's Register Ready.

Action A.3: Facilitate mobile home community preparedness.

Action A.4: Facilitate campground preparedness.

Action A.5: Facilitate landlord/tenant preparedness.

Action A.6: Create extreme temperature event plan.

Goal B: Ensuring our Shoreline is Strong

This approach uses physical infrastructure to provide protection during flood events. This approach includes maintaining dunes and bulkheads, but also informing the public about the importance of this infrastructure so that objections are curtailed, and greater understanding leads to support.

Action B.1: Support continuing efforts to manage beachfront dunes.

Action B.2: Ensure that bayfront bulkheads are upgraded for future sea level rise.

Action B.3: Raise public awareness around shoreline management.

Goal C: Mitigating the Threat of Fire

Though water-based emergencies are most obvious in a shore community, fire is also a threat, particularly because of the natural, undeveloped inland character of the community. A wildfire protection plan is a first step toward this defense, followed closely by educational outreach to residents about how they can take measures on their own property to reduce risk, with the coordination of the fire department.

Action C.1: Develop a Wildfire Protection Plan.

Action C.2: Participate in the National Fire Protection Association's Firewise Communities Program.

Action C.3: Encourage local fire departments to participate in the Ready, Set, Go! program.

Goal D: Preparing for Floods

Dealing with floods involves both policy and infrastructure solutions. Areas of repeat flooding must be identified so that the most appropriate approaches can be decided. This includes both stormwater system maintenance and more aggressive solutions such as elevating properties that are in floodprone areas.

Action D.1: Identify areas of localized repeat flooding.

Action D.2: Raise private property out of flood prone areas.

Goal E: Guiding Development and Protecting Infrastructure

Existing buildings and infrastructure must be prioritized as well, and depending on the specific use, location, and degree of threat, solutions may include elevating such structures, replacing infrastructure to better manage flooding in the area, and modifying zoning to encourage development in less vulnerable areas. Coordination with utility providers will be necessary.

Action E.1: Protect critical facilities, community facilities, and municipal infrastructure from flood risk.

Action E.2: Protect critical facilities, community facilities, and municipal infrastructure from fire risk.

Action E.3: Address septic system failures.

Action E.4: Prepare and execute a stormwater system maintenance strategy.

Action E.5: Work with utility providers to ensure that infrastructure is less susceptible to hazards.

Action E.6: Modify zoning to incentivize resilience.

Right Photo: Ocean access from Strathmere closed due to storm damage

Goal F: Conserving our Environment

Green building is an easy way to reduce water use, slowing saltwater intrusion and protecting natural habitats, including the use of native plantings, installation of green infrastructure, and water conservation programs. These are programs that can be done both on an individual level and in the larger municipal context.

Action F.1: Promote drought-tolerant, native vegetation in landscaping.

Action F.2: Advance green infrastructure efforts.

Action F.3: Promote water conservation programs.

Goal G: Creating a Roadmap for our Future

Planning ahead in the most basic sense means establishing a vision for what the future should look like. This vision, then, guides decisions going forward to ensure that the goal remains in place. This would entail updating the municipal master plan, conservation plan element, community facilities element, and circulation element; and, creating a new economic plan element and environmental sustainability element. Similarly, continued engagement in and commitment to the Sustainable Jersey Certifications will demonstrate the municipal commitment to sustainability while positioning the township for eligibility for increased grant funding and support to ultimately enact any number of initiatives included herein.

Action G.1: Maintain or Upgrade Community Rating System (CRS).

Action G.2: Upgrade Sustainable Jersey Certifications.

Action G.3: Update the municipal Master Plan and Elements.

In the section that follows, each action will be explored in greater detail, examining the problem/issue at hand. It will describe the recommended solution and potential outcomes, as well as potential challenges. It will also identify which treats the action will help to mitigate, as well as which state priorities of the State's Climate Change Resilience Strategy are advanced by the recommended action. Each of these actions are then revisited at the conclusion of this document as part of a graphical matrix, identifying each goal and action in the context of program leads, cost estimates, time estimates for implementation, potential funding sources, along with the threats mitigated and state climate resilience priorities addressed.

Left Photo: Ocean access from Strathmere closed due to storm damage

Protecting Vulnerable Populations

A

1 Ensure Cross Agency Coordination

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

PROBLEM/ISSUE

Resident databases are not typically shared across agencies, which is inefficient and may leave residents unaware of programs or resources available to them. At-risk groups often have a limited network through which to receive information, may speak a language other than English, may not have easy internet access, etc. Reaching these groups requires more effort and intention, made easier by sharing information and resources.

SOLUTION

Open lines of communication will enable efficiencies of scale, where shared services can be coordinated, and duplication of efforts can be avoided. A point of contact for each municipal agency should be identified who can maintain open lines of communication not only through the municipal government, but between municipal, state, and county agencies. Agencies involved would include but not be limited to the Cape May County Division of Social Services, Cape May County Office of Emergency Management, Cape May County Division of Community & Behavioral Health, and the Cape May County Division of Aging & Disability Services.

Information packages targeting at-risk residents should be made available at all agency locations, and links to other agency resource on all websites serving the vulnerable. This will ensure that those seeking assistance in one area will be informed of the wide range of assistance and opportunities across the board.

In a broader sense, the public should be reminded regularly to sign up for the existing CodeRED emergency alert system. Sign-up information should be provided on all materials.

OUTCOME

Vulnerable populations can be served better through coordinated efforts at all levels of government and across agencies. Where cohort lists exist, those databases can be used to reach potential residents who would benefit from additional programming and resources.

Ultimately, a library of materials should be created and maintained to ensure that all relevant information related to at-risk communities, emergency preparedness, and resilience is easy to compile and distribute.

CHALLENGES

Legal input shall be sought as to the ability to share databases, access to information and privacy laws.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Protecting Vulnerable Populations

A

2 Launch local outreach campaign for NJOEM's Register Ready

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

PROBLEM/ISSUE

Individuals with disabilities and other access and functional needs, as well as their caregivers, families, friends, and associates, should be registered with the New Jersey Office of Emergency Management's Register Ready—NJ's Special Needs Registry for Disasters, to ensure emergency service providers are aware of the location of, and needs specific to, such residents.

SOLUTION

Outreach efforts should include a variety of different media, including, but not limited to: paper fliers and web-based information, presentations at community meetings, distribution opportunities at community events, and social media.

This should be included in the dissemination of information and materials as discussed in A.1 above (Cross-agency coordination).

OUTCOME

The safety of vulnerable persons will be increased, as this database allows first responders to be aware of the presence of such individuals and their needs in case of an emergency or disaster.

Moreover, this database helps emergency response agencies better plan how to serve these individuals in the event of an emergency, ensuring that essential warnings and updates are communicated.

CHALLENGES

Generally low outreach response rates could make populating the list and registering residents a challenge.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

Protecting Vulnerable Populations

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**

A

3 Facilitate mobile home community preparedness

PROBLEM/ISSUE

Mobile home communities are, physically, more vulnerable to many climate threats due to their less-stable foundations, less-robust HVAC (if any), and limited setbacks from other structures. Moreover, the residents of mobile home communities are themselves more vulnerable. Many may be seasonal residents and therefore less familiar with the emergency plans of the community, others may have limited income which often coincides with a less robust network of information and challenges disseminating information to such persons.

SOLUTION

Mobile home communities should have specific emergency management plans addressing their specific needs and vulnerabilities. OEM shall be responsible for creating a package of materials for mobile home communities, including emergency contact information, emergency evacuation information, safety guidelines for possible weather events, shelter locations, and details specific to the threats faced by mobile home communities. Sign-up instructions for CodeRED, as described in Action A.1 above should be provided with all materials.

Management contact information for all mobile home communities shall be maintained by the township. The package of OEM materials as described above should be distributed to all households annually and to each new resident on arrival.

At the outset of this initiative, an OEM representative should visit each community to determine if there are unique circumstances to be addressed, safety hazards to be mitigated, etc. A resident meeting may be considered on an as-needed basis.

OUTCOME

Ensuring that those communities more susceptible to climate threats are provided additional information on an annual basis describing the measures they can take to protect themselves and their homes will help residents be more prepared.

CHALLENGES

Success relies on the cooperation and buy-in of mobile home community managers and residents.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Protecting Vulnerable Populations

A

4 Facilitate campground preparedness

PROBLEM/ISSUE

Campgrounds are subject to some of the same challenges faced by mobile home communities and tenant populations. With a mix of seasonal and short-term occupants, familiarity with local emergency procedures may be limited. While a campground may be expected or required to evacuate during hurricane and flooding events, that evacuation process, as well as the danger of unsecured trailers, poses some risk.

THREATS MITIGATED

- **wildfire**
- **precipitation and flooding**
- **hurricane**

SOLUTION

Campgrounds should have specific emergency management plans addressing their specific needs and vulnerabilities. Campgrounds have the unique benefit of being mobile, thus allowing guests to evacuate to safety. Evacuation routes and plans for securing and/or removing all mobile vehicles shall be on hand at all campground offices, with a staff designee responsible for overseeing storm preparation activities.

OUTCOME

Ensuring that those communities more susceptible to climate threats are prepared for emergencies will help guests be more prepared.

CHALLENGES

Success relies on the cooperation and buy-in of campground community managers and guests.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Protecting Vulnerable Populations

A

5 Facilitate landlord/ tenant preparedness

THREATS MITIGATED

- **extreme temperatures**
- **wildfire**
- **precipitation and flooding**
- **hurricane**

PROBLEM/ISSUE

Residents who are not property owners, whether seasonal or permanent residents, may be less familiar with the emergency plans of the community. Because their information is not on tax records, they are not included on any materials distributed through that database.

SOLUTION

Similar to A3 above, OEM should be responsible for creating a package of materials for tenants, including emergency contact information, emergency evacuation information, shelter locations, and safety guidelines for possible weather events. Sign-up instructions for CodeRED, as described in Action A.1 above should be provided with all materials.

This package of OEM materials should be provided to tenants annually and to each new tenant at the start of a lease. In the case of seasonal or short-term rentals, all materials must be provided in the rental property with each new tenant. Such materials may alternatively be provided by real estate agents when applicable.

OUTCOME

Ensuring that tenants are provided additional information on an annual basis describing the measures they can take to protect themselves and their homes will help residents be more prepared.

CHALLENGES

Success relies on the cooperation and buy-in of landlords and tenants.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Protecting Vulnerable Populations

A

6 Create extreme temperature event plan.

THREATS MITIGATED

- **extreme temperatures**

SOLUTION

An extreme temperature event plan should be instituted to protect those residents susceptible to extreme cold weather events or heatwaves.

Existing Severe Weather Awareness Week and The Emergency Preparedness Symposium should continue, along with other community outreach efforts.

Cooling and heating centers should be identified, with their locations included in any distribution materials discussed in items A.1 through A.4 above, in particular A.3 as mobile home communities often have limited HVAC equipment, and A.1 which experience increased vulnerabilities across the board.

PROBLEM/ISSUE

The Cape May County Hazard Mitigation Plan notes that the average temperature in the state has increased by 3.5°F since the end of the 1890s, increasing at a faster rate than the rest of the northeast region and the world. Upper Township has approximately two days per year where the maximum temperature is above 95°F. Not all residents have adequate heat/air to combat extreme temperatures, and the health risks of extreme temperatures should be well-communicated. A plan of action in advance of heat/cold emergencies should be prepared and communicated.

OUTCOME

Advising the vulnerable about the threats of extreme temperatures, and providing them with opportunities for relief will save lives.

CHALLENGES

The creation of an extreme temperature plan poses very few challenges, however getting the general public to be aware of the plan and their own role in preparedness may be more difficult.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Ensuring Our Shoreline is Strong

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Dune replenishment, maintenance, and expansion is an ongoing approach to protect the beachfront. A 2023 project under the oversight of NJDEP spanned from Sea Isle to Ocean City. Funding was provided primarily by NJDEP and the Army Corps of Engineers. This type of project needs to be implemented on an ongoing, as-needed basis. The project is eligible for periodic nourishment on a 5-year cycle pending adequate funding from the Corps.

B

1 Support continuing efforts to manage beachfront dunes

PROBLEM/ISSUE

Dunes act as natural barriers that protect coastal areas from the impact of storms, high tides, sea level rise, and coastal flooding. When dunes erode, the coastline becomes more vulnerable to the destructive forces of waves and storm surges, leading to increased coastal erosion and potential damage to infrastructure and human settlements. Dune ecosystems also support a diverse range of plant and animal species. As dunes erode, the habitat for these organisms diminishes, leading to the loss of specialized plant species, nesting sites for birds, and breeding grounds for various coastal animals.

In Strathmere, beachfront properties are eroding and vertical cliffs up to twelve feet are now threatening the beach, beach access, and the safety of beachgoers. Farther out into the ocean, jetties and pilings that were once underwater are now emerging, a result of the changing shoreline and moving sands. Sand replenishment is critical to address this safety hazard.

OUTCOME

Maintaining and expanding dunes will protect inland areas from storm surges, flooding, and sea level rise, with added benefit of protecting ecosystems.

CHALLENGES

Beachfront dune management relies on the cooperative behavior of the public, both in terms of those visiting the beach and those who own beachfront properties. Many property owners do not wish to have restrictions put on the use of their property, despite the bigger picture benefits. Education will be key.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

(5) Promote Investment/Financing

(6) Coastal Resilience Plan

Ensuring Our Shoreline is Strong

B

2 Ensure that bayfront bulkheads are upgraded for future sea level rise

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

The township has started on an inventory of all existing bulkheads, identifying materials (steel, vinyl, timber), condition (deteriorated), and elevation.

This database should be maintained on an ongoing basis to allow focused repairs to ensure a fully protected bayfront shoreline. As property owners make substantial repairs to their homes, they must simultaneously raise their bulkheads. Details of these upgrades should be documented with the Municipal Engineer.

PROBLEM/ISSUE

Bayside shorelines are points of sea encroachment. Aging bulkheads are points of vulnerability, and inconsistent bulkhead height along the bayfront results in points of encroachment. Property owners have a deadline of 2029 to upgrade/raise their bulkheads to heights stipulated in municipal code Chapter 17 depending on location, but the intervening years pose a risk. Specifically, Bayview Drive near Putnam Avenue and Prescott Road experiences seawater incursion.

Continued on following page

OUTCOME

Maintaining bulkheads will protect the barrier island from bayside surges and sea level rise.

CHALLENGES

This is a longer-term project and requires enforcement, which could be politically volatile.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(6) Coastal Resilience Plan

PROBLEM/ISSUE (continued from previous page)

Using a moderate emissions scenario of sea level rise between 0.2 and 0.8 inches per year, the likely range (66 percent probability) of sea level rise by 2100 will be between 2 and 5.1 feet. With this scenario, rising sea levels would inundate the marshlands east of the Garden State Parkway and portions of Strathmere. It would impact the areas around the Cedar Swamp Creek and the eastern half of the Tuckahoe River.

Based on estimates prepared as part of the County HMP, the Township contains 9,627 buildings with a total replacement cost value of $6.5 billion. It estimated that 8 buildings in town would be exposed to 1 foot of sea level rise, with a replacement cost of $6.7 million. At 2 feet of sea level rise, 45 buildings would be exposed, with a replacement cost of $32.6 million. At 3 feet of sea level rise, 192 buildings would be exposed and have a replacement cost of $104.9 million. At 4 feet of sea level rise, the 431 impacted buildings in town would have a replacement cost of $262 million.

Ensuring Our Shoreline is Strong

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Establishing a zoning policy to prevent significant elimination of waterfront vegetation will help preserve the ecosystem, in addition to dune management as discussed above. By establishing a public outreach campaign to educate the public about shoreline management and providing predetermined landscaping solutions, wholesale "clear cutting" of lots can be avoided. Valuable resources in such an endeavor would include Pinelands Nursery & Supply and Rutgers Master Gardeners of Cape May County.

B

3 Raise public awareness around shoreline management

PROBLEM/ISSUE

Managing and protecting coastal areas to minimize the risks associated with erosion, flooding, and coastal hazards has broad objectives that sometimes meet public criticism. Reducing flood risk, preserving natural habitats, promoting sustainable land use practices, and balancing public access with the preservation of sensitive areas are not always well-received when such measures impact the use of private property.

Additionally, the overuse of Corson's Inlet has impacted both the beach and wildlife in that area. Activities on this area, which spans municipal boundaries and has partial ownership and control by the state as a State Park, are difficult to control. Educating the public about how wildlife and wildlands are impacted may provide some relief.

OUTCOME

Educating the public on best shoreline management practices and tradeoffs in an ongoing capacity may make them more receptive of such projects when implemented. When private property owners buy in to shoreline management activities, success is more likely. This can be done in coordination with Action F.1, below, which includes the preparation of landscaping and planting guidelines to require or encourage native species.

CHALLENGES

Shoreline management, like dune management, relies on the cooperative behavior of the public, both in terms of those visiting the shore and those who own waterfront properties. Many property owners do not wish to have restrictions put on the use of their property, despite the bigger picture benefits. Additionally, much of the shoreline is remote and enforcement is difficult. Education will be key.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(6) Coastal Resilience Plan

C

Mitigating the Threat of Fire

THREATS MITIGATED

- **drought**
- **wildfire**

SOLUTION

A Wildfire Protection Plan should be prepared, addressing the following:

- Mitigate potential ignition sources.
- Landscaping designs around buildings.
- Fencing designs around buildings.
- Removing dead trees from areas at risk.
- Providing education to homeowners and tourists on techniques to reduce fire risk.
- Improving access to information for emergency responders, including signage and directions to hydrants and/or water access.

1 Develop a Wildfire Protection Plan

PROBLEM/ISSUE

With ample woodlands in the township, wildfire poses a potential risk in the future. Of the 68.4 square miles of land that composes Upper Township, 25.1 percent are in high to extreme fuel hazard areas for wildfire. Between 2010 and 2019, Upper Township had 69 wildfire incidents that involved a total of 29.75 acres.

Long periods of dry weather can increase the potential for wildfire risk, which can threaten many of the developed areas of Upper Township. As noted in the 2020 New Jersey Scientific Report on Climate Change, droughts can stress forests, and have the potential to kill thousands of acres of forest, creating more potential fuel for an uncontrolled wildfire.

According to the County Hazard Mitigation Plan, higher summer temperatures will likely increase the high fire risk by 10 to 30 percent, from a combination of factors, including increased lightning and dry weather conditions.

OUTCOME

The study of wildfire risks will help the township understand the local and regional threats, and proactively set in place mitigation actions – both how to limit risk and how to react during an emergency across agencies and the private sector – that will protect the community.

CHALLENGES

Wildfire protection relies on the cooperative behavior of the public who may need to undertake landscaping modifications or clearing on their personal property. Many property owners do not wish to have restrictions put on the use of their property, despite the bigger picture benefits. Education will be key.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Mitigating the Threat of Fire

C

2 Participate in the National Fire Protection Association's Firewise Communities Program

THREATS MITIGATED

- **wildfire**

PROBLEM/ISSUE

With an increased risk of wildfire resulting from climate change, residents should be made aware of what steps they can take to help reduce the risk of wildfire.

SOLUTION

The township should encourage neighborhood participation in the National Fire Protection Association's Firewise Communities Program, which helps educate communities on how to adapt to living with wildfire and what actions can help prevent future losses.

In particular, educational materials should be provided to neighborhoods with adjacency to woodlands, such as: Marmora, Petersburg, Tuckahoe, Seaville, Greenfield, Beesley's Point, Palermo, and Steelmantown.

This can be done in coordination with item C.3.

OUTCOME

Increased knowledge of wildfire risks and ways to reduce risk will make the community safer overall.

CHALLENGES

Success relies on the cooperation and buy-in of residents.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

Mitigating the Threat of Fire

C

3 Encourage local fire departments to praticipate in the Ready, Set, Go! program

THREATS MITIGATED

- **wildfire**

PROBLEM/ISSUE

With an increased risk of wildfire resulting from climate change, residents should be made aware of what steps they can take to help reduce the risk of wildfire.

SOLUTION

The Ready, Set, Go! (RSG!) Program seeks to empower fire departments to engage the residents they serve in wildland fire community risk reduction. RSG! provides tools and resources for fire departments to use as they help residents gain an understanding of their wildland fire risk and actions individuals can take to reduce that risk.

Implementation of this program can be done in coordination with item C.2 above. Additionally, engagement with the Green Team as it relates to landscaping with drought-resistant native species and protecting properties from wildfire may be appropriate.

OUTCOME

Increased knowledge of wildfire risks and ways to reduce risk will make the community safer overall.

CHALLENGES

Success relies on the interest of residents, which may be limited.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

D

Preparing for Floods

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

The Municipal Engineer should identify locations of repeat flooding to determine why the flooding occurs – if the issue can be resolved through traditional infrastructure improvements, green infrastructure, etc., or if a site should be taken out of use. This information should also be shared with the Floodplain Manager and Planning Department, to inform zoning and development decisions.

1 Identify areas of localized repeat flooding

PROBLEM/ISSUE

There are locations in the township that see repeat flooding. Strathmere areas identified by the community include Bayview Drive near Putnam Avenue and Prescott Road, Bayview from Tecumseh to Webster Avenues, Bayview Drive at Vincent Avenue, Commonwealth Avenue and Webster Avenue, and Commonwealth Avenue between Williard Avenue and Whittier Road. Mainland areas identified include the bridge near the intersection of Tyler and Tuckahoe Roads near Cedar Springs, the terminus of Elmwood Avenue in Marmora, Church Road in Marmora, S. Shore Road and Seasounds Avenue in Palermo.

Continued on following page

OUTCOME

With an inventory of repeat flooding locations, prioritization and remediation can be discussed, and potential funding explored based on causes of flooding.

CHALLENGES

No challenges anticipated.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

PROBLEM/ISSUE (continued from previous page)

A 2021 report from the Northeast Regional Climate Center at Cornell University prepared for the New Jersey Department of Environmental Protection found that extreme precipitation events appear to be increasing in many areas throughout the state, with more frequent 2- and 10-year storms seeing increasing precipitation intensity.

There are 36 properties within Upper Township that are defined as "repetitive loss properties," which according to FEMA is a property for which two or more NFIP losses of at least $1,000 each have been paid within any 10-year rolling period since 1978. This includes 26 single family dwellings, eight 2-4 family dwellings, and two nonresidential structures. In addition, the Township contains 7 severe repetitive loss properties, including 5 single family dwellings, and two 2-4 family dwellings. FEMA defines severe repetitive loss properties as any building for which four or more separate claims have been made with each claim exceeding $5,000, or where at least two separate claims payments have been made where the cumulative amount of such claims exceed the market value of the building within any 10-year period since 1978.

Preparing for Floods

D

2 Raise private property out of flood prone areas

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Low-lying at-risk properties should be inventoried to determine where flooding and potential sea level rise will cause significant damage such that raising buildings and/or topography is an option.

Financing for such modifications should be explored and provided to interested property owners. In the case of raising buildings, zoning code height limitations should be considered and modified if necessary.

Moreover, the township should consider purchasing repetitive loss properties through NJDEP Green Acres and Blue Acres. Green Acres programs purchase and preserve land for permanent open space; Blue Acres is a subset of the Green Acres program which purchase flood-prone properties from interested homeowners and permanently uses that land for natural flood storage, parks, and community open space.

PROBLEM/ISSUE

There are locations where it may be appropriate for private property owners to raise existing buildings, driveways, bulkheads, yards, etc. to enhance flood control and mitigate flood damage.

Continued on following page

OUTCOME

Where deemed an appropriate remediation measure, raised buildings will remain dry during flood events.

CHALLENGES

Raising property is an expensive undertaking and requires the cooperation of property owners.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

PROBLEM/ISSUE (continued from previous page)

It is estimated that 19,710 acres of Upper Township, or approximately 45 percent of the community, is exposed to the 1 percent annual chance flood event area, and 20,765 acres are exposed to the 0.2 percent annual chance flood event area. This includes 1,080 buildings in the 1 percent coastal flood hazard area, which has an estimated replacement value of $790 million, and 5 buildings in the 1 percent riverine flood hazard area with an estimated replacement value of $3.7 million. An additional 1,367 buildings are exposed to the 0.2 percent annual chance flood hazard area in Upper Township, with an estimated replacement cost of $981 million. NJ Floodmapper estimates that the urban area impacted by the 1 percent annual chance flood is 671 acres, or 11.94 percent of the estimated 5,621 acres of total urban area in the Township. An additional 861 acres of urban area are estimated to be impacted by the 0.2 percent annual chance flood.

It is noted that buildings raised above flood levels will face ongoing challenges with accessibility, as streets and at-grade infrastructure will continue to flood.

Guiding Development & Protecting Infrastructure

E

1 Protect critical facilities, community facilities, and municipal infrastructure from flood risk

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Create an inventory of critical municipal facilities and infrastructure, identifying which are subject of repeat flooding and/or are likely to be significantly impacted by sea level rise. Each such property should be evaluated to determine if relocation, raising the building, or other solutions are possible and realistic, and then such decisions reflected in capital planning.

PROBLEM/ISSUE

There are locations where it may be appropriate for municipal assets and building to be raised to enhance flood control and mitigate flood damage.

Similar to issues associated with raising private property as discussed above, raising land, including roads, results in low lying bowls that collect water on adjacent properties, making them more vulnerable. Grade modifications should be thoughtfully and judiciously implemented with consideration made as to the effect on other properties.

Seven critical facilities in Upper Township (bridges, marinas, wells, fire station, library) are exposed at 1 foot of sea level rise, 9 are exposed at 2 feet, 10 are exposed at 3 feet, and 13 are exposed at 4 feet.

OUTCOME

Where deemed an appropriate remediation measure, raised buildings will remain dry during flood events and critical infrastructure will continue to operate during emergencies.

CHALLENGES

No challenges are expected in the creation of a property inventory. Next-step decisions regarding relocation, raising buildings, etc. could be cost prohibitive.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

Guiding Development & Protecting Infrastructure

THREATS MITIGATED

- **wildfire**

SOLUTION

Create an inventory of critical municipal facilities and infrastructure, identifying which are in wildfire risk areas. Each such property should be evaluated to determine if relocation, landscape management, or other solutions are possible and realistic, and then such decisions reflected in capital planning.

E

2 Protect critical facilities, community facilities, and municipal infrastructure from fire risk

PROBLEM/ISSUE

There are locations where it may be appropriate for municipal assets and building to be further protected from wildfire risk, either through relocation or through landscape management.

Upper Township contains critical facilities located in areas identified for fire hazard risk: extreme fuel hazard risks for the developed corridor west of the Parkway to US Route 9, along Tuckahoe Road, Weatherby Road, Head of River Road, and Woodbine Road. The Cape May County Hazard Mitigation Plan also identifies eight critical facilities are located in high, very high, or extreme fire hazard areas, including the Upper Rescue Squad, Municipal Building, County Library, Community Center, and the Marmora Volunteer Fire Company.

OUTCOME

Routine landscape maintenance will reduce the likelihood of fire spreading when it does occur, and an inventory of facilities will allow emergency management to quickly understand where manpower efforts should be directed during fires.

CHALLENGES

No challenges are expected in the creation of a property inventory. Next-step decisions regarding relocation, raising buildings, etc. could be cost prohibitive.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

Guiding Development & Protecting Infrastructure

E

3 Address septic system failures

THREATS MITIGATED

- **precipitation and flooding**

PROBLEM/ISSUE

Strathmere homes are served by wastewater management systems that discharge to groundwater of 2,000 gallons per day or less, commonly referred to as on-site septic systems. With a water table approximately 12 inches below grade, drain fields easily become saturated causing septic tanks to overflow into homes, yards, and the street.

Continued on following page

SOLUTION

Policy decisions must be made to either limit new growth in Strathmere and be considered for public sewer, or to remain a septic neighborhood. The only way to address public health concerns is to limit growth and go onto a sewer system.

OUTCOME

A sewer system can more effectively handle septic waste without overflow.

CHALLENGES

Policy decisions related to septic could be politically volatile, multi-agency buy-in is needed, and any solution is costly.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(5) Promote investment/financing

PROBLEM/ISSUE (continued from previous page)

Strathmere is not located within an approved sewer service area. On November 6, 2013, the NJDEP adopted an amendment to the Cape May County WQMP, which included the Future Wastewater Management Areas (FWMA) Map for Upper Township designating the sewer service areas. Strathmere continues to be excluded from the wastewater service area per the 2013 FWMA map. Strathmere is designated as either "Septic Area (ISSDS 2,000 GPD or Less)" on the east side of Commonwealth Avenue or "Restricted Septic Area (Planning Flows of 2,000 GPD or Less AND Less Than 6 Residential Units)" to the west of Commonwealth Avenue. Areas designated "Septic Area (ISSDS 2,000 GPD or Less)" have demonstrated that the zoning meets the nitrate planning standard of 2 mg/L on a HUC 11 basis. Under the new "Restricted Septic Area (Planning Flows of 2,000 GPD or Less AND Less Than 6 Residential Units)" designation, residential development or subdivisions with a total of less than six (6) dwelling units are allowed, but residential developments of six (6) or more units must undergo a nitrate dilution analysis to ensure that the individual or other subsurface sewage disposal systems can meet the two (2) mg/L nitrate planning standard on-site. There are five properties in Strathmere that have on-site wastewater disposal systems that discharge to groundwater greater than 2,000 gallons per day under individual New Jersey Pollutant Discharge Elimination System (NJPDES) permits.

The 2007 Cape May County Water Quality Management Plan/Wastewater Management Plan (WQMP/WWMP) notes that since 1981, environmental concerns have been raised with regard to the lack of public sewers in Strathmere. However, because of potential impacts on Special Areas and the Rules on Coastal Zone Management, Strathmere has not been included within the sewer service area. The report clarifies, though, that "it remains the intention of Upper Township and Cape May County to allow for the future servicing of Strathmere."

A new Wastewater Management Plan (WMP) was submitted by Cape May County to the NJDEP on June 29, 2021, which is still pending review by NJDEP. The 2021 WMP states that The Township is also proposing to extend sewer to the existing development in Strathmere from the Seven Mile Beach/ Middle Township Region WTP. However, the WMP buildout analysis was only based on the 2013 adopted Sewer Service Area map, which does not include the Strathmere area. Should the Township wish to consider sewering Strathmere, the municipality will need to pursue the site-specific amendment process with the NJDEP.

A Consent Agreement between NJDEP and the County of Cape May (2000) would not allow the extension of the sewer to Strathmere, citing concerns that it would facilitate further growth; municipal and county officials argued that the purpose of such extension is solely the elimination of the public health risk that the failing septic system poses, not to facilitate further development.

These issues must be addressed, with local policy likely either limiting new growth in Strathmere or abandoning the idea of a sewer system. Should that time come, an amendment to the Cape May County WPMP/ WMP will be required.

Guiding Development & Protecting Infrastructure

E

4 Prepare and execute a stormwater system maintenance strategy

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**

SOLUTION

In order to get ahead of stormwater issues, a strategy must be established and executed to optimize the Township's existing system.

Financing opportunities for repair and replacement of the existing stormwater infrastructure should be explored. Three new pump stations are needed at Webster Avenue, Putnam Avenue, and Sumner Avenue.

PROBLEM/ISSUE

The existing stormwater infrastructure in Upper varies in age, but much of the system is 50 years old and not at peak performance. New pump stations are needed.

The Township has identified the following vulnerabilities from stormwater flooding: Old Tuckahoe Rd South (County Rd-631) and Roosevelt Blvd (County Rd-623), Roosevelt Blvd (County Rd-623) and Garden State Parkway, and Red Oak Drive.

OUTCOME

A more efficient and effective stormwater management system will benefit the overall community, with better drainage and therefore less flooding. Finding funding for such a project will unburden taxpayers and allow other important projects to take place.

Added pump stations will lighten the burden on the existing systems and bulkheads.

CHALLENGES

No challenges are expected with policy development. Capital expenditures will need to be planned.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

Guiding Development & Protecting Infrastructure

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Establish a workgroup of municipal representatives and utility provider representatives to ensure there is sufficient land in appropriate locations to ensure that substations and communications infrastructure that is susceptible to flooding, fires, and other hazards may be relocated or access modified.

E 5 Work with utility providers to ensure that infrastructure is less susceptible to hazards

PROBLEM/ISSUE

Utility substations and communications infrastructure is critical during times of emergency. Any sites located in areas that flood, which are accessed through areas that flood, or that could be inaccessible due to fire should be moved or means of access modified.

The following critical facilities are at risk to the 1 percent and 0.2 percent annual chance flood hazard areas: Strathmere Volunteer Fire Company fire station, NJ American Water – water tower and public well, Longport Media Tower communications tower, Atlantic City Electric Substation BL England, and Atlantic City Electric Sub-Station west of Wilkie Boulevard.

OUTCOME

Reliable infrastructure during emergencies is critical. Knowing that sites providing this service are resilient against hazards will enable other emergency response actions to take place uninterrupted.

CHALLENGES

Cross-agency coordination could be challenging.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(3) Promote Coordinated Governance

Guiding Development & Protecting Infrastructure

6 Modify zoning to incentivize resilience

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Innovative land use policies to reduce or eliminate repetitive loss should be incorporated into the zoning code. This could include the establishment of a density transfer program (TDR), or Non-Contiguous Clusters, redirecting development from areas of high risk to areas of reduced risk.

PROBLEM/ISSUE

Zoning allows or encourages development in given locations, but the existing code does little to incentivize development based on resilience. Consequently, development happens in locations that could pose risk, or without features that would ensure long-term sustainability.

OUTCOME

Incentivizing development that anticipates longer term realities such as sea level rise will ensure that what is built today will be most likely to survive through tomorrow. More buildings will be located away from floodprone areas, and certain properties will be allowed to revert to an undeveloped state where water to naturally pool without damaging or destroying the built environment. At the same time, compensating property owners for this loss in development potential by transferring it will both limit personal loss, and support the ongoing development needs and pressures of the township.

CHALLENGES

Developers and property owners may object to limitations on land use. However, if presented strategically, opportunities for enhanced development in less risky areas could be well-received.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

Conserving Our Environment

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**

1 Promote drought-tolerant, native vegetation in landscaping

SOLUTION

The township Green Team should establish guidelines and a database of plantings appropriate to the area. This can be distributed through local channels, including to nurseries for their customers. Valuable resources in such an endeavor would include Pinelands Nursery & Supply and Rutgers Master Gardeners of Cape May County.

Additionally, the zoning code may be amended to require or encourage native plantings.

The township should lead by example, landscaping municipal grounds, parks, etc. with native plantings, and providing educational signage describing the effort.

PROBLEM/ISSUE

Non-native, non-drought tolerant vegetation requires significant amounts of water and maintenance, and can contribute to erosion.

OUTCOME

Native, drought-tolerant vegetation reduces reliance on irrigation, requires less maintenance, provides deep root systems to prevent erosion, and supports local biodiversity. In all, native, drought-tolerant vegetation helps mitigate the impacts of drought and water scarcity as an essential component of eco-friendly and resilient landscape design.

CHALLENGES

No challenges are anticipated.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(4) Invest in Information/Increase Understanding

Conserving Our Environment

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

2 Advance green infrastructure efforts

PROBLEM/ISSUE

Green infrastructure projects require a level of expertise and funding that may not be immediately available to the township.

SOLUTION

The township should create an inventory of green infrastructure project and locations for future implementation and capital expense budgeting.

Once identified, funds and technical assistance should be sought to advance township green infrastructure efforts. Sustainable Jersey offers an array of technical support opportunities and funding guidance to municipalities state-wide. Their expertise should be availed at all opportunities. This can be done through any municipal department, as well as the Green Team.

OUTCOME

Outside agencies can help the township realize its own next steps, provide technical support, and direct the township toward funds. Projects that would otherwise be out of reach may become a reality.

CHALLENGES

No challenges are expected in the creation of a green infrastructure project plan. Costs will be associated with implementation.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

(5) Promote investment/financing

(6) Coastal Resilience Plan

Conserving Our Environment

3 Promote water conservation programs

PROBLEM/ISSUE

Water is an ever-growing scarce resource, but there are ways to reduce water usage. Globally, the water held in soil, snow and ice is diminishing, which results in increased water scarcity. This is an ongoing problem; for every 1°C increase in the global average temperature, experts project a 20 percent drop in renewable water resources.[5]

THREATS MITIGATED

- **extreme temperatures**
- **drought**

SOLUTION

Establish a water conservation ordinance for activation during times of drought. On a more ongoing basis, promote water conservation programs, such as:

- Rain barrel workshops
- Native-planting workshops
- Low-flow appliance incentives

This can be done in coordination with the township Green Team.

Additionally, the municipal code may be updated to encourage or require water conservation be included in new development.

OUTCOME

Showing residents how to use less water will ensure that times of drought are less extreme. Moreover, reduced water usage generally results in lower utility bills, benefiting those who participate.

CHALLENGES

No challenges are expected.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(4) Invest in Information/Increase Understanding

Creating a Roadmap for Our Future

G

1 Maintain or Upgrade Community Rating System

THREATS MITIGATED

- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Flood insurance premium discounts in CRS communities range from 5% to 45% and are discounted in increments of 5%. A Class 10 community is not participating in the CRS and receives no discount. A Class 9 community receives a 5% discount for all policies, a Class 8 community receives a 10% discount, all the way to a Class 1 community, which receives a 45% premium discount.

As of 2023, Upper Township is rated Class 5 and residents receive a 25% discount on flood insurance rates. Upper should seek to maintain this classification, or improve to a higher class to further discount flood insurance rates. A variety of the action items included herein would likely count toward CRS points for increased classification.

PROBLEM/ISSUE

The Community Rating System (CRS) is a voluntary incentive program through FEMA that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). Over 1,500 communities participate nationwide.

Continued on following page

OUTCOME

Property owners in Upper will continue to enjoy reduced flood insurance premiums.

CHALLENGES

No challenges are expected for CRS activities that involve outreach, education, and flood control projects. Actions involving the adoption of more stringent building standards (i.e. increased freeboard above the base flood elevation, or cumulatively counting improvements done to properties and/or lowering the threshold for what constitutes a substantial improvement) could increase up-front costs to developers and property owners, creating potential for political pushback.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

PROBLEM/ISSUE (continued from previous page)

In CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community's efforts that address the three goals of the program:

- Reduce and avoid flood damage to insurable property
- Strengthen and support the insurance aspects of the National Flood Insurance Program
- Foster comprehensive floodplain management

Upgrading participation is a way ensure flood insurance rates remain affordable to property owners in the township.

Creating a Roadmap for Our Future

G

2 Upgrade Sustainable Jersey Certification

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

SOLUTION

Upgrading Upper's standing with Sustainable Jersey from Bronze to Silver Certification requires implementing one additional priority action and two additional overall sustainability actions.

Adding a "Gold Star in Health" is achieved by completing a Local Health Assessment & Action Plan and implementing a specific combination of seven certification program actions related to your local health issues. Numerous Health actions relate to emergency management and resilience, including but not limited to Green Infrastructure Planning, Extreme Temperature Event Plan, and Vulnerable Populations Identification for Emergencies. As these intersect with other recommendations in this report, qualification for a Gold Star in Health should be a next step.

PROBLEM/ISSUE

Upgrading participation in Sustainable Jersey is a way to demonstrate a community's commitment to playing a sustainable role in its future. Many required actions are already part of the township's operations, and new projects will demonstrate through leadership how to be stewards of tomorrow.

OUTCOME

Municipalities that achieve high certification are considered by their peers, state government and experts and civic organizations in New Jersey, to be among the leaders in the state. Being certified gives towns special priority access to incentives and grants, provides training opportunities, and aligns the municipality with its community's values.

CHALLENGES

No challenges are expected.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(4) Invest in Information/Increase Understanding

Creating a Roadmap for Our Future

G

3 Update the municipal Master Plan and Elements

THREATS MITIGATED

- **extreme temperatures**
- **drought**
- **wildfire**
- **precipitation and flooding**
- **hurricane**
- **sea level rise**

PROBLEM/ISSUE

Significant knowledge has been gained from recent planning documents such as the Repetitive Loss Study, Getting to Resilience report, Hazard Mitigation Plan, Watershed Management Plan, and the Climate Change-Related Hazard Vulnerability Assessment. This knowledge needs to be incorporated into the municipal Master Plan.

SOLUTION

The Master Plan needs to be rewritten, as the Plan overall does not comprehensively weave resilience and climate change into the document. The recommendations made in the myriad reports and studies since the Plan's adoption should be incorporated into the Master Plan and all its elements.

Additionally, the knowledge gained from these reports should inform the township and elicit revised or new Master Plan goals and objectives. The data provided within the reports should be considered for how other existing land use goals, expectations, etc. are impacted and should be adjusted with an eye toward resilience. The land use element, in particular, should be revised to address resilience. This will also bring the municipality into compliance with recent amendments to the Municipal Land Use Law (MLUL), requiring a climate change hazard vulnerability assessment, policy statement and resilience strategies to manage climate-related risks.

The information and recommendations provided in the recent Climate Change-Related Hazard Vulnerability Assessment, Getting to Resiliency report, and other topical reports should be incorporated into elements where appropriate.

Continued on following page

OUTCOME

As the guiding planning document of the township, a current Master Plan is needed to best direct the township in its land use and zoning decisions.

Moreover, in addition to compliance with the new MLUL requirements for the land use element as stated above, the new Elements will satisfy the Circulation Element required as part of the Township's Plan Implementation Agreement for Plan Endorsement.

CHALLENGES

Cost.

STATE PRIORITIES ADDRESSED

(1) Build Resilient & Healthy Communities

(2) Strengthen Resilience of Ecosystems

(3) Promote Coordinated Governance

(4) Invest in Information/Increase Understanding

SOLUTION (continued from previous page)

The Conservation Element, last written in 2011, needs to be updated to address the preservation, conservation, and utilization of natural resources and to analyze the impact of other elements of the master plan on the present and future preservation, conservation and utilization of those resources.

The Economic Plan, last written in 1994, should be updated, addressing the economic consequences of seal level rise on the municipal tax base, allowing Upper to explore opportunities for new ratables while accounting for land use adaptations that are likely to occur as a result of sea level rise.

A Green Building and Environmental Sustainability Element should be prepared to, among other goals, consider the impact of buildings on the environment; allow ecosystems to function naturally; conserve and reuse water; treat storm water on-site; and optimize climatic conditions through site orientation and design.

The Circulation Element, last adopted in 1994 as part of the 1993 Master Plan, needs to be updated to anticipate the potential of future road modifications, improvements, and/or abandonment in the face of sea level rise and repeat flooding. A revised and current Circulation element will incorporate current data, resilience recommendations, and expectations for roadway modifications.

The Community Facilities Element, last adopted in 1994 as part of the 1993 Master Plan, needs to be updated to anticipate the potential of relocating and/or raising existing facilities. Uninterrupted access to community facilities will be ensured by proactively protecting and/or relocating such buildings before the effects of sea level rise are realized.

Funding Opportunities

Financing for capital investments can be acquired from a variety of sources, though most commonly through authorized debt. Assuming Upper stays with the current debt capacity, the township could use property taxes to pay back debts generated for capital projects. This, however, is an unpopular approach. Additionally, the township should target grant funding to lift the financial burden of capital investments away from taxpayers.

This section identifies potential funding sources to implement the actions outlined in this plan. It is important to note that these funding sources are always subject to change based on availability, priorities at the state and federal levels, and other factors. In addition to this listing of funding sources, the New Jersey Department of Environmental Protection recently authorized development of an interactive web-based funding database, which should be ready in late 2024.

Grant: Sustainable Jersey

Sustainable Jersey strives to connect participating communities with financial and technical resources to successfully complete actions and make progress towards a sustainable future. Multiple competitive grant and technical assistance opportunities are funded by program underwriters and partner organizations each year.[6]

Smart Growth Implementation Assistance Grants (SGIA)

The Smart Growth Implementation Assistance (SGIA) program through the U.S. Environmental Protection Agency (EPA) focuses on complex or cutting-edge issues, such as stormwater management, code revision, transit-oriented development, affordable housing, infill development, corridor planning, green building, and climate change. Applicants can submit proposals under 4 categories: community resilience to disasters, job creation, the role of manufactured homes in sustainable neighborhood design, or medical and social service facilities siting.[7]

National Resource Conservation Service

The U.S. Department of Agriculture (USDA) through the Natural Resources Conservation Service provides financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land.[8]

New Jersey Department of Community Affairs (NJDCA)

The New Jersey Department of Community Affairs (NJDCA) provides administrative guidance, financial support, and technical assistance to local governments, community development organizations, businesses, and individuals to improve the quality of life in New Jersey. NJDCA administers CDBG funding and is typically the CDBG-Disaster Relief funding recipient for the State of New Jersey.

Small Cities Community Development Block Grants (CDBG)

The New Jersey Small Cities Community Development Block Grants from DCA provide funds for economic development, housing rehabilitation, community revitalization, and public facilities designated to benefit people with low and moderate incomes, or to address recent local needs for which no other source of funding is available to nonentitlement counties and municipalities.[9]

New Jersey Environmental Infrastructure Trust (NJEIT)

NJEIT is an independent state financing authority that provides low-interest rate loans ("H2LOans") to qualified borrowers in New Jersey for water quality and infrastructure projects. A variety of loans based on project type are available, including but not limited to those for clean water, wastewater, and drinking water.

"Clean Water" loans are available for wastewater projects associated with sewage collection, treatment or disposal, including correction of inflow/infiltration problems, sludge management and combined sewer overflows. Loans are also available for Stormwater Projects including construction, expansion or replacement of stormwater management systems, construction or expansion of basins, replacement of storm drains and rehabilitation of tide gates and extension of outfall points.[10] "Green projects" that implement green infrastructure and water or energy efficiency improvements are also eligible.

Open Space acquisition for the purpose of maintaining or enhancing the quality of surface or ground water may also be financed under the program.

Green projects which Upper may wish to implement to reduce the impact of rainwater are also eligible, including replacing existing pavement with porous pavement, utilizing bioretention, constructing green roofs, creating rain gardens, and other practices that mimic natural hydrology and increase effective perviousness.[11]

Community Wildfire Defense Grants (CWDG)

Offered by the USDA, the CWDG is intended to help at-risk local communities plan for and reduce the risk of wildfire. This program prioritizes at-risk communities in an area identified as having high or very high wildfire hazard potential, are low-income, or have been impacted by a severe disaster that affects the risk of wildfire. The Program also helps communities in the wildland urban interface implement the goals of the National Cohesive Wildland Fire Management Strategy.[12]

Emergency Management Performance Grant (EMPG)

Using FEMA funding, the Emergency Management Performance Grant Program plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient Nation. The EMPG supports efforts to build and sustain core capabilities across the five mission areas of Prevention, Protection, Mitigation, Response, and Recovery based on allowable costs.[13]

Emergency Operations Center Grant Program

Through FEMA, the Emergency Operations Center (EOC) Grant Program is intended to improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, strategically located, and fully interoperable EOCs with a focus on addressing identified deficiencies and needs.[14]

Next Generation Warning System Grant Program (NGWSGP)

FEMA's Next Generation Warning System Grant Program (NGWSGP) supports investments that improve the resilience and security of public broadcasting networks and systems.[15]

Building Resilient Infrastructure and Communities (BRIC)

FEMA's BRIC grants help to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding from future disasters.[16]

Regional Catastrophic Preparedness Grant Program (RCPGP)

FEMA's Regional Catastrophic Preparedness Grant provides funding to close known capability gaps, encourage innovative regional solutions to issues related to catastrophic incidents, and build on existing regional preparedness efforts. The purpose of the RCPGP is to build regional capacity to manage catastrophic incidents by improving and expanding collaboration for catastrophic incident preparedness. RCPGP funds assist state and local governments to develop innovative regional solutions to issues related to catastrophic incidents, including natural disasters that result in extraordinary levels of damage or disruption severely affecting the population, infrastructure, environment, or economy.[17]

NJDEP Blue Acres Floodplain Program

NJDEP provides funding for properties and structures that have been damaged by, or may be prone to incurring damage caused by, storms or storm-related flooding, or that may buffer or protect other lands from such damage, are eligible for acquisition through the DEP Blue Acres Program. All Blue Acres acquisitions must be from willing sellers.[18]

NJDEP Green Acres Program

Green Acres, as part of NJDEP, provides low interest loans and grants to assist local governments in the acquisition and development of open space for recreation and conservation purposes. Should Upper wish to acquire property for open space to increase pervious coverage and mitigate the impact of rainfall, these funds would be applicable.[19]

National Coastal Resilience Fund

Supported by NOAA and its partners, the National Coastal Resilience Fund (NCRF) supports nature-based solutions that enhance the resilience of coastal communities and habitats to address increasing threats from storms, sea and lake level changes, flooding, erosion and other coastal hazards. The NCRF invests in nature-based projects – such as restoring coastal marshes and forests, reconnecting floodplains, rebuilding dunes or other natural buffers, or installing living shorelines – to protect communities from coastal hazards and enhance habitats for fish and wildlife.[20]

NJ Department of Health – Public Health Infrastructure, Laboratories and Emergency Preparedness Program

New Jersey's Department of Health Healthcare Preparedness Program's purpose is to enhance emergency preparedness across the healthcare continuum in NJ through coalitions. Eligible grant applicants include hospitals, non-profits, local health departments, federally qualified health centers, and regional health preparedness coalition members.[21]

Cape May County Open Space Funding

Funded by Cape May County, the Open Spaces and Farmland Preservation Program seeks to permanently preserve public land of county significance and to support current and future regional conservation, recreation, community enhancement, and historic preservation needs throughout the County. The Program will interact with municipal officials and other stakeholders to identify community and regional needs and will utilize program funds to establish a diverse yet interconnected network of public spaces.[22]

Assistance to Firefighter Grants (AFG) Program

Through FEMA, AFG helps firefighters and other first responders obtain critically needed equipment, protective gear, emergency vehicles, training and other resources necessary for protecting the public and emergency personnel from fire and related hazards. This program is comprised of the Assistance to Firefighters Grants (AFG), Fire Prevention & Safety (FP&S) grants and the Staffing for Adequate Fire and Emergency Response (SAFER) grants.

Resilience Bonds

Resilience bonds are a variation on conventional Catastrophe Bonds that link insurance and resilience projects to monetize avoided losses such as a reduction of flood insurance claims. The benefits offered for risk-reduction projects which work as preventative measures, such as flood barriers, are monetized up-front and captured through a rebate structure. The resulting rebate serves as a source of predictable funding which communities can proactively invest in projects that strategically reduce risk.

Environmental Impact Bonds

Like typical municipal bonds, an EIB provides up-front capital from private investors for environmental projects. Unlike municipal bonds, it embeds a Pay-for-Success (PFS) approach that conditions payback to investors on project performance, which could be used to pilot or scale a new environmental program or project. Investors participating pay the up-front costs for implementing these environmental projects; the public agency or private institutions that benefit from the solutions repay investors an amount linked to the achievement of agreed-upon outcomes of the program.[23]

Implementation Matrix

The following matrix compiles each of the recommended Actions along with the state priorities addressed and threats mitigated as discussed in the body of the report. Additionally, recommended program leads, cost estimates, timeframes, and potential funding sources are collected in this pared down, one-page point of reference for the Actions recommended in this Action Plan.

*** Key for Costs:**

		Estimates
$	Minimal Cost requiring coordination	$0 to $5,000
$$	Minimal Costs but follow up required	$5,000 to $20,000
$$$	Planning Costs varied depending upon scope of work	$10,000 to $50,000
$$$$	Potential engineering and design costs	$40,000.00 to $100,000
$$$$$	Long range costs associated with improvements that will require funding and permitting	Unknown

Action Plan Matrix

Primary Goal		Action	Program Lead(s)	Cost Estimate *	Estimated time to Implement	Possible Funding Sources	State Climate Resilience Priorities Addressed						Threats Mitigated					
							1. Build Resilient & Healthy Communities	2. Strengthen Resilience of Ecosystems	3. Promote Coordinated Governance	4. Invest in Info./Increase Understanding	5. Promote Investments/financing	6. Coastal Resilience Plan	A. Extreme Temperatures	B. Drought	C. Wildfire	D. Precipitation and Flooding	E. Hurricanes	F. Sea Level Rise
A. Protecting Vulnerable Populations	A.1	Ensure cross-agency coordination.	OEM	$	ongoing	Local	x		x	x			x	x	x	x	x	x
	A.2	Launch local outreach campaign for NJOEM's Register Ready.	OEM	$	ongoing	Local	x			x			x	x	x	x	x	x
	A.3	Facilitate mobile home community preparedness.	OEM	$$	ongoing	Local, County	x		x	x			x	x	x	x	x	
	A.4	Facilitate campground preparedness.	OEM	$$	ongoing	Local, County	x		x	x					x	x	x	
	A.5	Facilitate landlord/tenant preparedness.	OEM	$$	ongoing	Local, County	x		x	x			x		x	x	x	
	A.6	Create extreme temperature event plan.	OEM	$$	1 year	Local, County, State	x		x	x			x					
B. Ensuring our Shoreline is Strong	B.1	Support continuing efforts to manage beachfront dunes.	Township, New Jersey, US Army Corps of Engineers	$$	ongoing	Local, County, State, Federal	x	x	x	x	x	x				x	x	x
	B.2	Ensure that bayfront bulkheads are upgraded for future sea level rise.	Township Engineer	$$$$$	ongoing through 2029	Local, County, State, Federal	x					x				x	x	x
	B.3	Raise awareness around shoreline management.	Township Engineer, Green Team	$	9 months	Local, County, State, Federal	x	x				x				x	x	x
C. Mitigating the Threat of Fire	C.1	Develop a Wildfire Protection Plan.	OEM	$$$	1 year	Local, County, State	x		x	x				x	x			
	C.2	Participate in Firewise Communities Program.	OEM, Local Fire Departments, Neighborhood/Community Associations	$	6 months	Local, County, State	x		x	x					x			
	C.3	Participate in Ready, Set, Go!	OEM, Local Fire Departments	$$	6 months	Local, County, State	x		x	x					x			
D. Preparing for Floods	D.1	Identify areas of localized repeat flooding.	Township Engineer, Public Works	$$	1 year	Local, County, State	x		x	x	x	x				x	x	
	D.2	Raise private property out of flood prone areas.	Township Engineer	$$$$$	10+ years	Local, County, State, Federal	x			x	x	x				x	x	x
E. Guiding Development and Protecting Innfrastructure	E.1	Protect critical facilities, community facilities, and municipal infrastructure from flood risk.	Township	$$$$$	5-10 years	Local, County, State, Federal	x			x	x	x				x	x	x
	E.2	Protect critical facilities, community facilities, and municipal infrastructure from fire risk.	Township	$$$$$	5-10 years	Local, County, State, Federal	x			x	x				x			
	E.3	Address septic system failures.	County Board of Health	$$$$	5-10 years	Local, County, State	x		x		x					x		
	E.4	Prepare and execute a stormwater system maintenance strategy.	Township Engineer	$$$	ongoing	Local, County, State	x		x	x	x	x				x	x	
	E.5	Work with utility providers to ensure that infrastrucutre is less susceptible to hazards.	Township, NJ American Water, South Jersey Gas, Atlantic City Electric	$$$$	6 months	Local, County, State	x		x				x	x	x	x	x	x
	E.6	Modify zoning to incentivize resilience.	Township Committee, Planning Board	$$$	6 months	Local, County, State	x	x	x	x	x	x	x	x	x	x	x	x
F. Conserving our Environment	F.1	Promote drought-tolerant, native vegetation in landscaping.	Green Team	$	6 months	Local, County, State	x	x		x			x	x	x			
	F.2	Advance green infrastructure efforts.	Township Engineer, Green Team, Public Works	$$	1-5 years	Local, County, State	x	x	x	x	x	x	x	x	x	x	x	x
	F.3	Promote water conservation programs.	Green Team	$$	1 year	Local, County, State	x	x		x			x	x				
G. Creating a Roadmap for our Future	G.1	Maintain or Upgrade Community Rating System (CRS).	Township Engineer	$$$	ongoing	Local, County, State	x			x						x	x	x
	G.2	Upgrade Sustainable Jersey Certifications.	Township Engineer	$$$	ongoing	Local, County, State	x			x			x	x	x	x	x	x
	G.3	Update the municipal Master Plan and Elements.	Planning Board	$$$	1-5 years	Local, County, State	x	x	x	x			x	x	x	x	x	x

Endnotes

1 Eight critical facilities identified as at risk of exposure to flood risk in the County HMP: two communication towers, one county facility, one dam, one daycare, one marina, one potable water tower, and one EMS facility.

2 The County HMP specifically identified 5 critical facilities at risk of exposure to 0.2 percent flood risk: the Strathmere Fire Station, the NJ American Water Well Tower and Public Well, the Longport Media Communications Tower, and Atlantic City Electric substations at BL England and west of Wilkie Boulevard.

3 County HMP. Facilities at risk include bridges, communications towers, dams, fire stations, county facilities, daycares, water towers, and more.

4 County HMP. Facilities at risk include up to five bridges, up to five marinas, one well, one fire station, and one library.

5 Klobucista, C and Robinson, K. (2023). Water Stress: A Global Problem That's Getting Worse. Council on Foreign Relations. https://www.cfr.org/backgrounder/water-stress-global-problem-thats-getting-worse

6 Sustainable Jersey, https://www.sustainablejersey.com/grants/ , Accessed August 15, 2023.

7 EPA Smart Growth Grants, https://www.epa.gov/smartgrowth/epa-smart-growth-grants-and-other-funding, Accessed August 15, 2023.

8 Natural Resources Conservation Service, financial help website, https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ , Accessed August 15, 2023.

9 NJ DCA, https://www.nj.gov/dca/dhcr/offices/cdbg.shtml, Accessed August 15, 2023.

10 New Jersey Environmental Infrastructure Trust, Clean Water (CWRSF) website: https://www.njeit.org/cwsrf, Accessed August 15, 2023.

11 New Jersey Environmental Infrastructure Trust, Clean Water (CWRSF) website: https://www.njeit.org/cwsrf, Accessed August 15, 2023.

12 CWDG homepage. https://www.fs.usda.gov/managing-land/fire/grants . Accessed November 13, 2023.

13 FEMA, Emergency Management Performance Grant homepage: https://www.fema.gov/grants/preparedness/emergency-management-performance , Accessed August 15, 2023.

14 FEMA, Emergency Management Performance Grant homepage: https://www.fema.gov/grants/preparedness/emergency-operations-center , Accessed August 15, 2023.

15 FEMA NGWSGP homepage. https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/broadcasters-wireless/ngwsp . Accessed November 13, 2023.

16 FEMA, BRIC Grant Program: https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/resources . Accessed November 13, 2023.

17 FEMA, Emergency Management Performance Grant homepage: https://www.fema.gov/grants/preparedness/regional-catastrophic , Accessed August 15, 2023.

18 New Jersey Department of Environmental Protection (NJDEP), Blue Acres Floodplain acquisition website: http://www.nj.gov/dep/greenacres/blue_flood_ac.html, Accessed August 15, 2023.

19 New Jersey Department of Environmental Protection (NJDEP), Green Acres Program website: http://www.nj.gov/dep/greenacres/, Accessed August 15, 2023.

20 National Oceanic and Atmospheric Administration (NOAA), NOAA Climate Resilience Regional Challenge website: https://www.coast.noaa.gov/funding/ira/resilience-challenge/ , Accessed August 15, 2023.

21 State of NJ Department of Health, Directory of Grant Programs website: https://healthapps.state.nj.us/noticeofgrant/noticegrants.aspx# , Accessed August 15, 2023.

22 Cape May County, https://capemaycountynj.gov/documentcenter/view/10779 , Accessed August 15, 2023.

23 UCI Coastal Community Resilience Financing Roundtable Summary, Urban Coast Institute. 12/14/2017.


UPPER TOWNSHIP
1798