# RESILIENT N

**Atlantic County Coastal Region RRAAP Appendices** 

October 2022



Atlantic County, Atlantic City, Brigantine, Pleasantville, Northfield, Ventnor City, Margate City, Longport, and the American Red Cross

Submitted by:















Appendix A—Planning Context Report



Submitted by:









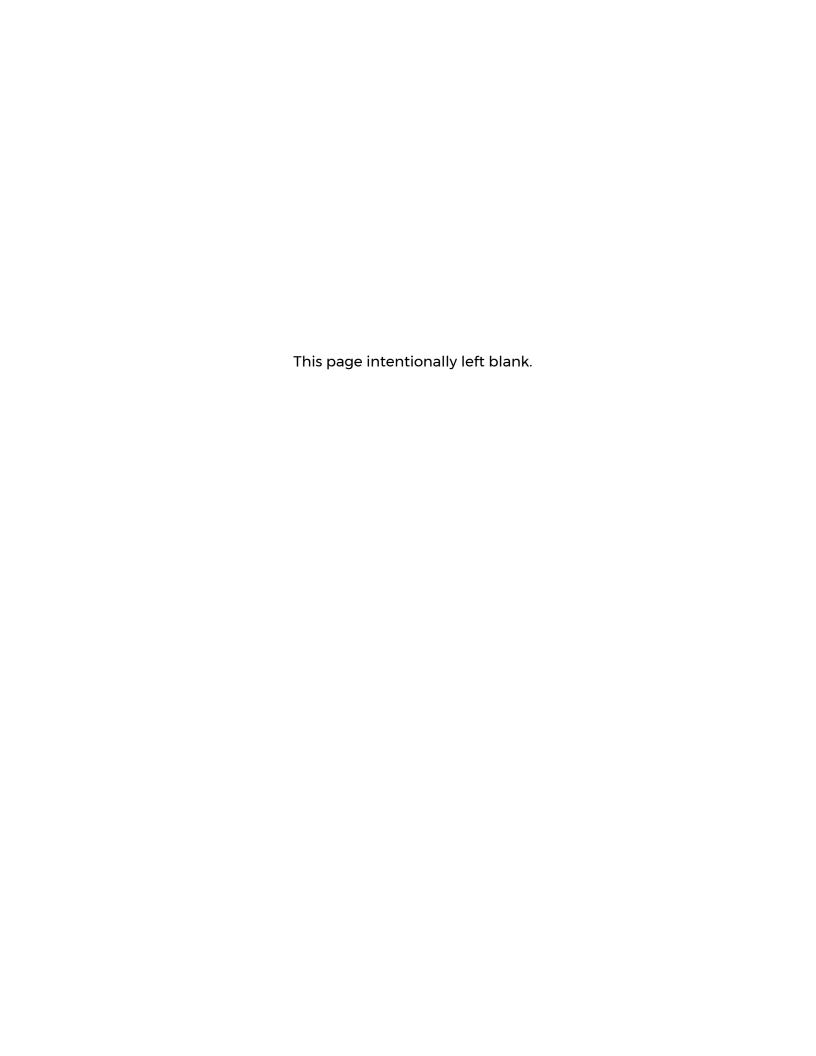












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## ATLANTIC COUNTY COASTAL REGION



VENTNOR, MARGATE, LONGPORT, ATLANTIC CITY, BRIGANTINE, PLEASANTVILLE, NORTHFIELD

#### **EXECUTIVE SUMMARY**

Consistent with the State of New Jersey's efforts to foster community-driven approaches to long-term planning for climate change and its impacts on the built and natural environment, the New Jersey Department of Environmental Protection (DEP) initiated the Resilient NJ program. The statewide program builds on existing efforts and capabilities to create and implement creative regional planning solutions to address the growing risk of climate hazards, specifically coastal impacts like storm flooding and sea level rise. This process is being implemented in four separate regions across the state and will result in the development of a Regional Resilience and Adaptation Action Plan (Action Plan) for each region. The Action Plan will align local visions with projects and implementation strategies led by local communities in each region to help create a more flood-resilient future.

This Planning Context document is specific to the Atlantic County Coastal Region (ACCR), composed of the municipalities of Atlantic City, Brigantine, Longport, Margate, Northfield, Pleasantville, and Ventnor, as well as Atlantic County and the American Red Cross of New Jersey, which serves as the local community-based organization partner. See **Figure ES-1** for a map of the ACCR.



Figure ES-1. Map of Resilient NJ ACCR, 2020

<sup>&</sup>lt;sup>1</sup> NJ Department of Environmental Protection. Resilient NJ. 2020. <a href="https://www.nj.gov/dep/bcrp/resilientnj/about.html">https://www.nj.gov/dep/bcrp/resilientnj/about.html</a>.

This Planning Context document serves as the first chapter in the Action Plan and provides baseline information and a repository of the ACCR's history, challenges, and initiatives along with a snapshot of social, public policy, and economic context for the ACCR. Through research, data analysis, a review of previous and current planning efforts, and conversations with local stakeholders, the Planning Context provides a basic understanding the state of resilience today. It provides a common language and themes for the region, and it identifies the projects, policies, and programs that have proven successful or ineffectual in promoting environmental, economic, and social resilience.

## **Population**

The ACCR is densely populated, consisting of approximately 92,000 people living across 30 square miles of land. The region consists of two barrier islands, Brigantine and Absecon Island, separated from the mainland by a series of bays (referred to in this report as the back bay), as well as the bayside communities of Northfield and Pleasantville located on the mainland. The ACCR is demographically diverse, with a wide range of ages and ethnicities calling it home. Much of the ethnic diversity is concentrated in Atlantic City and Pleasantville, where significant Latinx, Asian, and Black communities reside. While the populations of specific demographics groups are increasing, the overall ACCR has generally lost population over the past 10 years because out-migration to other parts of South Jersey and the rest of the country that has not been replaced by in-migration or natural births. In turn, the average age across the ACCR has been rising, and school enrollment rates have trended downward.

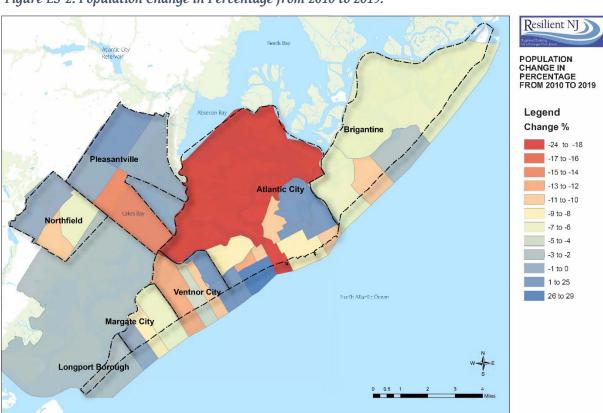


Figure ES-2. Population Change in Percentage from 2010 to 2019.

The ACCR's gradual decrease in population is paired with an economic contraction since approximately 2005. For decades, Atlantic City has been a resort destination, and the gaming and casino industry has been the center of economic activity since casinos were legalized in the city in 1976. With expanded

legalization of casinos and gambling elsewhere in the Northeast United States, the advent of online-gambling, and other macroeconomic changes and shocks that hit Atlantic City, the ACCR has experienced an acute economic downturn that has affected thousands of jobs within the ACCR and surrounding communities. This has been exacerbated by the COVID-19 pandemic in 2020 through 2021. The downturn has somewhat stratified the local economies within the ACCR, as beach communities like Ventnor, Margate, Longport, and Brigantine increasingly become vacation-home communities with a seasonal population instead of bedroom communities for Atlantic City. Remote working has affected this trend, where more individuals who previously needed to commute are seeing to work from the beach communities. Despite the downturn, casino revenues have generally stabilized in recent years, and other avenues of growth have begun to diversify the economic base, such as the establishment of Richard Stockton University's Atlantic City campus, and the upcoming installation of offshore wind facilities.

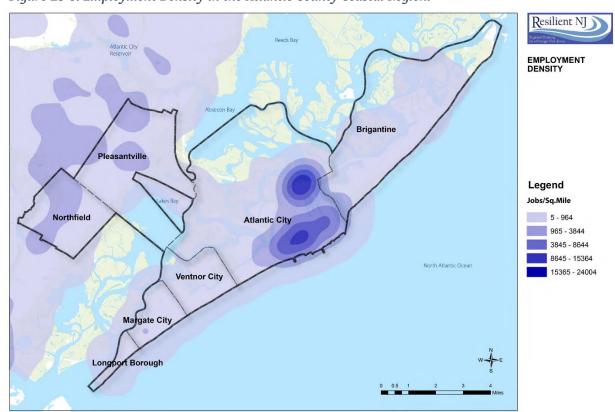


Figure ES-3. Employment Density in the Atlantic County Coastal Region.

#### **Economy**

These new economic drivers complement the region's natural and manmade attractions, which attract upwards of 150,000 visitors on summer weekends. Access is a fundamental issue in the ACCR, where connections for vehicular, boat, and train traffic are needed to reach destinations along the beaches and bays, particularly on Absecon and Brigantine Islands. Accessibility is important not only to summer vacationers, but also in advance and during a coastal storm when evacuation is required and in the aftermath during recovery and rebuilding. Housing, infrastructure, education, economic growth, and ecological protection are all essential components described in existing plans and identified by Resilient NJ stakeholders for building capacity for long-range resilience and adaptation in this coastal region.

#### **Climate**

The economic context of the region is inherently tied to its geographic location along the Jersey Shore and its easy access to inland population centers in New Jersey and neighboring states. However, this idyllic beach setting presents the ongoing risk of coastal storms and the increasing threat of climate change, which is projected to increase the volume of annual precipitation, the frequency and intensity of storms, and threaten low-lying areas exposed to sea level rise (SLR) and erosion. When Superstorm Sandy hit the region in 2012, it highlighted these risks, causing widespread damage across the ACCR and emphasizing the urgency of protecting the region from current and future climate risks. Storms since then continue to demonstrate the consequences of climate change in the region.







Image: Dune scarps in Ventnor after 2019 Storm. Source: NJ.com, Lori M. Nichols

Two major categories of coastal impacts are:

- ❖ High tide flooding (sunny day flooding): as sea levels rise, flooding can occur even when there's no storm. This can cause property devaluation and can interrupt daily life of affected communities. With SLR, more frequent flooding will affect infrastructure in the floodplain such as increased corrosion from saltwater penetration, which can lead to faster degradation and more frequent repair needs. Less frequent but higher-impact events include the moon tide and king tide, when high tide levels are above normal at monthly or annual intervals. High tide flooding is increasingly frequent.
- ❖ Extreme storms (precipitation, wind, and storm surge): derechos and hurricanes continue to threaten public health and safety and can lead to loss of life and property, costly damages to community infrastructure (e.g., power systems, transportation, grocery stores), contamination (e.g., spills of hazardous materials), and economic impacts (e.g., loss in tax revenue, disrupted supply chains, reduction in tourism expenditures). Ocean- and bay-facing properties face damage from wind and wave action, while storm surge and inland flooding affect both the barrier islands and back bay areas. Extreme storms can also accelerate erosion and sedimentation, wreak havoc on sensitive ecosystems, and cause trauma for local populations − particularly socially vulnerable populations who may have fewer accessible resources to prepare and respond effectively.

In Atlantic City, the frequency of tidal flooding events has increased from an average of less than one event per year in the 1950s to an average of eight events per year from 2007 to 2016 – and in 2018 alone,

Atlantic City experienced 18 such high-tide flood events.<sup>2</sup> Some of the worst impacts of these events can be found along the back bays, where bulkheads and other flood mitigation measures are surpassed and low-lying homes, roadways, other infrastructure, businesses, and natural resources are damaged.

Past and present initiatives to increase resilience to floods and extreme weather include a range of solutions from filling sinkholes at the water's edge along bulkheads to educational and emergency preparedness programs to broader storm recovery projects implemented to repair the ACCR's assets and infrastructure following the significant impacts of Superstorm Sandy and other coastal storms. The U.S. Army Corps of Engineers (USACE) has also released a 'Tentatively Selected Plan' for reducing the risk of flood damages associated with storm surge, as outlined in the New Jersey Back Bays Coastal Storm Risk Management Study.<sup>3</sup> The plan is not yet approved by Congress and is not currently funded for implementation at state or federal levels.

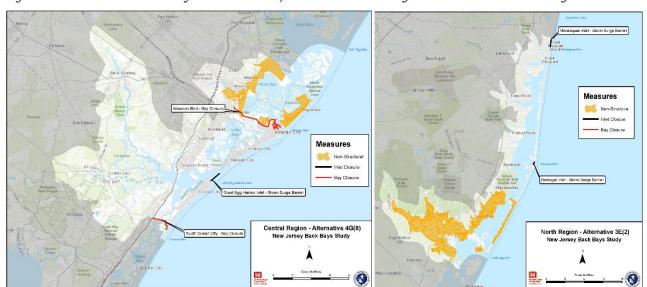


Figure ES-3. USACE 'Tentatively Selected Plan' for Storm Risk Management in ACCR and its neighbors.

### **Physical and Social Vulnerability**

Sea level has increased at approximately 0.157 inches/year since the early 1900s in the region, that not only increases flooding and severe storms, but also wave action and coastal erosion that is a concern for the population and infrastructure. The population in the ACCR along with critical assets, community facilities, and a high percentage of "second" homes are located in flood prone and otherwise hazardous areas. This requires significant investment in education, design, construction, maintenance, and emergency management for reducing risks and protecting people and infrastructure.

It is imperative that projects and policies are based on both current and projected future sea level rise data as well as other climate data on increasing temperatures and more frequent and intense

<sup>&</sup>lt;sup>2</sup> The Press of Atlantic City, Rutgers: New Jersey shore sea rise is more than double the global average, December 16, 2019, <a href="https://pressofatlanticcity.com/news/local/rutgers-new-jersey-shore-sea-rise-is-more-than-double-the-global-average/article\_4d7de8da-06e6-584a-ab57-83bba532b246.html">https://pressofatlanticcity.com/news/local/rutgers-new-jersey-shore-sea-rise-is-more-than-double-the-global-average/article\_4d7de8da-06e6-584a-ab57-83bba532b246.html</a>.

<sup>&</sup>lt;sup>3</sup> US Army Corps of Engineers, Philadelphia District & Marine Design Center Website: New Jersey Back Bays Coastal Storm Risk Management Study, August 2021, <a href="https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/">https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/</a>.

precipitation events, which can have adverse effects on public health, infrastructure, business continuity, and ecological resources – including wetlands and marshlands that provide habitat, recreational spaces, wave attenuation, and other sustainability and resilience benefits.

The ACCR is home to socially vulnerable populations (SVPs), defined by DEP as those prone to negative health, financial, and housing impacts from natural disasters that can have difficulty recovering from such events. Identification of SVPs considers age, ethnicity, language, socioeconomic indicators, housing and transportation, household composition, and disability or special needs.

SVPs have historically been disproportionately exposed to environmental hazards, health risks associated with air pollution, water pollution and toxics releases; inadequate housing, education, jobs training, and job opportunities; and challenges related to access to resources that impact quality of life.

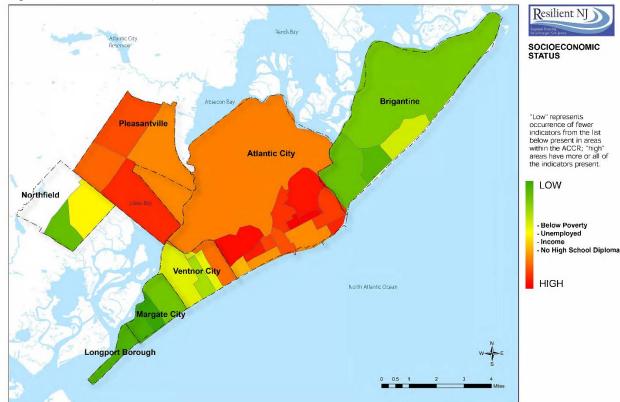
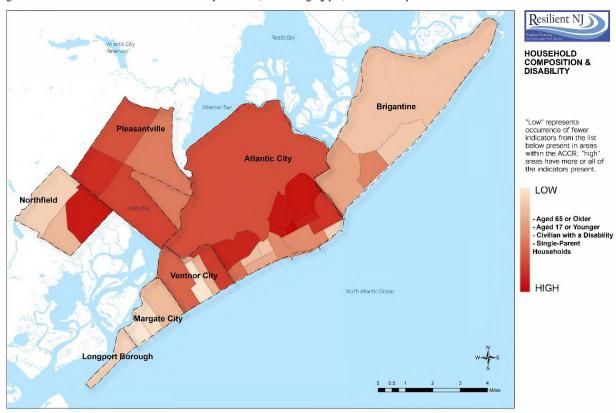


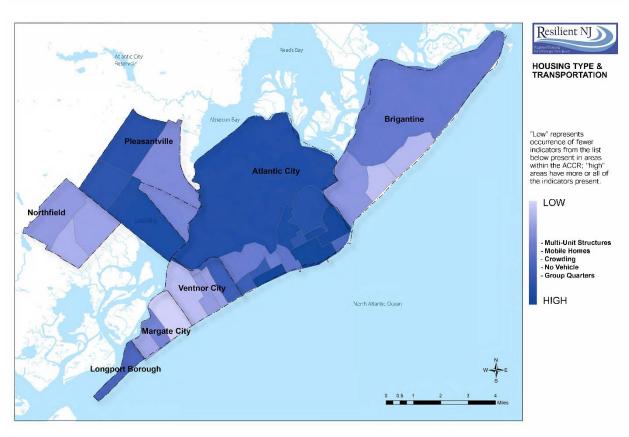
Figure ES-4. Indicators of Socioeconomic Status in the ACCR.

As communities plan for climate resilience and adaptation, it common for uncertainty, fear and distrust to arise for stakeholders, particularly those who have experienced a history of civil rights violations, broken promises, confusing recovery strategies, and disinvestment. The COVID-19 pandemic has highlighted these concerns, and issues of environmental justice are at the forefront of resilience planning across the state. ACCR stakeholders are resolved to consider social and economic issues when approaching future resilience efforts, and recent policy improvements in the state—such as New Jersey's Environmental Justice Law, N.J.S.A. 13:1D-157 – are beginning to institutionalize evaluation of facilities for their contributions to existing environmental and public health issues in overburdened communities as part of community-based planning, permitting, and project implementation.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup> New Jersey Department of Environmental Protection, Environmental Justice Overburdened Communities (OBC) September 18, 2020, <a href="https://www.nj.gov/dep/ej/communities.html">https://www.nj.gov/dep/ej/communities.html</a>.

Figure ES-5 and ES-6. Household composition, housing type, and transportation indicators in the ACCR.





## **Resilience & Adaptation**

The Action Plan under development is intended to build on over a decade of local and regional planning efforts, including municipal and county master plans, stormwater and hazard mitigation plans, economic development strategies, infrastructure and capital improvement plans, and other redevelopment and revitalization plans. Through this process, the ACCR recognizes the concerted effort that has gone into these processes, the existing network of partners and solutions in motion, and the benefit of harnessing these efforts to formulate an "all of the above" and widely coordinated strategy to address vulnerabilities explored in the aftermath of Hurricane Irene and Superstorm Sandy.



Image: Underground flood control infrastructure (Baltic Avenue Canal) at Fisherman's Park in Atlantic City. Water drains from 775 acre of Streets into the canal to alleviate flooding. Photo Courtesy: Kristian Gonyea/The Press of Atlantic City

The table below summarizes a sample of findings related to resilience measures from the municipal and county master plans:

Table ES-1: Resilience Components of Existing Plans and Processes

Plan	Resilience Components
Atlantic County 2018 Master Plan	Goals to acknowledge and address flooding and future climate risks; promote development outside flood prone areas; diversify economy; improve infrastructure; preserve and enhance natural resources
	Sustainability and resilience strategies regarding backup energy sources, acquisition of flood-prone structures, zoning and design standards, and capital investment prioritization changes

Plan	Resilience Components
Atlantic City 2016 Atlantic City	Consistent with state's smart growth principles of developing within areas of existing infrastructure; consistent with surrounding jurisdictions/County
Re-examination Report	❖ Plan for revitalizing Atlantic City downtown core: walkable, commercially successful, vibrant, resilient infrastructure (e.g., grid resilience / microgrid outlined in separate report)
	Diversify economy and expand tourism and recreational offerings to be more family-oriented to keep residents, create jobs, and attract new residents and employees
	❖ Arts District, and Eds & Meds corridor, concentration of employment, new business attraction and development, and implementation of Main Street strategies and initiatives
Brigantine 2016 Master Plan Re-examination Report	Short-term actions for protecting buildings and properties through elevating (aggregated decisions of multiple property owners in a neighborhood), evaluation of floodplain protection regulations and floodplain mapping, participation in FEMA Community Rating System (currently Class 5 community)
	❖ Moderate-term actions that might involve gradual upgrading of infrastructure with green infrastructure best practices, designation as "Storm Ready Community" by National Weather Service
	❖ Long-term actions that anticipate eventual impacts of SLR (e.g., limit new development, elevate streets, raise bulkheads, protect shorelines); reconstruct bulkheads to protect City and individual properties
	<ul> <li>Inter-agency/regional coordination with federal and state agencies</li> </ul>
	<ul> <li>Incorporate resilience into local economy</li> </ul>
	❖ Area along back bay from the North End Redevelopment Area to the Brigantine Bridge of focus for adaptation/resilience measures
Longport Planning and Zoning Board Municipal Land Use Law Framework	The application review and approval process enhances resilience by ensuring (a) conformance with the Borough Master Plan and developmental ordinances; (b) satisfaction for public safety concerns; and (c) adherence to generally accepted design standards as recommended by board professionals and city officials
Margate 2016	Since Superstorm Sandy, there has been an increased emphasis on coastal resilience.
Comprehensive Master Plan Update	❖ Margate has strong community outreach that has engaged the public in local environmental issues. The result of this work led to Margate receiving a Bronze rating from Sustainable New Jersey in October 2014.
	❖ In 2016, Margate was awarded Blue Star certification by Clean Ocean Action, an organization that works to improve the quality of marine waters off the New Jersey coast.
	❖ In 2014, Margate contracted a consultant to analyze flood risks. It reports that the most pressing issue facing the city and its residents is the need to elevate homes throughout the community.

Plan	Resilience Components
	<ul> <li>(Margate continued) Reinforce the protective barriers around the city.         Margate is exposed to flooding from storm events (such as coastal flooding and ponding) and SLR. Bayside street elevations are vulnerable to flooding during coastal storms at only 5 to 6 feet above sea level.</li> <li>Economic plan is part of the Master Plan and details efforts for redevelopment in the Central Business District and Waterfront Special District.</li> </ul>
Northfield 2008 Master Plan Re-Examination	<ul> <li>Encourages all new development to use the latest techniques available to provide energy efficient buildings.</li> <li>Encourages the revision of local ordinances to accommodate the use of alternative energy sources, such as wind, solar, and geothermal sources.</li> <li>Encourages the preservation of specimen trees and natural wooded areas, where possible.</li> <li>Encourage the installation of sidewalks and bikeways.</li> </ul>
51	
Pleasantville 2015 Pleasantville Mater Plan Reexamination Report	<ul> <li>General Development Goals include:</li> <li>Manage growth while protecting against the potential negative impact of growth.</li> <li>Keep pace with the economic climate in the City and use appropriate tools to update regulations and policies.</li> <li>Use all state and federal programs to assist in the City's revitalization.</li> <li>Leverage Urban Enterprise Zone (UEZ) benefits to connect business with tax exemptions for company purchases and costs associated with relocation. The city has had an UEZ designation for the past 23 years, during which 300 businesses have taken advantage of the benefits; the current number of UEZ businesses operating in the city is 120.</li> </ul>
Ventnor 2016 Ventnor Master Plan Reexamination Report	<ul> <li>Protect and preserve natural assets, including oceanfront, Ventnor West, bayfront, and marshes in Ventnor Heights.</li> <li>Numerous projects related to energy conservation (including Energy Audit Report for municipal buildings in August 2015).</li> <li>Explore "aggressive policy" that promotes energy efficiency through building placement and design; solar on public buildings; electric vehicle charging station installation.</li> <li>Promote mass transit, bicycling (including bike lanes on Ventnor and Atlantic Avenues), and walking as alternatives to single-occupancy vehicles.</li> <li>Recycling and trash pickup; regularly scheduled beach &amp; bay cleanup days.</li> <li>Analysis of storm vulnerabilities.</li> <li>Support of city Climate Adaptation Plan published 9/8/2015.</li> <li>Designation of area in need of redevelopment: Wellington Avenue and Ventnor Plaza. Plaza owner would like to add new uses for parcel of land along Wellington Ave. If the city turns this into a 'redevelopment zone', it could possibly offer a deal to entice developers. Financial incentives could then be made available to upgrade the area. A PILOT (Payment in Lieu of Taxes), could bolster redevelopment plans for Ventnor Plaza.</li> </ul>

In addition to local master plans, each municipality has participated and continues to stay engaged in inter-municipal and regional climate-based planning efforts that have documented challenges and offered policy-based and physical solutions for climate risk mitigation. Strategic Recovery Planning Reports discuss recommendations to mitigate regional risks, while more recent plans—such as the USACE Back Bays Study—seek to address long-term resilience. These plans and studies present the opportunity for more cross-jurisdictional coordination (across boundaries and local-state-federal scales) for preparedness, protection, recovery, resilience and adaptation efforts.

On top of resilience planning within municipalities, utility and infrastructure agencies have adopted plans to address current and future climate risks. The Atlantic County Utilities Authority, NJ Department of Transportation, Stockton University, and Casino Reinvestment Development Authority are among the local agencies and community-based organizations with initiatives to protect their assets in the region from the threat of coastal flooding. These agencies are major partners in a resilient ACCR and their input and expertise is critical to defining a resilient future.

The ACCR Action Plan is and will continue to be driven by community involvement and stakeholder feedback. In the fall of 2020, a Steering Committee was established through the Resilient NJ planning process to meet monthly, guide decision-making, and disseminate information to engage the public. An engagement plan was developed to provide a blueprint for how voices of community members, officials, and other stakeholders are to be included in Action Plan development and the methods for engaging diverse populations in effective ways. Through an asset collection process, the ACCR has identified assets that are important to maintain and will be examining risks and identifying opportunities to enhance regional resilience through the course of the Resilient NJ process. The table below outlines initial themes ACCR community leaders have discussed.

Table ES-2. ACCR Initial Priorities and Areas of Interest

Member	Priority/Interest Areas			
American Red Cross	Expand and incorporate preparedness in communities.			
	ARC can offer community tools to strengthen resilience through education, free resources, and training programs - this includes preparedness programs, youth-based programs, and business continuity programming.			
	ARC seeks to pilot and establish a community preparedness foundation.			
Atlantic County	Action Plan must be realistic; funding is key. Many projects and programs are proposed that never happen because funding is not available.			
	County is a large source of revenue and needs to be kept in mind when planning to help integrate plans across jurisdictions and stakeholders.			
	It is important to nurture businesses and keep in mind economic sustainability.			
Atlantic City	Communities have many common challenges and assets.			
	❖ Atlantic City has a very diverse population with a high renter population.			
	There are a lot of equity issues and challenges in the City and ACCR.			

Member	Priority/Interest Areas			
	(Atlantic City continued) Atlantic City Boardwalk is one of the ACCR's assets; the boardwalk has received funding in the past and has done some improvements but there is still a long way to go.			
The Blue Economy is a part of larger economic diversification and development plan to serve growth and sustainability goals. The Continuing to explore installation of one or more microgrids.				
	<ul> <li>Community involvement and outreach are very important to Atlantic City along with the County's point of view and ongoing coordination.</li> </ul>			
Brigantine & Ventnor (jointly	Infrastructure, both local and regional, is important to Brigantine and Ventnor.			
represented by one Steering Committee	Shared resources and services (e.g., equipment, contracts) is necessary for increasing resilience and improving efficiency, cost and otherwise.			
member)	Looking forward to prioritizing actions and projects that bring resilience in both local and regional ways.			
Longport	Preparedness, regional approach, shared services, consistency of communication are primary areas of focus.			
	❖ Importance of all communities working together: regionalization is key to getting the plan to work; regional approach may offer ability to secure more funding if communities are working together.			
Margate	Opportunities for shared services and program like disaster debris management would be helpful towards building resiliency.			
	Must keep plan simple and allow actions to be attainable for communities to work together routinely.			
	Margate, Longport, Ventnor and Atlantic City especially all have something to gain by improving shared infrastructure.			
	Reinforce Shelter Island to absorb storm surge/effects on bayside communities.			
Northfield	Important to start small and then grow the plan as we work together with other municipalities.			
	Shared services and interdependencies can increase resilience - towns depend on each other for evacuation access.			
	<ul> <li>Primary focus is on emergency response and emergency management.</li> </ul>			
During an emergency, there should be a regional approach so not duplicative processes, costs, overlapping services.				
Pleasantville				
❖ Many residents work in surrounding cities; it is important to economic actions for how region functions as a whole.				
Pleasantville is unique in its diversity; there has been a huge shift in last ten years with the growth of a large population of non-Eng speaking residents and English as a second language residents.				

Member	Priority/Interest Areas		
	(Pleasantville continued) It is important to make sure residents have resources; undocumented immigrants, who might be residents and are afraid to reach out because of the resident status, must also be included.		
	Pleasantville has redevelopment plans that are in progress that would be beneficial for the Resilient NJ planning process to incorporate.		
Regional Coordinator	<ul> <li>Coastal area is an economic engine within county, state, and broader region that needs to be protected.</li> </ul>		
	New administration is talking about a major infrastructure bill; Action Plan must include structural, nature-based, policy, and economic development strategies that are positioned for state and federal funding.		
	USACE Back Bay Study was refunded; FEMA has more money than it has in the past; the key is to get Atlantic County their fair share.		
	Must coordinate with policy-makers to ensure regulations align with local realities and needs, and generate new opportunities for innovation.		
	Energy, fishing, and beach/bay recreation and tourism help form the basis of the Blue Economy, which could generate significant growth in jobs, training programs, and research & development.		

Source: Interviews, Resilient NJ Steering Committee Meetings, January - June 2021.

This Planning Context chapter is intended to provide a baseline for understanding the Region's people, infrastructure, natural resources, and climate and incorporate broader goals into the development of the Action Plan. The data collected and reviewed for this document forms a foundation for the Resilient NJ planning process in which both lived experiences and modelled flooding conditions will help the ACCR evaluate risks, identify gaps in resilience planning, and spur innovative solutions for local challenges.

This location-based analysis of where and how climate hazards manifest helps local community members and decision-makers assess what is at stake, who will be affected, and what options are available to minimize risk. Upon completion of the risk assessment, a scenario-based planning process will help brainstorm solutions and provide stakeholders with the framework to evaluate choices and trade-offs among multiple pathways toward achieving resilience and the ACCR vision and goals for the future of the region. Development of scenarios will generate suites of actions that are intended to collectively increase resilience by building on the efforts outlined in this report and expanding into new opportunities through a holistic and regional approach to climate resilience and adaptation action planning in New Jersey.

#### 1. OVERVIEW OF THE ATLANTIC COUNTY COASTAL REGION

#### 1.1 Introduction

The State of New Jersey, through the New Jersey Department of Environmental Protection (DEP) Climate and Flood Resilience Program's Bureau of Climate Resilience Planning, has commenced a Regional Resilience and Adaptation Action Plan (Action Plan) process – through a program named *Resilient NJ*. The planning process seeks to align local visions with statewide policies and strategies to help agencies and communities chart a roadmap for a flood-resilient future with prioritized projects and implementation strategies.

The communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, and Pleasantville have established a collaborative partnership with Atlantic County and the American Red Cross to form the **Resilient NJ Atlantic County Coastal Region (ACCR)** (Figure 1-1. Map of Resilient NJ Atlantic County Coastal Region (ACCR), 2021).

The ACCR is one of four regions within the state of New Jersey piloting the Resilient NJ methodology for developing a regional Action Plan that complies with state regulations, helps achieve broader goals identified in the New Jersey's first <u>statewide Climate Change Resilience Strategy</u> (released as a draft on April 22, 2021)<sup>5</sup>, and will identify and prioritize actions needed to progress toward a more resilient and climate-adapted future in this specific region in the state.

1-1

<sup>&</sup>lt;sup>5</sup> State of New Jersey, Department of Environmental Protection, 2021 New Jersey Draft Climate Change Resilience Strategy, April 22, 2021, <a href="https://www.nj.gov/dep/climatechange/resilience-strategy.html">https://www.nj.gov/dep/climatechange/resilience-strategy.html</a>.



Figure 1-1. Map of Resilient NJ Atlantic County Coastal Region (ACCR), 2021

#### Through engagement with diverse stakeholders, the ACCR will assess the following:

- ❖ Does the Action Plan address immediate needs while looking to the future to assess potential risks and opportunities associated with climate change?
- Does the Action Plan align with existing efforts while also sparking innovation?
- ❖ Does the Action Plan encourage participation of historically unheard or marginalized voices?
- ❖ Do actions foster relationship building and increase regional capacity for reducing risks and adapting to observed and projected impacts of climate change?
- ❖ Are communities and respective priorities equitably represented in this Action Plan?
- ❖ Are strategies outlined in the Action Plan consistent with what works well in these communities already, and are they eligible for various opportunities for funding?
- Are residents, organizations, businesses, and other stakeholders supportive of Actions outlined in, and the investment strategy for implementation of, the Action Plan?



Image: Atlantic City's world-famous Boardwalk dates back to 1870 and remains one of the top destinations . Photo Courtesy: Do Atlantic City/City of Atlantic City

## 1.2 Planning Context

In the last 10 years, the ACCR has weathered Superstorm Sandy, nor'easters such as Jonas, derechos and heavy precipitation events, economic downturn, and the outbreak of a pandemic. The ACCR has endured these challenges while remaining a top destination for the beach, seaside gaming, resorts and conferences, typically hosting more than 27 million visitors each year. The ACCR is home to casinos, world class restaurants and entertainment, conventions, institutions of higher education, marinas, and environmental treasures including beaches, parks, bays and wildlife refuges. Though chronic flooding, power outages, casino closures, and the operational halt of most tourism-related businesses during the COVID-19 pandemic challenge residents, businesses, and local agencies, the ACCR remains a highly desirable place to live, work, and visit where people can feel connected to nature and enjoy the beauty and charm of the beach and bay communities.

The ACCR has continually adapted to the challenges it faces. However, with each shock and chronic issue the local economy, community members, and infrastructure are impacted along the way. Community needs before and after natural disasters are both social and structural. Although Superstorm Sandy was a coastal event and the pandemic is a health event, the impacts are similar: thousands of displaced families; mental and physical health effects; inequitable access to resources; uncertainty; strain on people, possessions, and property; and disrupted work, school, and living.

<sup>&</sup>lt;sup>6</sup> City of Atlantic City, NJ, About Atlantic City, 2020, <a href="https://www.acnj.gov/page/about-atlantic-city">https://www.acnj.gov/page/about-atlantic-city</a>

Within the ACCR, economically distressed communities lack access to funds, services, facilities, and other resources that support day-to-day, and emergency needs for residents and businesses. Improving this day-to-day baseline condition is fundamental to both short- and long-range community resilience.

Available funding is limited. Providing resource and infrastructure improvements without increasing financial burdens on property owners is challenging, specifically as the pandemic has further stressed municipal and county budgets. This planning process comes at a time when strategic action is vital to assist neighborhoods and the multi-jurisdictional ACCR in its recovery from the pandemic while actively preparing for the next coastal storm or other natural disaster to develop long-term adaptive capacity and resilience. As part of that effort, all long-range climate resilience planning must layer in strategies to reduce climate pollution in accordance with New Jersey's Global Warming Response Act 80 x 50 Report.

Released in 2020, this report charts a pathway toward reducing statewide greenhouse gas (GHG) emissions to 80 percent below 2006 levels by 2050, targeting the state's largest sources of climate pollution. The report serves as an extension of previous efforts, particularly those dating back to 2007 when the Global Warming Response Act was signed into law, and when it was updated in 2019.

The ACCR has a significant opportunity to advance the transition to a net-zero-carbon emission economy in the State of New Jersey in part through the actions of the Resilient NJ program, including exploration of offshore wind and nature-based solutions.

#### 1.3 Resilient NJ

The Resilient NJ program is administered by DEP's Bureau of Climate Resilience Planning and was created to identify and implement innovative regional solutions to address local vulnerabilities to coastal and river flood risk. Resilient NJ is an important piece of New Jersey's comprehensive efforts to make the state more resilient to the impacts of climate change.



As part of the federal government's Superstorm Sandy recovery efforts, the U.S. Department of Housing and Urban Development (HUD) established the National Disaster Resilience Competition, which made \$1 billion available to communities struck by natural disasters in recent years. The competition was designed to promote risk assessment, planning, and implementation of innovative resilience projects to better prepare communities for future storms and other extreme weather events. The competition was funded by the HUD Community Development Block Grant Disaster Recovery (CDBG-DR) program provided by the Disaster Relief Appropriations Act, 2013 (PL 113-2). In



January 2016, the State of New Jersey was awarded \$15 million as part of the competition. From that award, \$10 million has been allocated to the Resilient NJ program.<sup>8</sup>

<sup>&</sup>lt;sup>7</sup> Environment New Jersey, News Release: NJDEP Releases Global Warming Response Act 80 x 50 Report & Lays Out Climate Bill Roadmap, October 16, 2020, <a href="https://environmentnewjersey.org/news/nje/njdep-releases-global-warming-response-act-80-x-50-report-lays-out-climate-bill-roadmap">https://environmentnewjersey.org/news/nje/njdep-releases-global-warming-response-act-80-x-50-report-lays-out-climate-bill-roadmap</a>.

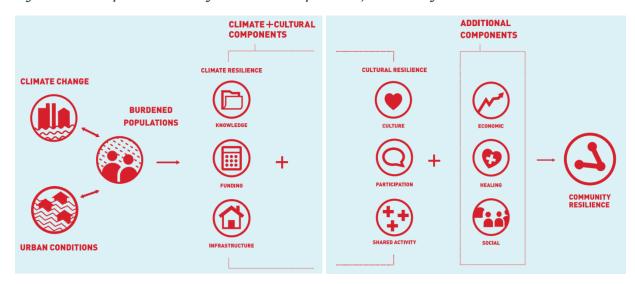
<sup>&</sup>lt;sup>8</sup> See page 22 of National Disaster Resilience Competition Grantee Profiles for State of NJ, <a href="https://www.hud.gov/sites/documents/NDRCGRANTPROFILES.PDF">https://www.hud.gov/sites/documents/NDRCGRANTPROFILES.PDF</a>.

The Planning Context report and associated documents and data provide baseline information and a snapshot of the ACCR's history; challenges; initiatives; and social, policy, and economic context for developing a Regional Resilience and Adaptation Action Plan for the ACCR. As the first task of the Resilient NJ project methodology, the Planning Context serves as an opportunity to strategically aggregate diverse information and perspectives, develop a common language for resilience planning, and build the foundation for effective and collaborative visioning, decision-making, and implementation of strategies and projects. The Planning Context Report will ultimately be a chapter within the ACCR Action Plan.

## 1.4 **Defining Resilience**

- This planning process comes at a time when strategic action is vital to assist the ACCR in its recovery from the COVID-19 pandemic while primarily working on addressing ongoing flood and infrastructure challenges and preparing for the next coastal or other natural disaster.
- Developing resilience fundamentally includes helping residents, businesses, and visitors cope with the consequences of current and future climate impacts.
- Resilience allows communities and institutions to manage catastrophic events and build back stronger, such as with Superstorm Sandy, as well as address and improve baseline conditions and ongoing / systemic issues, such as stormwater drainage, aging infrastructure, fair housing and job opportunities, and GHG emission reduction mandates and systems.
- The South Jersey Economic Development District (SJEDD) cites the American Heritage Dictionary's definition of resilience: "the ability to recover quickly from change or misfortune."
- Enterprise Community Partners' <u>Field Guide to Community Resilience</u> provides a diagram representing various components of community resilience in practice (Figure 1-2).<sup>10</sup>

Figure 1-2. Enterprise Community Partners - Components of Community Resilience



<sup>&</sup>lt;sup>9</sup> South Jersey Economic Development District (SJEDD), FY 2020 Comprehensive Economic Development Strategy: Annual Update, March 2020, http://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf.

<sup>&</sup>lt;sup>10</sup> Enterprise Community Partners, *Made to Last: A Field Guide to Community Resilience, Vol.* 1, 2018, <a href="https://www.enterprisecommunity.org/download?fid=11123&nid=8271">https://www.enterprisecommunity.org/download?fid=11123&nid=8271</a>.

## 1.5 Long-Term Objectives

The goal of the Resilient NJ program is to develop locally driven Regional Resilience and Adaptation Action Plans across the state to ensure local needs and visions are collaboratively developed and action oriented. Long-term objectives of the Action Plan include:

- 1. Formulate a plan that promotes greater preparedness, safety, trust, and quality of life for the ACCR.
- 2. Identify community champions and supporters to carry actions forward beyond 2022.
  - Sustain effective Steering Committee and support network to implement actions created in the Action Plan's first iteration; adapt the Action Plan over time to meet evolving priorities.
  - ❖ Uphold the principles and values outlined in the Action Plan.
- 3. Develop detailed actions save time, money, and other resources over the life cycle of critical and community assets.

To develop long-term capacity for thorough and inclusive engagement, ownership, and momentum from towns and other stakeholders on sustaining regional resilience, the ACCR (shown in Figure 1-3) will define and refine over time:

- The ACCR's visions and goals for resilience now and into the future; and
- The methods the ACCR favors to achieve this vision of resilience and goals.

By collaboratively developing this vision, stakeholders will evaluate and prioritize a comprehensive set of actions to address current and future flood risks while also improving quality of life; build long-term social, economic, and physical resilience; and identify creative solutions to regional problems.



Community and stakeholder engagement will provide the main channel for local voices and perspectives to influence key decisions of the project. Consultant teams will support the ACCR Steering Committee in working with technical advisors from industry, regional, state, and federal jurisdictions as well as residents, elected officials, local businesses, community-based nonprofit organizations, and other relevant stakeholders through Community Advisory Committee meetings, focus groups, and public events. This cross-collaboration will serve to align local visions with broader goals, policies, programs, and funding sources.

The goal is to connect with residents in the area who do not necessarily have institutional power and have been marginalized in this past due to structural and systemic racism and other forms of discrimination. When engaging participants for focus groups, the ACCR will ensure that the group includes diverse representation of age, income, race, ethnicity, occupation, as well as seasonal and year-round residents.

## 1.6 Baseline Community and Regional Information

The ACCR consists of seven municipalities with 92,246 residents, per the 2019 Census Bureau estimates. The population density is approximately 3,000 per square land-mile, which is higher than the statewide average of 1,207. Within the ACCR, much of the population is concentrated in the urban, ethnically diverse communities of Atlantic City and Pleasantville, where 64 percent of the population resides. Yet during summer, the population across the county swells by more than 60 percent, and the vast majority of this increase is centered in the barrier island communities of Brigantine, Longport, Margate, and Ventnor, where (combined) approximately 45 percent of the housing stock consists of seasonal or recreational homes. This is in addition to the estimated 114,000 visitors on summer weekdays, and more than 177,000 visitors on summer weekends.<sup>11</sup>

While the summer population and tourism figures remain strong, the ACCR has slowly been losing population. Between 2010 and 2019, the ACCR lost a little more than 5,000 permanent residents, or about 6 percent of its population. Projections show that stagnated population growth is expected to continue for the foreseeable future, a result of a declining core economy, little inward migration, and the macroeconomic trend of stalled population growth across many smaller metropolitan areas in the Northeast United States. Many of these demographic changes, particularly population loss and an aging population, add to the complexities in responding to coastal hazards.

#### **Population**

Table 1-1 and Figure 1-3 show the changes in population over the last decade. The 2010–2019 trend is of population losses in all communities, except Pleasantville. This trend has mostly been a continuation of slow population loss for the ACCR; Atlantic City's population hit a peak of about 60,000 residents in the mid-20th century before gradually declining to its current levels. Other communities like Northfield, Ventnor, or Brigantine—where population has mostly stayed the same or slightly increased over the past few decades—mimic the trend across the state overall. In 2018, New Jersey's population declined for the first time since modern record-keeping began, and that decline has continued. It is promulgated by outward migration to warmer or more affordable areas of the country, and a lack of inward immigration to replace that loss. In the aging, shore-based communities, the reasons for population loss most likely follow this trend. Figure 1-5 and Figure 1-6 show population change and density, respectively.

Table 1-1. Population Change in the ACCR, 2010-2019

Total Population	2010	2019	Change
Atlantic City	40,081	37,999	-5.2%
Brigantine	10,115	8,832	-12.7%
Longport	1,039	869	-16.4%
Margate	6,763	5,997	-11.3%
Northfield	8,559	8,153	-4.7%
Pleasantville	20,210	20,301	0.5%
Ventnor	11,151	10,095	-9 <b>.</b> 5%

<sup>&</sup>lt;sup>11</sup> Atlantic County, New Jersey, *Atlantic County Master Plan*, May 2018, p. 10, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

Total	97,918	92,246	-5.8%
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Source: American Community Survey 5-Year Estimates

Figure 1-4. ACCR Population Change, 2010-2019

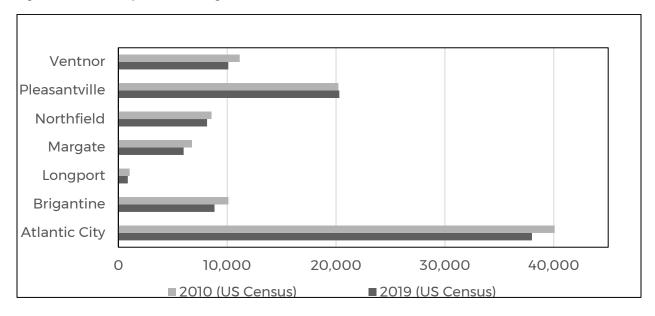
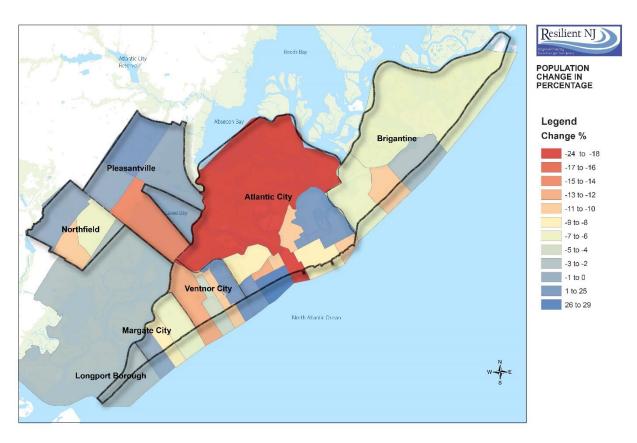


Figure 1-5. Detailed Breakdown of Population Changes in Percentage by Census Block in Atlantic County, 2010-2019



Source: American Community Survey 5-year estimate, U.S. Census Bureau

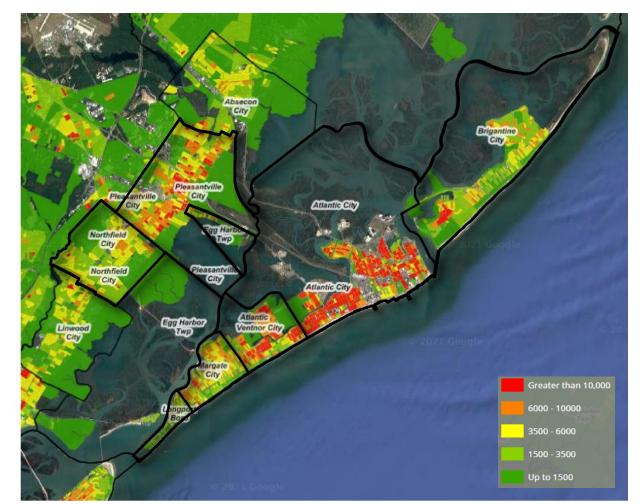


Figure 1-6. Population Density by Census Block in the ACCR, 2010

**Source: New Jersey Conservation Blueprint** 

#### **Demographics**

One of the more prominent regional demographic trends is the aging population. According to U.S. Census data, an estimated 18 percent of Atlantic County residents were 65 or older in 2019. Figure 1-7 shows the distribution in population by age between 2000 and 2019 for Atlantic County. In addition to the growing share of residents older than 54, the population of school-age children has decreased significantly, indicating that population loss can be explained in part by natural loss of older residents with little replacement via birth or inward migration.

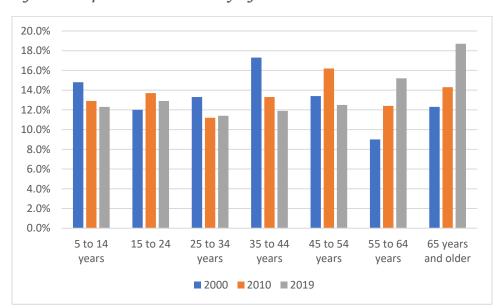


Figure 1-7. Population Distribution by Age

The ACCR, particularly in the urban communities of Atlantic City and Pleasantville, is diverse racially. Table 1-2 shows the non-white population of the seven municipalities. Overall, the ACCR is approximately 47 percent non-white as of 2019. This represents a slight decrease in the minority population, where the white population has grown slightly over the past decade. This trend most likely mirrors the larger population trends, where Atlantic City (the most racially diverse) has lost the most residents. Still, shifts in the smaller communities show that there are growing and shrinking non-white communities across the board.

Table 1-2. Non-White Population, 2010-2019

Non-White Population	2010	2019	2010-2019 change
Atlantic City	72.9%	70.4%	-3.4%
Brigantine	16.1%	8.6%	-46.6%
Longport	1.5%	1.8%	20.0%
Margate	1.5%	5.8%	286.7%
Northfield	10.8%	11.1%	2.8%
Pleasantville	73.5%	63.1%	-14.1%
Ventnor	20.2%	19.6%	-3.0%
Total	50.0%	47.2%	-5.6%

**Source: American Community Survey 5-Year Estimates** 

A variety of racial and ethnic communities call the ACCR home. The Latino/a/x community accounts for more than one-third of the population in Atlantic City and Pleasantville. In Pleasantville in particular, people of Puerto Rican descent have long had a presence, and descendants of people from the Dominican Republic, Honduras, Colombia, and Peru are growing. In Atlantic City, a sizable Asian population exists, bolstered by descendants of Chinese, Vietnamese, Bangladeshi, and other Asian immigrants. The Black

community has had a long history in Atlantic City, where 38 percent of residents of any ethnicity identified as Black or African American in the 2010 Census. Since at least the 1920s, the Black community has consistently composed more than 20 percent of the Atlantic City population. This community has centered in the Northside neighborhood of the city, where redlining and other housing segregation policies have clear impacts today (Figure 1-8).<sup>12</sup>

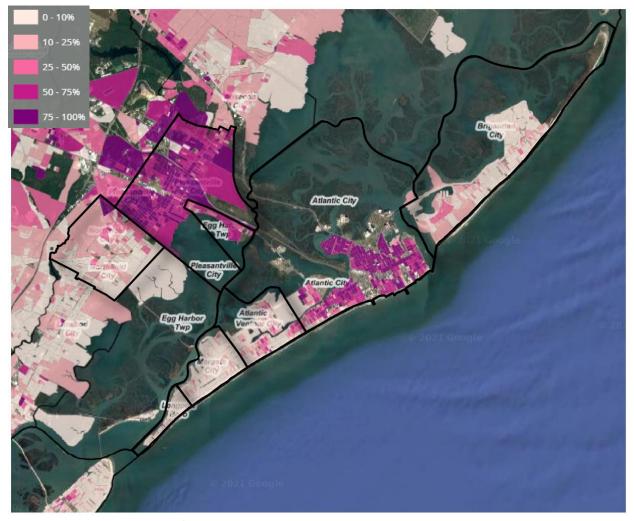


Figure 1-8. Percentage of Non-White Population by Census Blocks in the ACCR, 2010

**Source: New Jersey Conservation Blueprint** 

#### **Population Forecast**

The South Jersey Transportation Planning Organization provides population forecasts for the greater ACCR to the year 2050. These forecasts, which consider recent socioeconomic trends at a statewide and local level, as well as changes due to specific developments, are compatible with widely recognized third-party demographic projections. The annual growth rates between 2020–2050 are shown in Table 1-3. The trends to 2050 indicate limited growth over the next 30 years, but not the population loss that has

<sup>&</sup>lt;sup>12</sup> National Community Reinvestment Coalition (Christina Jackson), "In Atlantic City, the Legacy of Segregation and Redlining Endures" October 30, 2019. <a href="https://shelterforce.org/2019/10/30/in-atlantic-city-the-legacy-of-segregation-and-redlining-endures/">https://shelterforce.org/2019/10/30/in-atlantic-city-the-legacy-of-segregation-and-redlining-endures/</a>.

generally marked the ACCR since 2000. Overall, the region's annual growth is expected to be about 0.2 percent.

Table 1-3. Projected Population Growth Rates, 2020-2050

Population Growth	2020-2050 annual growth
Atlantic City	0.2%
Brigantine	0.1%
Longport	0.1%
Margate	0.2%
Northfield	0.2%
Pleasantville	0.2%
Ventnor	0.2%
Total	0.2%

**Source: South Jersey Transportation Planning Organization** 

## 1.7 Municipal and County Jurisdictions`

Municipalities participating in the Action Plan are Northfield, Pleasantville, Atlantic City, Ventnor, Margate, and Brigantine. Atlantic City represents the most densely urbanized area within the ACCR and has traditionally been the center of the county's economy.

Other more densely urbanized areas are in Brigantine, Ventnor, Margate, and Longport, all of which contain a significant number of seasonal vacation homes. These municipalities are low-lying, and some are located completely within designated 100-year and/or 500-year flood hazard areas.

All municipalities that make up the ACCR are within Atlantic County and are included in the planning goals and objectives of Atlantic County's Master Plan, developed in 2000 and updated in 2018. The Master Plan divides Atlantic County into four distinct planning regions (Figure 1-9), each of which has distinct characteristics, challenges, and future goals: Barrier Islands, Back Bay communities, Suburban, and Rural.<sup>13</sup>

The **Barrier Islands region** consists of two barrier islands in the eastern-most portion of Atlantic County and the ACCR:

- \* Brigantine Island is approximately 6 miles long and consists of one municipality, Brigantine. Across the Absecon Channel from Brigantine Island is Absecon Island.
- ❖ Absecon Island houses the communities of Atlantic City, Ventnor, Margate, and Longport.

Both islands are largely built out with the exception of the Back Bay wetland areas and multiple areas of preserved open space. The Barrier Islands were the part of Atlantic County most substantially affected by Superstorm Sandy. Municipal governments in this area continue to address the land use and infrastructure challenges caused by the storm through ongoing rebuild initiatives. Rebuild and recovery projects are discussed in more detail in Section 3.

<sup>&</sup>lt;sup>13</sup> Atlantic County, New Jersey, *Atlantic County Master Plan*, May 2018, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

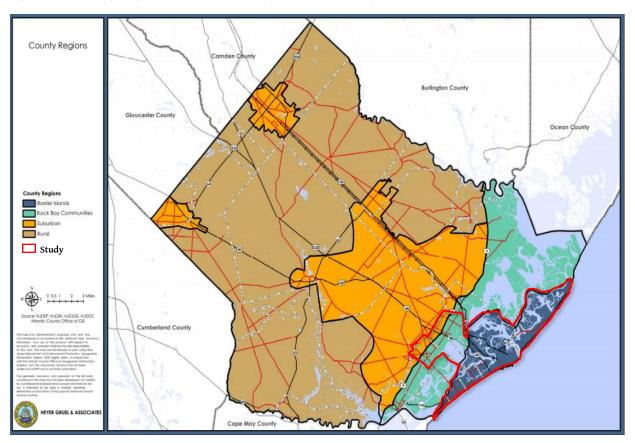
The **Back Bay region** comprises the portion of the county bounded by Route 9 on its western edge and the barrier islands at its eastern edge. This region intersects with the following project municipalities: Pleasantville and Northfield. This portion of Atlantic County experienced damage related to Superstorm Sandy, but not to the degree experienced by the barrier islands.

The **Suburban region** is an area in Atlantic County that has experienced the greatest population growth and residential development over the last several decades. According to the 2018 County Master Plan, the regulatory framework of the Coastal Area Facility Review Act (CAFRA) Zone and Pinelands Comprehensive Management Plan have shifted growth pressures to this area. (See discussion of regulatory framework below.)

The **Suburban region** intersects only minimally with the ACCR and includes portions of Pleasantville and Northfield that are not within the Back Bay region.

The Rural region does not include any portion of the ACCR.

Figure 1-9. County Regions - Atlantic County Master Plan, May 2018



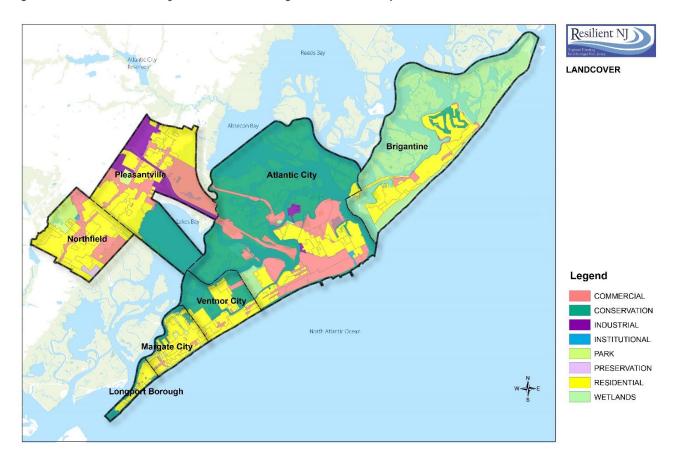
## 1.8 Land Use and Land Cover

### **General Overview**

The ACCR is located on the outer coastal plain of southern New Jersey and comprises urban, suburban, seasonal and permanent communities, with a strong composition of year-round residents compared to other Jersey Shore coastal communities that rely on tourism. The ACCR comprises seven municipalities within 45 square miles. The county's eastern-most landforms—the narrow, flat, barrier beach islands of Brigantine and Absecon—border the Atlantic Ocean to the east. To the north are the municipalities of Great Egg Harbor, Absecon and Galloway Township. Linwood, Somers Point and Cape May County are to the south. The ACCR is also located within the estuaries of the Mullica River (north) and Tuckahoe River (south) and the bays behind the barrier islands which are characterized by wide areas of salt marsh.

Land cover in the ACCR consists principally of open water and wetlands, followed by urban areas and some barren land (Figure 1-10). The land use in the project ACCR consists of many residential and commercial properties in the urbanized areas of the project region. However, comparatively, the largest areal extent of land use is public property and vacant/undeveloped land, consisting of wetlands and the Back Bay, which is also home to several wildlife management areas.

Figure 1-10. Atlantic County Land Cover/Zoning Distribution Map



#### **Regulatory Environment**

Regulations in New Jersey promote values of local and regional jurisdictions while aiming to encourage the highest and best use of properties. Several land use regulations have begun incorporating climate change into land use regulations including:

- Municipal Master Planning (A-2785/S-2607): enacted in February 2021 that requires land use plan element of municipal master plan to include a climate change-related hazard vulnerability assessment
- Coastal Zone Management (N.J.A.C 7:7)
- ❖ Flood Hazard (N.J.A.C 7:13)
- Freshwater Wetlands (N.J.A.C 7:7A)
- Stormwater (N.J.A.C 7:8)

However, the downside of regulatory processes is that they can involve significant time and resources for project coordination and approvals. The Comprehensive Economic Development Strategy for South Jersey (Strategy) notes that "regulatory issues are often cited as reasons why businesses do not want to locate [in the region]." The Strategy suggests streamlining regulation and improving coordination across government agencies, policies, and procedures could help reduce some of the challenges and burden presented by governmental policy.

A final major player in coastal land use is the U.S. Army Corps of Engineers (USACE), the lead federal agency on most resilience projects and an active stakeholder in coastal land use. USACE's management of projects such as the Back Bays Study in the area has framed much of the current approaches to public works in relation to curbing climate risk. Figure 1-11 demonstrates USACE's relationship with other stakeholders in the region.

<sup>&</sup>lt;sup>14</sup> SJEDD, FY 2020 Comprehensive Economic Development Strategy: Annual Update, March 2020, <a href="http://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf">http://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf</a>.

Agency Coordination and Compliance with Key Environmental Quality Protection Statutes UNITED STATES Endangered Species Act Clean Water Fish and Act Wildlife USFWS/NMFS Coordination s 401, 402 & 404 **NOAA**FISHERIES Act USFWS/NMFS Magnuson-Rivers and Stevens Act Harbors Act ntial Fish Habitat NMFS National Environmental Policy Act (NEPA) Coastal Zone Environmental Impact Statement Clean Air Act Management USEPA/NUDEP Cooperating Agencies: USACE/USEPA/USFWS/NMFS HHI Coastal Barrier CERCLA **US Army Corps** Act of Engineers National Wild and Historic Scenic Executive reservation Rivers Act Act Orders USDOLNES 1988 Floodplains 11990 Wetlands

Figure 1-11. USACE 2019 Back Bays Study Diagram on Agency Coordination and Regulatory Compliance<sup>15</sup>

# 1.9 Areas of Ecological Importance

The ACCR is rich in natural resources given its location near the estuaries of the Mullica River and Tuckahoe River, as well as Reeds Bay, Absecon Bay, and Lakes Bay east of Absecon Island. The bay areas are also home to several back-barrier<sup>16</sup> saltwater and tidal wetlands, islands (e.g., Jonas Island, Kiahs Island), and wildlife areas (Absecon Wildlife Management Area [WMA], North Brigantine State Natural Area, Malibu Beach WMA), shown in Figure 1-12. These areas are of high ecological importance to the ACCR because they provide different ecosystem services to the landscape, including, flood control (floodplain water storage, flood attenuation), sediment and nutrient retention, water purification (filtering nutrients and pollutants), reservoirs of biodiversity, and recreational values as they attract tourism and beautify the landscape.<sup>17</sup> The DEP Office of Natural Lands Management has designated this area to be a DEP Natural Heritage Priority Site because of its importance to the health of the natural

<sup>&</sup>lt;sup>15</sup> USACE Philadelphia District, New Jersey Back Bays Coastal Storm Risk Management Interim Report and Environmental Scoping Document, March 2019,

https://www.nap.usace.army.mil/Portals/39/docs/Civil/NJBB/Interim%20Report/1NJBB\_Main\_Report\_Interim.pdf?ver=2019-02-28-135220-997.

<sup>&</sup>lt;sup>16</sup> New Jersey coastal wetlands belong to two main categories: (1) back-barrier wetlands, protected by island barriers and lagoons located mainly on the Atlantic coast, and (2) wetlands that are not protected by a barrier island.

<sup>&</sup>lt;sup>17</sup> Lie et al. 2010, Barbier et al. 2011, Narayan et al. 2017.

ecosystem and home to rare and endangered species. The ACCR is also home to several environmental and coastal organizations, such as the Marine Mammal Stranding Center, Atlantic County Audubon Society, and the South Jersey Chapter of the Surf Rider Foundation. Other environmental organizations in areas adjacent to the ACCR include Stockton's Coastal Research Center, Jacques Cousteau Reserve, the Forsythe National Wildlife Refuge, and the New Jersey Coastal Coalition. More detail on areas of ecological importance is also provided in Section 3.3.

Resilient NI CULTURAL ENVIRONMENT Pleasantville Brigantine Legend Northfield Atlantic City Conservation Area Estuary or Marsh Natural Area **Ventnor City** Wildlife Management Area Wildlife Refuge Wetlands Golf Course/Country Club . -- Municipal Boundary Borough

Figure 1-12. The ACCR's Natural Landscape

# **Regulatory Programs that Protect the Environment**

Land development in the ACCR is subject to federal, state, and local regulations. In particular, municipalities in the barrier islands and back bay regions are subject to the DEP CAFRA, which regulates certain activities undertaken in the CAFRA zone. CAFRA aims to preserve and protect sensitive and environmental areas while concentrating growth and development in designated areas. All the municipalities in the ACCR are located in the CAFRA zone.

The ACCR is also subject to the State Development and Redevelopment Plan, which identifies different planning areas. All of the ACCR intersects one of the four following planning areas: Metropolitan (PA1),

Suburban (PA2), Environmentally Sensitive (PA5), and Environmentally Sensitive/Barrier Island (PA5B).<sup>18</sup>

Most land use and zoning decisions are made on a municipal level, and local governments have an obligation to maintain consistency with municipal, county, and statewide plans and regulations. Such regulations increasingly seek to achieve more resilient and sustainable futures.

Given the high percentage of wetlands in the ACCR, and in recognition of the high ecological and resilience value of tidal wetlands, both federal and state laws were enacted in the 1970s to protect tidal wetlands in New Jersey (Clean Water Act; Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq., Waterfront Development Act N.J.S.A. 12:5-3, CAFRA, N.J.S.A. 13:19, Coastal Zone Management Rules, N.J.A.C. 7:7). These laws have been helpful in conserving the acreage of tidal wetlands in the state.<sup>19</sup>

## 1.10 **Economy**

### **General Snapshot**

The economic history of the ACCR has been tied predominantly to tourism over the past century. The success of this industry in providing sustainable economic growth has been highly variable. For more than 15 years, the economy of the ACCR, particularly in the Atlantic City hub, has been in a gradual decline. The reasons are varied, but multiple reports attribute it to the Region's reliance on the gaming industry. In the process, tourism dollars dwindled as access to casino gambling, once exclusive to the ACCR for much of the Northeast United States, became widely available in neighboring states.<sup>20</sup> Even as the financial picture of the gaming industry in Atlantic City improved with new casino openings and increased revenues in 2019, the COVID-19 pandemic was a brutal hit on the tourism industry nationwide, with Atlantic City feeling outsized effects given its reliance on visitors.

As important of a hub as Atlantic City is to the Region, other traditional measures for community economic vitality tell a different story. Many of the communities within the ACCR have seen increases over the past 10 years in income and the total municipal ratables, <sup>21</sup> even as these metrics are stalled or in decline in the urban core of the region. Other variables have somewhat buoyed the economy, including a strong second-home market, job and income growth in non-tourism sectors, and construction industry spurred by residential and institutional growth. Though the long-term impacts of the COVID-19 pandemic will only be known with hindsight, the story of the regional economy can best be explained by the different economic profiles that show increased inequality in the ACCR.

### **Employment**

Table 1-4 shows the projected non-seasonal employment figures in each community in 2020, before the impacts of the COVID-19 pandemic.<sup>22</sup> Atlantic City is by far the biggest hub for jobs of residents of the ACCR, hosting 68 percent of all jobs in the Region. Within Atlantic County, which had 125,000 jobs right

<sup>&</sup>lt;sup>18</sup> NJ State Planning Commission, *The New Jersey State Development and Redevelopment Plan*, 2001. https://nj.gov/state/planning/assets/docs/2001-state-plan/stateplan030101.pdf.

<sup>&</sup>lt;sup>19</sup> NJ DEP. New Jersey Scientific Report on Climate Change, Version 1.0. (Eds. R. Hill, M.M. Rutkowski, L.A. Lester, H. Genievich, N.A. Procopio). Trenton, NJ. 184 pp.

<sup>&</sup>lt;sup>20</sup> The New York Times, "A City That Knows Long Odds," August 13, 2010, https://www.nytimes.com/2010/08/15/nyregion/15atlantic.html.

<sup>&</sup>lt;sup>21</sup> Municipal ratables refers to the land area that is non-exempt from property taxes.

<sup>&</sup>lt;sup>22</sup> South Jersey Transportation Planning Organization. Note: these numbers are projected from a 2017 base year; they consider casino growth but not the effects of the COVID-19 pandemic.

before the start of the pandemic, a major portion of the jobs are still located in Atlantic City. <sup>23</sup> In addition, Pleasantville and Northfield have a relatively high number of jobs compared to their populations, but not nearly to the level as Atlantic City.

Table 1-4. Employment (Including Casinos, Pre-COVID-19) 2020

City	Jobs
Atlantic City	55,022
Brigantine	4,698
Longport	279
Margate	2,508
Northfield	5,840
Pleasantville	9,482
Ventnor	2,524
Total	80,353

Source: South Jersey Transportation Planning Organization

Employment directly from the nine Atlantic City casinos in 2019 accounted for slightly fewer than 25,000 jobs.<sup>24</sup> While the prevalence of one industry to provide almost 33 percent of the jobs within the ACCR indicates heavy reliance, it also means this industry supports employment in related and secondary industries. In June 2020, even after many of the jobs lost immediately following the pandemic were regained, Atlantic County employment stood at about 90,000, a 28 percent drop year-over-year.<sup>25</sup> As of July 2020, the Atlantic City-Hammonton metro area had a 19 percent year-over-year change in unemployment rate, which was the highest of anywhere in the county, according to the U.S. Bureau of Labor Statistics. This reduction left nearly 43,000 people in the Atlantic City area unemployed over the summer.<sup>26</sup> The ACCR has been particularly hard hit by the disproportionate impact the pandemic has had on industries that are at the core of the ACCR's economy, including hospitality, retail, and entertainment.

In 2018, approximately 62 percent of ACCR residents lived within 10 miles of their place of employment. While the nine casinos in Atlantic City are some of the largest employers in the ACCR other tourism-related employers include non-casino hotels and service-oriented jobs, including restaurant, boardwalk, and Convention Hall. Atlantic City is also home to an outlet mall, with more than 70 retail stores all located downtown. Outside the hotel and leisure industry, major employers include the Atlantic City

<sup>23</sup>U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2020 Q1, <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=1&own=0&area=340016.">https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=1&own=0&area=340016.</a>

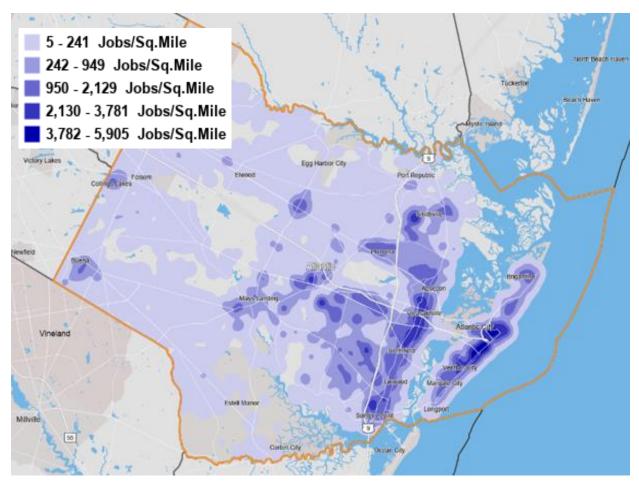
<sup>&</sup>lt;sup>24</sup> Federal Reserve Economic Data (FRED), All Employees: Accommodation: Casino Hotels in Atlantic City-Hammonton, NJ, 2020, <a href="https://fred.stlouisfed.org/series/SMU34121007072112001A">https://fred.stlouisfed.org/series/SMU34121007072112001A</a>.

<sup>&</sup>lt;sup>25</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2020 Q2, <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400">https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400">https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker/v4/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker.htm#type=11&year=2020&qtr=2&own=0&area=3400</a> <a href="https://data.bls.gov/cew/apps/table\_maker.htm">https://data.bls.gov/cew/apps/table\_maker.htm</a> <a href="https://data.bls.gov/cew/apps/table\_maker.htm">https://data.bls

<sup>&</sup>lt;sup>26</sup> Press of Atlantic City, *Atlantic City economy has 'slow, long' road ahead*, October 10, 2020, <a href="https://pressofatlanticcity.com/news/local/atlantic-city-economy-has-slow-long-road-ahead/article\_a2fa4ced-b43e-5a27-aa81-2c571af051c6.html">https://pressofatlanticcity.com/news/local/atlantic-city-economy-has-slow-long-road-ahead/article\_a2fa4ced-b43e-5a27-aa81-2c571af051c6.html</a>.

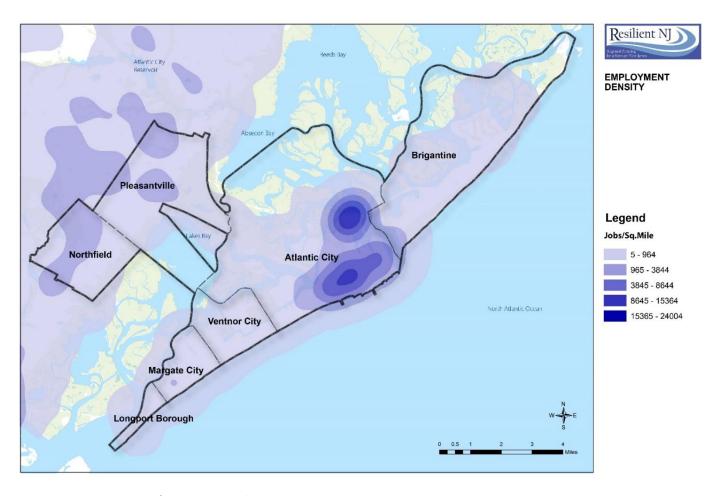
International Airport (ACY) and the adjacent Federal Aviation Administration Hughes Technical Center in Egg Harbor Township; South Jersey Industries in Atlantic City medical centers and hospitals like AtlantiCare's regional facilities in Atlantic City and Galloway, the county VA Medical Center in Northfield, and Shore Medical Center in Somers Point; and academic institutions like Stockton University. Other major employers include large chains and grocery centers, including Wawa, Wal-Mart, and Acme, which employ many residents in dispersed storefronts. Figure 1-13 shows the county-wide employment density; Figure 1-14 shows the density of jobs in the ACCR.

Figure 1-13. 2018 Longitudinal Employer-Household Dynamics Data - Employment Density in Atlantic County, NJ



Source: U.S. Census, Center for Economic Studies

Figure 1-14. 2018 Longitudinal Employer-Household Dynamics Data - Employment Density in Resilient NJ ACCR



Source: U.S. Census, Center for Economic Studies

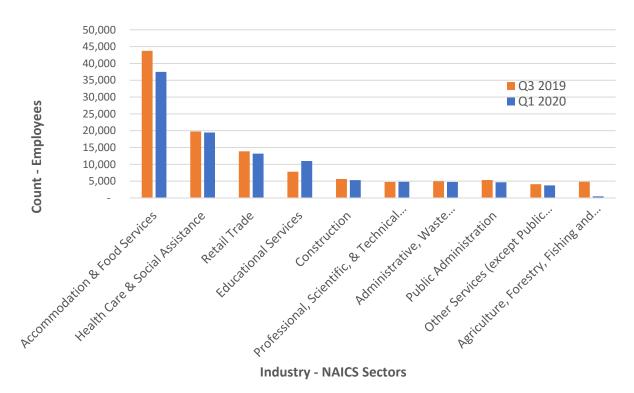


Figure 1-15. U.S. Quarterly Workforce Indicators (Q3 2019 vs Q1 2020) Top 10 Industries in Atlantic County

### Population Employed

Employment, another metric of economic vitality, indicates the percentage of residents of a community who are in the labor force and employed. Unemployment represents the percentage not employed. The March 2020 nationwide unemployment rate was 3.5 percent, which was the lowest rate in more than 50 years. Comparatively, the ACCR has struggled. In 2019, the unemployment rate for municipalities in the ACCR was 9.3 percent, as shown in Table 1-5. This was just about 1 percentage point lower than its rate in 2010, when the effects of 2007–2009 recession still had a major impact on the economy across the country. While the recovery did occur in some of the municipalities within the region—in Brigantine, Margate, and Longport—unemployment rates in the larger and inland communities show how the Region's economy struggled to expand overall.

Table 1-5. Unemployment rates 2010 vs. 2019

<b>Unemployment Rate</b>	2010	2019
Atlantic City	14%	13%
Brigantine	7%	4%
Longport	1%	2%
Margate	6%	4%

<sup>&</sup>lt;sup>27</sup> The Washington Post, "US unemployment Fell to 3.6%, Lowest since 1969" April 2019. https://www.washingtonpost.com/business/2019/05/03/us-economy-added-jobs-april-unemployment-fell-percent-lowest-since/.

Unemployment Rate	2010	2019
Northfield	7%	7%
Pleasantville	10%	9%
Ventnor	8%	11%
Total	10.1%	9.3%

**Source: American Community Survey** 

#### Academic Institutions

As shown in Figure 1-16, the ACCR is home to **Richard Stockton University's** Atlantic City Campus and the **Atlantic Cape Community College** (ACCC) extension center in Atlantic City. In 1982, Atlantic County purchased the former Atlantic City Electric Company building for the Atlantic City campus, which now is now home to a renovated facility with new sidewalks, a library, and the 29,000-square-foot Academy of Culinary Arts facility.

The Stockton campus opened in fall 2018 as part of a \$220 million development project<sup>28</sup> in the southwestern area of Atlantic City. It includes a new headquarters for South Jersey Industries and retail uses. As the second campus for Stockton, the area offers undergraduate and masters programs and more than 500 units of on-campus housing integrated into the urban environment, as well as outdoor space and parking facilities. The university provides shuttle service between the Atlantic City campus and its main campus in Galloway. The new campus was developed by the University in association with the nonprofit developer AC Devco and funding assistance from the Atlantic County Improvement Authority and New Jersey Economic Development Authority (NJEDA), offering jobs through design and construction of the campus. Now in operation, the campus employs 2,800 people and is estimated to generate an additional 3,000 indirect jobs and thousands more (roughly 5,000) attributed to ancillary activities. More than 1,100 of the 2,800 employees are full-time faculty and staff. Approximately 50 percent of employees live in Atlantic County with gross wages of more than \$58 million.<sup>29</sup>

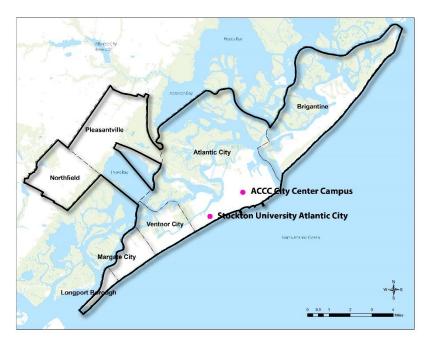


Image: Stockton University Atlantic City.

<sup>28</sup> NJ Spotlight News, "Construction Slated to Begin on Stockton's 'Island Campus' in Atlantic City," June 2016, https://www.njspotlight.com/2016/06/16-06-23-construction-slated-to-begin-on-stockton-s-island-campus-in-atlantic-city/.

<sup>&</sup>lt;sup>29</sup> Stockton University, Anchor Institution, n.d., <a href="https://stockton.edu/atlantic-city/anchor.html">https://stockton.edu/atlantic-city/anchor.html</a>.

Figure 1-16. Location of Stockton University and ACCC City Campus



In addition to direct and indirect employment, universities and other educational institutions provide programs and other benefits in their communities such as The Stockton Atlantic City Solutions Initiative. initiative brings together faculty and students with a commitment to civic learning and the capacity and responsibility to study important contemporary issues and contribute to the betterment of their communities. Due to its recent growth and commitment to Atlantic City in particular, the state designated Stockton as an anchor institution in 2016. The

decision to do so recognizes Stockton's impact on Atlantic City and the surrounding southern NJ region, as well as its potential to contribute to and help stabilize the local economy.<sup>30</sup>

In July 2018, the Atlantic City Council approved the designation of a University District surrounding the Stockton University Atlantic City Campus. See Figure 3-4 for the district boundaries. The district can be identified by the University District banners that fly throughout the area. The area connects the Tourism District and the Bader Field District.

The Atlantic City campus of ACCC is located on Bacharach Boulevard and offers a range of courses, services, and facilities for students who live or work in what ACCC calls, "our state's most famous city." ACCC founded the Atlantic Cape Foundation in 1978 as an independent 501(c)(3) nonprofit organization to serve the mission of Atlantic Cape by providing financial support to the college and its students. The Foundation has raised more than \$5 million for college scholarships, academic programs and enhancing the campus environment.<sup>32</sup>

#### Income

As a measure of purchasing power, inflation-adjusted median household income serves as a standard metric to compare economic power across geography and time. Source: New Jersey Conservation Blueprint

Table 1-6 shows the median household income for each municipality between 2010 and 2019. Overall, the ACCR has seen robust, 10 percent growth, weighted by employment rates in each municipality.

The distribution of this growth, however, is uneven. Strongest income growth was seen in the highest-income communities, particularly Longport, Margate, Northfield, and Brigantine. The communities with

<sup>&</sup>lt;sup>30</sup> Stockton University, "Impact in Atlantic City," accessed January 2021, <a href="https://www.stockton.edu/atlantic-city/impact.html">https://www.stockton.edu/atlantic-city/impact.html</a>.

<sup>&</sup>lt;sup>31</sup> Atlantic Cape Community College, "Atlantic City Campus," accessed March 2021, http://www.atlantic.edu/about/campus-locations/atlantic-city/index.php.

<sup>&</sup>lt;sup>32</sup>Atlantic Cape Community College, "About the Atlantic Cape Foundation," accessed January 2021, <a href="http://www.atlantic.edu/about/foundation/mission-and-history.php">http://www.atlantic.edu/about/foundation/mission-and-history.php</a>.

the lowest income levels generally had stagnant or negative income growth between 2010 and 2019. This level of inequality is not unique to the region; income growth has largely been stagnant for lower-earning household incomes for at least 20 years statewide, while post-recession income growth has proven to be strongest in higher-income industries. Regardless, it demonstrates that the economy of the ACCR is multi-faceted, with the economic challenges of Atlantic City not similarly present in the surrounding communities. Figure 1-17 shows household income by census tract, while Figure 1-18 shows income growth.

Pleasantville City City Atlantic City Egg Harb Northfield Twp City Pleasantv City City Atlantic City \$0 - 50,000 Egg Harbor Twp Ventnor City \$50,000 - 65,000 \$65,000 - 80,000 \$80,000 - 100,000 \$100,000+

Figure 1-17. Median Household Income by Census Tract, 2010

**Source: New Jersey Conservation Blueprint** 

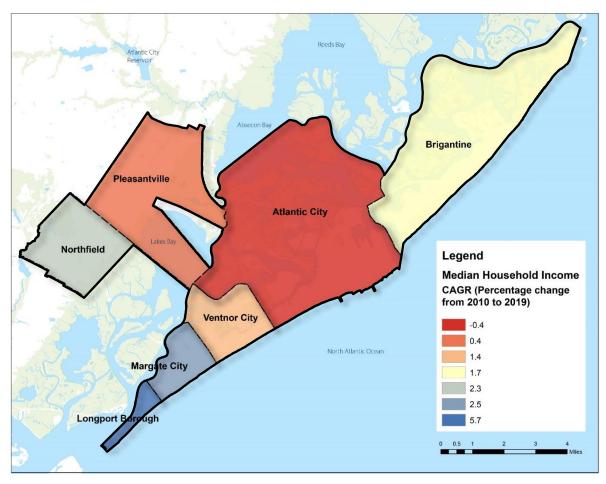
Table 1-6. Median Household Income (\$2019)

City	2010	2019	2010-2019	Compound Annual Growth Rate (CAGR)
Atlantic City	\$30,237	\$29,232	-3%	-0.4%
Brigantine	\$62,212	\$72,372	16%	1.7%
Longport	\$70,625	\$116,500	65%	5.7%
Margate	\$66,667	\$83,045	25%	2.5%

City	2010	2019	2010-2019	Compound Annual Growth Rate (CAGR)
Northfield	\$70,980	\$87,156	23%	2.3%
Pleasantville	\$39,560	\$40,991	4%	0.4%
Ventnor	\$52,465	\$59,219	13%	1.4%
Weighted for employment	\$45,535	\$50,156	10%	1.1%

Source: American Community Survey

Figure 1-18. ACCR Median Household Income Growth



Note: Decrease/Increase in percent change in median household income from 2010 to 2019 is shown in terms of compound annual growth rate (CAGR).

## 2. THE REGION'S CHALLENGES

The ACCR—like many other regions across the country and world—faces challenges on multiple fronts. Access to affordable housing and good paying jobs remains at the forefront, alongside the challenge of securing funding and resources to maintain and upgrade infrastructure, including infrastructure to protect the ACCR from hazardous events. The COVID-19 pandemic introduced an immediate and dire situation for families, governments, and the economy, which has sent rippling effects across all aspects of life.

While the ACCR remains vigilant in taking necessary precautions to reduce the spread of the coronavirus and get the economy back on track, the ACCR Steering Committee (a body of local officials who help guide project work and act as the designated decision-making body for the full ACCR stakeholder group and the Action Plan) is also working toward visions for a more climate-resilient future. As the ACCR responds and recovers from the COVID-19 pandemic, resilience and adaptation projects, plans, and other strategies serve as conduits for building greater local and regional capacity, maintaining stability through disruption, and minimizing climate change risks. From the individual and local advisory committees up through the ACCR and the state, the development of the Action Plan comes at no better time to take stock of what is important and develop solutions for enhancing resilience within the ACCR over the next 5, 10, and 50 years and beyond.

To prepare an inclusive and implementable Action Plan that offers the greatest possibility for a stronger and more resilient future, a risk assessment will be performed to assist the ACCR in looking back on lived experiences and looking forward to potential future conditions based on best available climate data. The assessment includes six flooding conditions for current and future time horizons to evaluate potential climate impacts on short- and long-term horizons (Figure 2-1). These conditions represent combinations of increased rainfall (both intensity and depth), storm surge, tidal flooding, and sea level rise (SLR), all specific to New Jersey.

This analysis will be augmented with stakeholder discussions on experiences with flooding, contemporary pressing issues, visions for the future, and other influential factors in the Region. Such factors include effects of summertime heat; funding availability for projects and programs; transportation system performance; and access to housing, jobs, and recreational opportunities.

Flooding Condition	Туре
Current	a. MHHW + 2% annual chance, 2-hour storm event
	b. MHHW + 1% annual chance, 24-hour storm event
Future	c. MHHW + SLR 2070 (2.4 ft)
	d. MHHW + SLR 2070 (2.4 ft) + (2% annual chance, 2-hour storm
	event + 10% increase in rainfall)
	e. MHHW + SLR 2070 (2.4 ft) + (1% annual chance, 24-hour storm
	event + 10% increase in rainfall)
	f. MHHW + SLR 2070 (2.4 ft) + Superstorm Sandy in 2070 (High
	Water Mark = 8.3 ft)

Together, the technical analysis and input from stakeholders will provide the basis upon which the ACCR can develop "scenarios" for creating, evaluating, and prioritizing actions for effective short-

term and long-term solutions. Ultimately, the Action Plan will serve as a blueprint for investing in resilience and adaptation and a roadmap for collectively increasing regional resilience over time.

This section summarizes several major challenges the ACCR faces, particularly in light of its location on the Atlantic Ocean and its history as a seaside retreat and the "world's playground." Given the effects of changing climate conditions due to increasing levels of GHGs in the atmosphere as well as its unique geographic characteristics, the ACCR is susceptible and exposed to a number of climate chronic challenges, which are discussed in more detail below.

# 2.1 Coastal Flooding and Storms

Given the location of the ACCR in South Jersey—spanning Absecon Island, Brigantine Island, and mainland bay communities—coastal flooding and SLR are major climate chronic challenges and consequently one of the bigger challenges the ACCR faces. Higher sea levels will increase the baseline for high-tide flooding and flooding caused by coastal storms. As a result, infrastructure and community functions are projected to be increasingly exposed to more severe impacts.



Image: Flooding from Winter Storm Jonas in Brigantine.
Source: Brigantine Now



Image: Dune scarps in Ventnor after 2019 Storm. Source: NJ.com, Lori M. Nichols



Image: The Inlet section of Atlantic City, N.J., was flooded during Superstorm Sandy. Source: Dann Cuellar/6ABC Action News

According to the National Climate Assessment (2014) report, SLR rise of 2 feet, without any changes in storms, would more than triple the frequency of dangerous coastal flooding throughout most of the Northeast.<sup>33</sup> New Jersey is already experiencing tidal flooding, even on sunny days in the absence of storm events and is experiencing increasing occurrence of high-tide flooding in recent years. In Atlantic City for example, the frequency of tidal flooding events has increased from an average of less than one event per year in the 1950s to an average of eight per year from 2007 to 2016, as shown in Figure 2-2.<sup>34</sup>

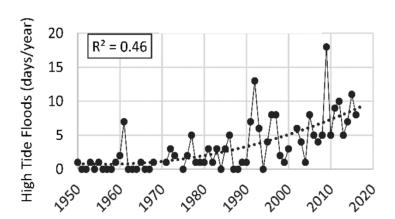


Figure 2-2. Historical High-Tide Flood Frequency (# of Flood Days) for Atlantic City, NJ

Source: Sweet et al., 2018

Under a moderate emissions scenario, by 2100 it is extremely likely (>95 percent chance) that Atlantic City will experience high-tide flooding at least 95 days per year, and likely (50 percent chance) that it will experience high-tide flooding 355 days per year.<sup>35</sup> Not only will higher sea levels increase the baseline for flooding due to coastal storms (i.e., tropical cyclones and extratropical cyclones), warming ocean waters also contribute to strengthening storms, with more intense impacts likely to affect the New Jersey coastline. According to New Jersey's Science and Technical Advisory Panel on Sea-Level Rise and Changing Coastal Storms (STAP) 2019 report, it is likely that tropical cyclones will increase in intensity (maximum wind speeds) and precipitation.<sup>36</sup> Figure 2-3 shows the land extent of a 100-year storm given current sea levels.

<sup>&</sup>lt;sup>33</sup> National Climate Assessment, 2014, <a href="https://nca2014.globalchange.gov/report/our-changing-climate/sea-level-rise">https://nca2014.globalchange.gov/report/our-changing-climate/sea-level-rise</a>.

<sup>&</sup>lt;sup>34</sup> NOAA (Sweet et. al.), "Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold," *Technical Report NOS CO-OPS 086*, February 2018, https://beta.tidesandcurrents.noaa.gov/publications/techrpt86\_PaP\_of\_HTFlooding.pdf.

<sup>&</sup>lt;sup>35</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64.

<sup>&</sup>lt;sup>36</sup> Frequency changes in tropical storms are still an area of active research with no definitive consensus (STAP 2019).

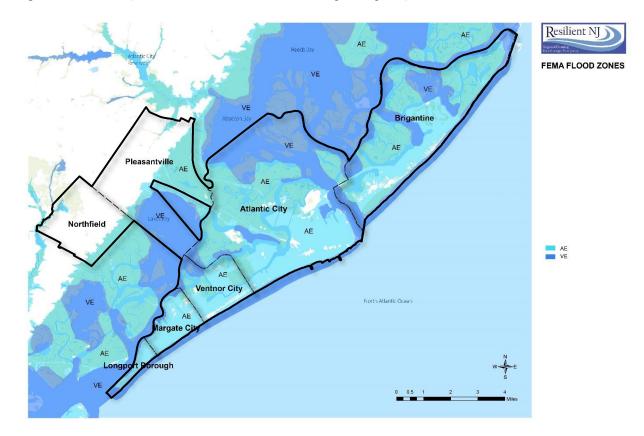


Figure 2-3. Extent of 1% Annual Exceedance Probability (100-year flood) Flood Based on Current Sea Level

Source: FEMA. Mapping by WSP.

Higher winds and more precipitation will lead to higher storm surge<sup>37</sup> and stormwater-related flooding during extreme events. Atlantic City is predicted to experience floods as severe as those that today happen only once a century, increasing to every year or two by the end of the century.<sup>38</sup>

#### **Impacts**

More intense storms, such as Superstorm Sandy in 2012, increase the potential to cause more severe impacts to the region's communities than it has experienced.<sup>39</sup>

Two major categories of coastal impacts include:

❖ **High-tide flooding** (sunny day flooding) can cause property devaluation and interrupt daily life of affected communities, for example, due to traffic interruptions. More frequent flooding will also affect infrastructure over time as saltwater penetration increases corrosion and may lead to mildewing of structures. Less frequent but higher-impact events include the

<sup>&</sup>lt;sup>37</sup> Storm surge is an abnormal rise of water above normal tide levels generated by the storm. In some FEMA definitions, it includes normal tides, also called a storm tide. The storm surge Stillwater elevation (SWEL) is the same as a storm surge plus tide during a storm.

<sup>&</sup>lt;sup>38</sup> Marsooli et. al., "Climate change exacerbates hurricane flood hazards along US Atlantic and Gulf Coasts in spatially varying patterns," August 22, 2019, <a href="https://www.nature.com/articles/s41467-019-11755-z">https://www.nature.com/articles/s41467-019-11755-z</a>.

<sup>&</sup>lt;sup>39</sup> Lau et al. "What would happen to Superstorm Sandy under the influence of a substantially warmer Atlantic Ocean?" *Geophysical Research Letters* 43, January 2016, <a href="https://doi.org/10.1002/2015GL067050">https://doi.org/10.1002/2015GL067050</a>.

moon tide and king tide, when high-tide levels are above normal at monthly or annual intervals.

❖ Extreme storms (wind impacts and storm surge) may lead to loss of life and property, damages to community infrastructure (e.g., power systems, transportation), contamination (e.g., spills of hazardous materials), and economic impacts (e.g., loss in tax revenue, temporary reduction in tourism expenditures). Ocean-facing properties have faced much damage from wind, while storm surge affects all the barrier islands, especially on the bay-side areas.

#### **Past and Present Actions and Initiatives to Address Coastal Flooding**

Most past and present initiatives to increase flood resilience in the ACCR are storm recovery projects that have been implemented to repair the ACCR's real assets and infrastructure as a result of the devastating effects of Superstorm Sandy and other coastal storms. More protective flood protection measures, such as the bulkhead installations along the shoreline of the Absecon Inlet in Atlantic City, are discussed in more detail in Section 3 of this document.

Communities on the barrier islands also have been beneficiaries of federal- and state-sponsored beach nourishment projects over the past 30 years. Because of the density of development and storm exposure, both Absecon Island and Brigantine Island have a long history of beach nourishment shore protection projects (see Section 3 for more details). Without these beach nourishment activities, beaches would erode, thereby reducing the volume of dune protection for landward properties.<sup>40</sup>

Although Superstorm Sandy caused major damage across east coast beachfront properties, gradual flooding from back bay water and its tributaries continue to inundate homes and business in the Jersey Shore area. USACE and the federal government are studying different flood prevention measures, including floodwalls, storm surge barriers, elevating homes and roadways and other features through the New Jersey Back Bays Coastal Storm Risk Management Study. Engineering solutions available along the oceanfront can be of limited value against back bay flooding.

Due to higher implementation cost and potential environmental impacts of physical infrastructure projects, nature-based solutions such as reefs, wetland restoration, and submerged aquatic vegetation are also being explored as possible solutions.<sup>42</sup>

### 2.2 Sea Level Rise

#### **Observed Data and Trends**

SLR is documented throughout the world, and it is an indicator of the Earth's increasing temperature. Globally, SLR occurs for two main reasons: ice melting on land (leading to increased water volume in the oceans) and the expansion of the ocean waters as they warm (thermal expansion). Locally, there are also influences on relative sea level that are not related to climate change, including subsidence from natural sediment compaction, groundwater withdrawals, and isostatic rebound (the adjustment of land surface to the loss of ice sheets at the end of the last interglacial period). In the United States, the regions of Mid-

<sup>&</sup>lt;sup>40</sup>USACE, North Atlantic Coast Comprehensive Study (NACCS), 2015, https://www.nad.usace.army.mil/CompStudy/.

<sup>&</sup>lt;sup>41</sup> USACE, New Jersey Back Bays Coastal Storm Risk Management Study, 2019,

https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

<sup>&</sup>lt;sup>42</sup>NJ.com True Jersey, "Feds propose barriers, raising homes to fight Jersey Shore back bay flooding," Feb 23, 2021, <a href="https://www.nj.com/news/2021/02/feds-propose-barriers-raising-homes-to-fight-jersey-shore-back-bay-flooding.html">https://www.nj.com/news/2021/02/feds-propose-barriers-raising-homes-to-fight-jersey-shore-back-bay-flooding.html</a>.

Atlantic/Northeast Atlantic coast and Gulf coast have the highest relative sea level, which is predominantly due to higher rates of land subsidence.

Global mean sea levels rose in the 1900s at a faster rate than that seen in any previous century over the last 2,800 years.<sup>43</sup> Over the 20th century, the average rate of global SLR was estimated to be 0.05 to 0.07 inches per year, but since the 1990s, when satellite measurements provided more accurate absolute sea level measurements, that rate has at least doubled to roughly 0.14 inches per year.<sup>44</sup>

Tide gauge data made available by the National Oceanic and Atmospheric Administration (NOAA) show that the sea level at the New Jersey coast locations near Atlantic City has risen at a rate of approximately 4.66 millimeters per year (mm/yr.) (0.157 in/yr.) since recording began in the early 1900s (for Atlantic City) (Figure 2-4). This rate of SLR is nearly three times the global SLR rate of 1.7 mm/yr. over a similar time span and the highest across all tide gauges along the U.S. East Coast. The large increase for Atlantic City is also due to anthropogenic rise caused by land subsidence, with groundwater withdrawal suspected of being especially influential in the Region.

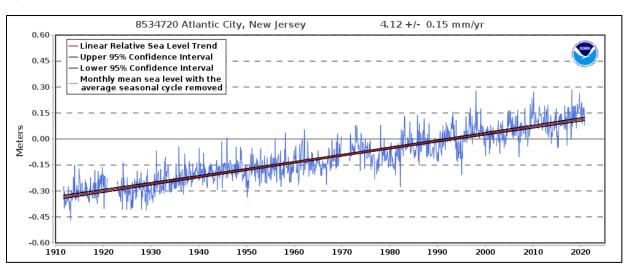


Figure 2-4 Historic Sea Level Rise

### **Sea Level Rise Projections**

As sea level rises, humans are preparing and responding to coastal changes, including the effects of storms and tidal flooding of infrastructure and properties. The last time the sea level was higher than it is today was over 75,000 years ago, when it was more than 30 feet higher than today's current global mean sea level. While SLR is not consistent across the globe (some areas experience three times the average rate while others see a drop in sea level or no change), the general trend over the past 100 years has been a steady increase of 0.16 in/yr. in the ACCR; however, a recent National Aeronautics and Space

<sup>&</sup>lt;sup>43</sup> Kopp et. al., *Temperature-driven Global Sea-Level Variability in the Common Era*, 2016, https://www.pnas.org/content/113/11/E1434.

<sup>&</sup>lt;sup>44</sup> Church & White, *Sea-Level Rise from the Late 19th to the Early 21st Century*, Surveys in Geophysics volume 32, 2011, https://link.springer.com/article/10.1007/s10712-011-9119-1.

<sup>&</sup>lt;sup>45</sup> U.S. Geological Survey, *Professional Paper* 1386-A: Chapter A-2 (Figure 45 - Various estimates of changes in global sea level during the last 440,000 years), <a href="https://pubs.usgs.gov/pp/p1386a/gallery2-fig45.html">https://pubs.usgs.gov/pp/p1386a/gallery2-fig45.html</a>.

Administration (NASA) report found that the rate of global SLR has been accelerating in recent decades (rather than a steady increase) driven mainly by increased melting in Greenland and Antarctica, based on 25 years of NASA and European satellite data.<sup>46</sup>

Several sources for SLR projections for New Jersey are available. The latest sets of projections are:

- 1) Federal SLR projections released by NOAA in January 2017, which served as technical input for the chapter on SLR in the Fourth National Climate Assessment, the Climate Science Special Report, which is the "authoritative assessment" of the science of climate change for the United States.<sup>47</sup>
- 2) Federal SLR projections released by USACE in March 2019 in the New Jersey Back Bays Coastal Storm Risk Management Interim Report and Environmental Scoping Document (see Figure 2-5).48
- 3) A New Jersey-specific set of SLR projections is provided by STAP through the 2019 "New Jersey's Rising Seas and Changing Coastal Storms" Report by Rutgers University (see Figure 2-6).<sup>49</sup>

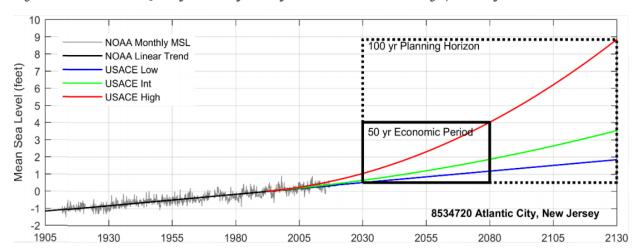


Figure 2-5. USACE New Jersey Back Bays Study Relative Sea Level Change for Study Area

Both federal and local projections consider the recent advances in SLR science.<sup>50</sup> For example, recent studies show that thermal expansion was the dominant contributor to SLR in the 20th century, but it is

<sup>&</sup>lt;sup>46</sup> NASA, *New Study Finds Sea Level Rise Accelerating*, February 2018, https://climate.nasa.gov/news/2680/new-study-finds-sea-level-rise-accelerating/.

<sup>&</sup>lt;sup>47</sup> See National Climate Assessment, NCA4, 2017, <a href="https://nca2014.globalchange.gov/">https://nca2014.globalchange.gov/</a> and Climate Science Special Report, 2018, <a href="https://science2017.globalchange.gov/">https://science2017.globalchange.gov/</a>.

<sup>&</sup>lt;sup>48</sup> See USACE Philadelphia District, New Jersey Back Bays Coastal Storm Risk Management Interim Report and Environmental Scoping Document, March 2019,

https://www.nap.usace.army.mil/Portals/39/docs/Civil/NJBB/Interim%20Report/1NJBB\_Main\_Report\_Interim.pdf?ver=2019-02-28-135220-997.

<sup>&</sup>lt;sup>49</sup> Rutgers University, New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel (STAP), November 2019, <a href="https://climatechange.rutgers.edu/images/STAP\_FINAL\_FINAL\_12-4-19.pdf">https://climatechange.rutgers.edu/images/STAP\_FINAL\_FINAL\_12-4-19.pdf</a>.

<sup>&</sup>lt;sup>50</sup> Significant advances in SLR science in recent years are for example technology improvements (e.g., more accurate readings of ice loss through satellites), better understanding of ice sheet dynamics, model improvements and new methods and approaches to determine projections.

anticipated that mass loss from the Greenland Ice Sheet and the Antarctic Ice Sheet will be the primary contributors to future SLR.<sup>51</sup> In addition, local subsidence contributes to a local scale's relative sea level (RSL) – if the land is sinking, the increase in the height of the ocean relative to the land at a particular location will have a bigger impact.

Projections of SLR for New Jersey from STAP, including estimates based on low, moderate, and high emissions scenarios for 2070–2100, are shown in Figure 2-6. For the "~50% change" estimates in middle row in the table, there is a 50 percent probability that New Jersey SLR will meet or exceed the projected given values between 2030 to 2150. The STAP report recommends that practitioners consider a range of estimates due to the array of exposures and vulnerabilities within the state. The projections to 2050 are not separated into low, moderate, and high projections because differences in SLR projections between emissions scenarios are minor in the first half of the century and the usability of sea-level science requires "grappling with the deep uncertainty in long-term sea-level projections, the relationship between long-term trends and the impacts of short-lived extreme events, and the ways in which the physical coast, as well as people and ecosystems along the coast, respond to increasingly frequent flooding. At the same time, it also requires more extensive and deliberate stakeholder engagement throughout the scientific process, as well as cognizance of the political economy of linking stakeholder-engaged science to action." 52

Figure 2-6. STAP 2019 SLR Projections for the New Jersey Coast

		2030	2050	2070		2100		2150				
				Emissions								
	Chance SLR Exceeds			Low	Mod.	High	Low	Mod.	High	Low	Mod.	High
Low End	> 95% chance	0.3	0.7	0.9	1	1.1	1.0	1.3	1.5	1.3	2.1	2.9
Libeta	> 83% chance	0.5	0.9	1.3	1.4	1.5	1.7	2.0	2.3	2.4	3.1	3.8
Likely Range	~50 % chance	0.8	1.4	1.9	2.2	2.4	2.8	3.3	3.9	4.2	5.2	6.2
valige	<17% chance	1.1	2.1	2.7	3.1	3.5	3.9	5.1	6.3	6.3	8.3	10.3
High End	< 5% chance	1.3	2.6	3.2	3.8	4.4	5.0	6.9	8.8	8.0	13.8	19.6

<sup>\*2010 (2001-2019</sup> average) Observed = 0.2 ft

An increase of 2.4 feet is used for the 2070 SLR projection for Resilient NJ planning purposes, which is the ~50 percent estimate for the high emissions scenario from 2019 STAP report. In the four future flood conditions incorporated in the risk assessment, this 2070 SLR projection was chosen as a midlength time frame in which climate predictions may be more accurate and provides regions enough time to take action to mitigate the potential risks. A condition showing SLR inundation for approximately 1 foot above current sea level is shown in Figure 2-7. SLR will impact each community differently, based on its unique exposure and vulnerability to the hazard.

The extent of coastal flooding and location of affected areas depends on the combination of tides, storm surge, and rainfall (depth and intensity) at the time of the event. This flooding is projected to increase in frequency and magnitude as a result of climate change over the next century.

<sup>&</sup>lt;sup>51</sup> It is estimated that ice mass loss contributed to 75%-85% of the observed rate in recent years (Chen et al., *Rapid Ice Melting Drives Earth's Pole to the East*, May 2013, <a href="https://doi.org/10.1002/grl.50552">https://doi.org/10.1002/grl.50552</a> 2013).

<sup>&</sup>lt;sup>52</sup> Kopp et. al., Usable Science for Managing the Risks of Sea-Level Rise, *Earth's Future Volume 7, Issue 12*, October 16, 2019, <a href="https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018EF001145">https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018EF001145</a>.

Mapping various SLR scenarios is intended to inform risk throughout the region. Individuals located in an area where flooding is projected are at risk of experiencing flooding for that flooding condition or one similar.

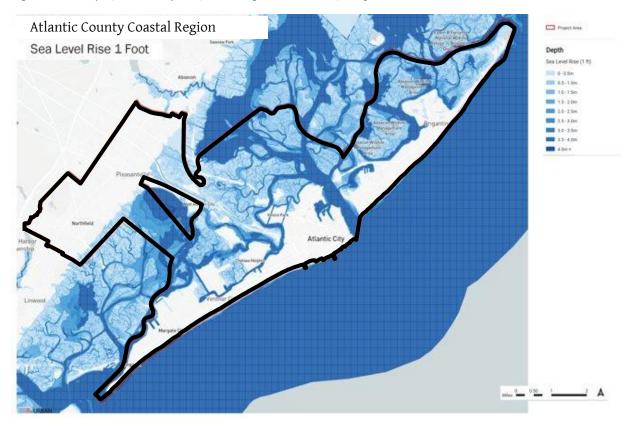


Figure 2-7. Map of ACCR Depth of Flooding with 1 Foot of Projected Sea Level Rise

Several tools and information are available to help evaluate the impacts of SLR and storm surge. These resources include Federal Emergency Management Agency (FEMA) Flood Insurance Rate (FIRM) Maps, NOAA extreme water level elevations and tide information, and extreme water levels (for return periods up to 10,000 years) provided through the North Atlantic Coast Comprehensive Study (NACCS). Several initiatives—including the "New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel"—also provide frameworks and guidance on how to apply SLR scenarios and extreme water levels in a planning and risk assessment context. 66

Rutgers University's interactive online mapping tool NJ Flood Mapper<sup>57</sup> is available to assist local communities in making decisions concerning flooding hazards and SLR. The STAP 2019 water level projections are available through the Floodmapper for the ACCR and the rest of the state.

<sup>&</sup>lt;sup>53</sup> FEMA Geospatial Resource Center, https://gis-fema.hub.arcgis.com/.

<sup>&</sup>lt;sup>54</sup> NOAA, *Extreme Water Levels of the United States 1893-2010*, NOAA Technical Report NOS CO-OPS 067, 2013, <a href="https://tidesandcurrents.noaa.gov/map/index.html?region=New%20Jersey">https://tidesandcurrents.noaa.gov/map/index.html?region=New%20Jersey</a>

<sup>&</sup>lt;sup>55</sup> USACE, North Atlantic Coast Comprehensive Study (NACCS), 2015, <a href="https://www.nad.usace.army.mil/CompStudy/">https://www.nad.usace.army.mil/CompStudy/</a>.

<sup>&</sup>lt;sup>56</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf.

<sup>&</sup>lt;sup>57</sup> Rutgers University/NOAA et al., NJ Adapt: NJFloodMapper, 2019, https://www.njfloodmapper.org.

## **Impacts**

- ❖ SLR and more intense storms not only increase the severity of storm-related flooding, but they also increase erosion because future sea level increases result in higher water depth, which allows for larger and stronger wave formation, increasing erosion rates of tidal wetlands and beach shorelines. Higher erosion rates will have a detrimental effect to the beaches on Absecon Island, which also provide an important buffer between coastal waters and infrastructure along the shoreline.
- ❖ It is projected that erosion of barrier islands, rising sea levels, and more frequent coastal flooding will contribute to loss of beach habitat, which is discussed in Section 2.5.<sup>58</sup>

## **Identified Gaps**

Despite the availability of planning tools and SLR scenarios, the latest climate science has not systematically been included in present programs and projects. Though some planning processes consider SLR in their future projections, <sup>59</sup> most projects currently in progress still use water elevations of the past to inform design parameters and decisions for flood protection infrastructure. Existing projects in the ACCR provide resilience. However, it is likely that the level of protection of projects implemented today will be reduced in a future under SLR and stronger storms. Thus, it is imperative for future projects to consider SLR in planning and design of infrastructure in the Region.

## 2.3 Increased Precipitation and Pluvial Flooding

#### **Precipitation**

As ambient temperatures increase, the atmosphere can hold more water vapor, leading to a greater potential for precipitation. This is consistent with observed trends in New Jersey, which indicate that the state has become wetter in recent decades. Since the end of the 20th century, New Jersey has experienced slight increases in the amount of precipitation it receives each year. According to the 2020 STAP report, there was a cumulative 7.9 percent increase over the 10-year period between 2010 and 2020. This trend is expected to continue. Depending on the emission scenario, annual precipitation in New Jersey could increase between 4 percent to 11 percent by 2050. 1

Rainfall increases are projected to differ across seasons, with higher increases in the amount of precipitation occurring in winter and spring followed by more moderate increases in the fall. Projected change in precipitation for summer and fall are small compared to natural variation.<sup>62</sup> Summer precipitation projections show a range of results in the literature between no to small increases in rainfall.<sup>50,63</sup> Small decreases, which are noted as a possibility in the 2020 STAP report, in the amount of

<sup>&</sup>lt;sup>58</sup> Lau et al., "What Would Happen to Superstorm Sandy Under the Influence of a Substantially Warmer Atlantic Ocean?": *Geophysical Research Letters* 43, January 2016, <a href="https://doi.org/10.1002/2015GL067050">https://doi.org/10.1002/2015GL067050</a> al., 2017.

<sup>&</sup>lt;sup>59</sup> Atlantic County (New Jersey), *Atlantic County Master Plan*, May 2018, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

<sup>&</sup>lt;sup>60</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

<sup>&</sup>lt;sup>61</sup> Horton, New York City Panel on Climate Change 2015 Report, Chapter 1: Climate observations and projections, Pages 18–35 Building the Knowledge Base for Climate Resiliency, 2015.

<sup>&</sup>lt;sup>62</sup> United States Global Research Program, *Climate Science Special Report 2017*, https://science2017.globalchange.gov/.

<sup>&</sup>lt;sup>63</sup> Fan et al., "Climate Change in the Northeastern US: Regional Climate Model Validation and Climate Change Projections," *Climate Dynamics* 43, 2014.

precipitation during the summer could lead to greater potential for more frequent and/or prolonged droughts.

While average rainfall totals have increased, changing atmospheric conditions have intensified, and are expected to continue to intensify heavy rainfall events as a warmer atmosphere has the potential to produce more intense and frequent storms. <sup>50, 64</sup> In New Jersey, extreme storms typically include coastal nor'easters, snowstorms, spring and summer thunderstorms, tropical storms, and hurricanes. For example, the U.S. National Climate Assessment notes that the Northeast United States has already seen "a greater increase in extreme precipitation than any other region" with a roughly 55 percent increase in intense storms between 1958 and 2010, defined as the heaviest 1 percent of precipitation events. <sup>65</sup>

One of the major climate shocks for the ACCR are tropical hurricanes/cyclones. As mentioned above, it is expected that climate change will result in an increase in rainfall amounts and potentially lead to increased intensity of tropical storms since a warmer, more humid atmosphere with warmer oceans creates a more active hydrologic pattern. Over the last decade, the state has experienced a string of extreme events, including Tropical Storm Irene (2011), Hurricane Sandy (which struck New Jersey in October 2012), and Tropical Storm Fay (2020). The projected changes in rainfall and storm intensity and potential frequency may result in increased stormwater and coastal flooding, including erosion.

## **Pluvial Flooding**

Pluvial flooding, often referred by stormwater flooding, is described as flooding due to heavy precipitation and high groundwater levels. If an area is unable to accommodate heavy precipitation through either infiltration or runoff, or both, this type of flooding occurs. Urban flooding is often a form of stormwater flooding that is caused by increased drainage to streets, storm drains, and low-lying and impervious areas as a result of urban development. As discussed above, over a 10-year period New Jersey saw a cumulative 7.9 percent increase in the amount of precipitation it receives each year, and it is expected to see an additional 4 percent to 11 percent increase by 2050. As shown in Figure 2-8, the ACCR has seen a gradual increase in annual precipitation since 1959. In addition to the increased precipitation, the frequency and intensity of heavy rainfall events are expected to increase. These increases are likely to result in additional stormwater and urban flooding in the ACCR.

<sup>&</sup>lt;sup>64</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

<sup>&</sup>lt;sup>65</sup> United States Global Research Program, *Climate Science Special Report* 2017, https://science2017.globalchange.gov/.

<sup>&</sup>lt;sup>66</sup> Climate Change in New Jersey: Temperature, Precipitation, Extreme Events, and Sea-level Rise Page 7 - Updated 9/2020 Environmental Trends Report DEP, Division of Science and Research <a href="https://www.nj.gov/dep/dsr/trends/">https://www.nj.gov/dep/dsr/trends/</a>.

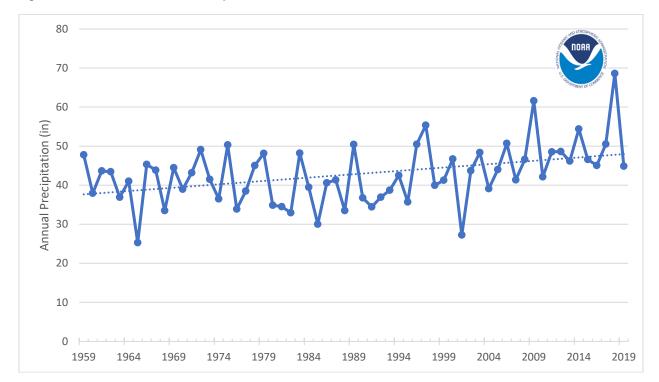


Figure 2-8. 1959-2019 Annual Precipitation at ACY

### **Impacts**

Stormwater flooding can result in a variety of impacts that can be similar to impacts from storm surge and coastal flooding events. Stormwater flooding events can result in:

- Flooding of roadways and other transportation networks impeding their use.
- Structural damage to buildings, bridges, and other infrastructure.
- Damage and disruptions to power supply systems.
- The release of hazardous materials into the natural environment causing harm to both human health and local ecosystems.
- Unintentional fires from structural and electrical damages.
- Erosion that could reduce the structural integrity of embankments and foundations.
- Destruction of natural habitats.

Increases in precipitation could also result in increased runoff that can carry pollutants, sediment, and other material that can harm local ecosystems and pollute the environment.

SLR and storm surge can impede drainage of stormwater flooding. This could require additional efforts to drain stormwater, such as by installing backflow preventers and using more powerful pumps. While these climate chronic impacts are discussed separately, it is important to consider and be aware of their combined impacts.

## **Existing Actions and Initiatives to Address Stormwater Flooding**

As a result of the impacts of Superstorm Sandy, many projects have been constructed and more have been planned in the ACCR that incorporate mitigation measures to improve drainage and mitigate the impacts of stormwater flooding. Many types of mitigation-based projects have been constructed in the ACCR and are discussed further in Section 3. Commercial, and residential buildings in the ACCR have incorporated hardening measures, such as at the Boardwalk Hall in Atlantic City, that help protect against stormwater and coastal flooding.

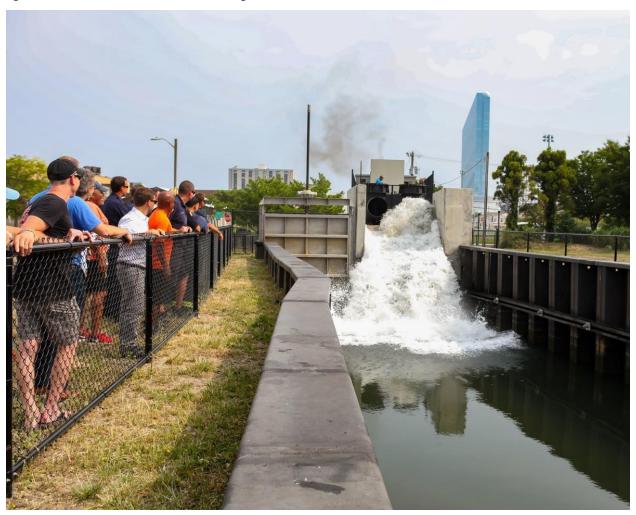


Image: Underground flood control infrastructure (Baltic Avenue Canal) at Fisherman's Park in Atlantic City. Water drains from 775 acre of Streets into the canal to alleviate flooding. Photo Courtesy: Kristian Gonyea/The Press of Atlantic City

The Atlantic County Master Plan<sup>67</sup> indicates additional planned projects to improve the Region's stormwater system and calls for the implementation of drainage improvements and green infrastructure. Atlantic County has also developed model resiliency guidelines for municipalities to incorporate that include guidelines for incorporating green infrastructure.<sup>68</sup> Strategic Recovery Planning

<sup>&</sup>lt;sup>67</sup> Atlantic County (New Jersey), *Atlantic County Master Plan*, May 2018, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

<sup>&</sup>lt;sup>68</sup> Atlantic County, *New Jersey, Atlantic County Model Resiliency Guidelines*, May 2018: <a href="https://www.atlantic-county.org/documents/planning/ModelResiliencyGuidelines05-01-18.pdf">https://www.atlantic-county.org/documents/planning/ModelResiliencyGuidelines05-01-18.pdf</a>.

Reports for Ventnor, Brigantine, and Pleasantville also promote the implementation of green infrastructure within their municipalities.<sup>69</sup> Margate has a stormwater management plan that includes preventative measures to improve the capabilities of the stormwater infrastructure through maintenance, replacement, and expansion of the existing stormwater drainage system.<sup>70</sup>

## **Identified Gaps**

While there have been a variety of stormwater drainage improvements in the aftermath of Superstorm Sandy, the need for improvements continues. Stormwater planning in the ACCR can be developed further. Only a few municipalities, including Brigantine, Margate, and Ventnor, have specified stormwater management plans. Goals and guidelines for green infrastructure are widely published, but there is a need for expanded green infrastructure programs that would ensure that these types of projects are funded and implemented.

According to the 2015 update of the Atlantic County Hazard Mitigation Plan, there are various stormwater improvement projects that are planned but have not yet been funded.<sup>71</sup> In addition, some municipalities, such as Northfield, do not appear to have made available plans/guidance for projects to alleviate the impacts of stormwater flooding.

# 2.4 Increasing Temperatures

Due to the increase in GHG emissions since the end of the 1800s, New Jersey has experienced a 3.5 degree Fahrenheit (°F) (1.9 degree Celsius [°C]) increase in the state's average temperature.<sup>72</sup> (This warming trend is expected to continue, with average temperature increases of 4.1 to 5.7°F (2.3°C to 3.2°C) by 2050.<sup>73</sup> In other scenarios, New Jersey can expect to experience an average annual temperature that is warmer than any to date (low emissions scenario) and future temperatures could be as much as 10° F (5.6°C) warmer (high emissions scenario).<sup>60</sup> New Jersey can also expect that by the middle of the 21st century, 70 percent of summers will be hotter than the warmest summer experienced to date.<sup>74</sup>. It should be noted that temperature changes are different across the different climate divisions of New Jersey as shown in Figure 2-9. The ACCR is located in Division 3, which shows the highest increases across all seasons between 1895 and 2019.

https://www.state.nj.us/dca/divisions/lps/SRPRs/Brigantine\_SRPR.pdf, Pleasantville City, New Jersey, Strategic Recovery Planning Report, August 2014, <a href="https://www.nj.gov/dca/divisions/lps/SRPRs/Pleasantville\_SRPR.pdf">https://www.nj.gov/dca/divisions/lps/SRPRs/Pleasantville\_SRPR.pdf</a>. To City of Margate, New Jersey, City Municipal Stormwater Management Plan, June 2015;: <a href="https://www.margate-">https://www.margate-</a>

nj.com/sites/g/files/vyhlif846/f/u216/stormwater\_management\_plan\_update\_2015.pdf.

<sup>&</sup>lt;sup>69</sup> Ventnor City, Atlantic County, *Ventnor City Strategic Recovery Planning Report*, September 2014, <a href="https://www.nj.gov/dca/divisions/lps/SRPRs/Ventnor%20City\_SRPR.pdf">https://www.nj.gov/dca/divisions/lps/SRPRs/Ventnor%20City\_SRPR.pdf</a>; City of Brigantine, New Jersey, *Brigantine City Strategic Recovery Planning Report*, No Date,

<sup>71</sup> Atlantic County, New Jersey, *Atlantic County Hazard Mitigation Plan 2015 Update*, February 2016, https://www.atlantic-county.org/hazard-mitigation/plan-final.asp https://www.atlantic-county.org/documents/hazard-mitigation/2015-Update-Final/Appendices/Appendix%206.1-LOIs.pdf.

<sup>&</sup>lt;sup>72</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

<sup>&</sup>lt;sup>73</sup> Horton, New York City Panel on Climate Change 2015 Report, Chapter 1: Climate observations and projections, Pages 18–35 Building the Knowledge Base for Climate Resiliency, 2015.

<sup>&</sup>lt;sup>74</sup> Runkle et al., New Jersey state climate summary, NOAA Technical Report NESDIS 149-NJ, 2017.

The increase in temperatures (shown in Table 2-1) is expected to be felt more during the winter, resulting in less intense cold weather waves, fewer sub-freezing days, and less snow accumulation. Heat waves are also expected to impact larger areas, with more frequency and longer durations.<sup>75</sup>

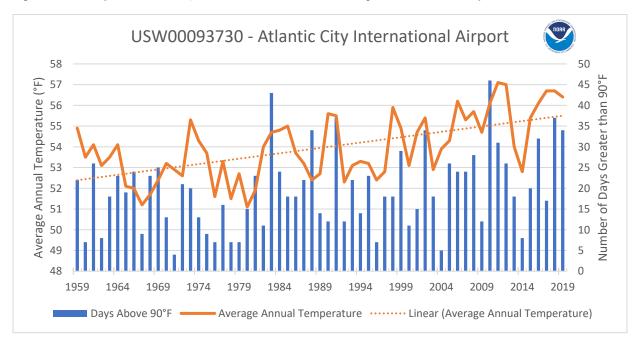
Table 2-1. Annual and Seasonal Increases in Air Temperatures (in °F) (1895-2019)76

Spatial extent	Annual	Winter	Spring	Summer	Fall
Statewide	1.9	<b>3.</b> 5	3.0	3.1	3.0
Division 1 North	2.0	3.6	3.1	3.0	3.1
Division 2 South	1.9	3.4	2.9	3.1	2.8
Division 3 Coast	2.2	4.0	3.6	3.6	3.5

Source: DEP

These temperature increases can have several impacts, such as effects on air quality and health, surface water quality, and infrastructure. In the ACCR, periods of extreme heat traditionally occur in the summer. These events in New Jersey have been occurring more frequently and severely in recent history, and this trend is expected to continue. While it is difficult to predict the exact effects on the Region's climate, it is apparent that gradual warming has already occurred and will continue. As shown in Figure 2-9, the ACCR has seen an increase to both average annual temperatures and days where the temperature reached or exceeded 90°F.

Figure 2-9. Temperature Data from 1959-2019 at Atlantic City International Airport



<sup>&</sup>lt;sup>75</sup> Lyon et al., "Projected Increase in the Spatial Extent of Contiguous U.S. Summer Heat Waves and Associated Attributes," *Environmental Research Letters* 14, 2019.

<sup>&</sup>lt;sup>76</sup> The change in temperature was determined form the linear slope of the entire period of record. Rutgers University, historical monthly station data, accessed 2021, <a href="https://www.climate.rutgers.edu/stateclim\_v1/monthlydata/index.php">www.climate.rutgers.edu/stateclim\_v1/monthlydata/index.php</a>.

In addition, urban and urbanized areas are prone to experience a heat island effect, in which paved surfaces and building rooftops capture solar energy and radiate heat, making these areas warmer than nearby non-urbanized areas.

### **Impacts**

Heat stress can affect infrastructure, public health, surface water quality and supply and agriculture. For infrastructure, periods of extreme heat can result in:

- \* Rail track expansion impacting operations
- Rutting and softening of asphalt and other pavement damage
- Thermal expansion of pavement and bridge expansion joints
- Buckling of runways at airports
- ❖ Increased demand for air conditioning and increased stress on energy infrastructure

Periods of extreme heat could result in an increased demand for water and reduce the overall supply, as well as decrease surface water availability and groundwater recharge. Increased temperatures and extreme heat could also degrade surface water quality by allowing more pollutants to enter, or harmful algae to form, in the water.

Extreme heat public health impacts include heat stroke, dehydration, and reduction in air quality.

## **Existing Actions and Initiatives to Address Heat Stress**

To address the impact of increased demand for energy during heat waves, the ACCR participates in temporary shutdowns of some facilities to reduce energy usage and reduce the strain on the ACCR's energy network.

Atlantic County has also developed model resiliency guidelines for municipalities to incorporate that include guidelines for planting and landscaping for solar insulation and shading to help cool buildings and areas during the summer.<sup>77</sup>

Cooling centers are available to the public to reduce the impacts to public health from heat stress. In addition, local beaches provide cooling opportunities for the public.

# **Identified Gaps**

Additional improvements to both local infrastructure and public health could be made to address impacts from heat. Improvements to the power grid, emergency power supply, and implementation of a more dispersed power supply (such as district energy, which exists in Atlantic City) could help ensure that places can stay cool when energy demand increases during extreme heat events. While the model resiliency guidelines call for municipalities to incorporate guidelines that would help cool buildings and areas in the summer, the areas within the ACCR appear to have a limited tree canopy, leaving a major gap for the feasibility of meeting this guideline.

Heat-related studies and heat vulnerability maps do not appear to have been developed for the ACCR. These studies and maps could help determine which areas are more vulnerable to heat stress and can help prioritize mitigation measures that should be incorporated and promote equity in how they are incorporated.

<sup>&</sup>lt;sup>77</sup> Atlantic County, New Jersey, *Atlantic County Model Resiliency Guidelines*, May 2018: <a href="https://www.atlantic-county.org/documents/planning/ModelResiliencyGuidelines05-01-18.pdf">https://www.atlantic-county.org/documents/planning/ModelResiliencyGuidelines05-01-18.pdf</a>.

# 2.5 Reduced Wildlife and Habitat/Climate-Driven Ecosystem Changes

Coastal wetlands and marshes are present in a large portion of the ACCR. These areas are of high ecological importance to the ACCR because they provide different ecosystem services to the landscape. In particular, wetland habitats are critical for numerous nesting and migrating bird species, vulnerable species like the diamondback terrapin, marsh dwelling fish, and other species. Tidal wetlands are naturally highly dynamic and stressed, and they are therefore resilient to natural disturbances. Plants and animals that live in wetlands must deal with alternately being flooded and exposed to the air and erosive forces from rivers, tides, storms, and boat wakes.<sup>79</sup>

## **Impacts**

Several hydrological factors influenced by SLR and extreme storms impact wetlands:

- ❖ Tidal range (the difference in elevation between high and low tides) is projected to change in New Jersey, increasing in some areas and decreasing in others. Generally, wetlands with larger tide range are expected to be more resilient to SLR, though long-term benefits of wetlands to SLR are not fully researched.<sup>80</sup>
- SLR results in increased water depth. This allows for larger and stronger wave formation, which will increase erosion of tidal wetland shorelines. The back-barrier wetlands in the ACCR are typically more protected than wetlands exposed to ocean wave energy and thus may have lower rates of erosion.
- Climate change is expected to increase the severity and duration of coastal storms and consequently increase flooding, which has variable effects on tidal wetlands.
- ❖ Storms and flooding increase turbidity and inundation times, which tend to increase sedimentation on the marsh, causing elevation to increase and helping the marsh keep pace with SLR. However, this increase in sedimentation is offset by increased compaction from the weight of flood waters during a storm.

In general, coastal wetlands have the potential to adapt to SLR through vertical accretion and inland migration but only if there is space available at the same elevation relative to the tidal range and a stable source of sediment. SLR forces coastal wetlands to migrate inland, but coastal wetlands and their ecosystems are often adjacent to human development or seawalls that block natural wetland migration paths.<sup>81</sup>

<sup>&</sup>lt;sup>78</sup> USACE, North Atlantic Coast Comprehensive Study (NACCS), 2015, <a href="https://www.nad.usace.army.mil/CompStudy/">https://www.nad.usace.army.mil/CompStudy/</a>.

<sup>&</sup>lt;sup>79</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

<sup>&</sup>lt;sup>80</sup> Flick et al, "Trends in United States tidal datum statistics and tide range," *Journal of Waterway, Port, Coastal, and Ocean Engineering* 129:155–164, 2003.

<sup>&</sup>lt;sup>81</sup> USACE, North Atlantic Coast Comprehensive Study (NACCS), 2015, <a href="https://www.nad.usace.army.mil/CompStudy/">https://www.nad.usace.army.mil/CompStudy/</a>.



SLR and storms also affect other important habitats in the ACCR such as beaches and dunes that are subject to erosion caused by extreme storms and flooding. Erosion eliminates beach nesting habitat for local species (e.g., terrapins and horseshoe crabs) and foraging habitat for birds by small beach organisms found within or on the sandy substrate or beach wrack, the assortment of seagrass, reeds, and other marine plant life that washes onto the beach. The area is also a common breeding ground for the federally endangered piping plover and state endangered least tern and offers prime nesting location for the diamondback terrapin sea turtle. Further, millions of birds migrating along the Atlantic Flyway depend on horseshoe crab located on sandy beaches. The loss of these sandy beaches and wetland areas, particularly the highly susceptible areas on the barrier islands, would have severe impacts on ecosystems in the area.<sup>82</sup>

Another impact on ecosystems is caused by temperature changes and ocean acidification. Increases in the average air temperatures and decrease in the number of frigid days has lengthened the growing season, allowing plants to be more productive. The longer growing season and increases in temperatures are expected to result in a decrease of plant species diversity in tidal wetlands because extractive agricultural practices and their byproducts, such as fertilizer use, can impact plant life downstream and in the oceans. <sup>83,84</sup> Plants are the keystone of tidal wetlands habitats. Plants trap sediment and produce roots and leaves that allow the sites to gain elevation, and their roots bind the soil together preventing erosion and sequestering carbon. Plants also provide food for the marine food web and nesting structure for birds. Without plants, tidal wetlands would disappear.

Impacts caused by changes in the chemistry of the ocean due the carbon dioxide concentration increases are also expected to affect areas in the ACCR. Carbon dioxide is detrimental as a GHG and for its role in ocean acidification. Impacts of acidification are most severe to shellfish and invertebrates (e.g., shelled mollusks) potentially causing a loss is marine species diversity.<sup>85</sup> This could affect the fishing industry and tourism in the area.

<sup>82</sup> Ibid.

<sup>&</sup>lt;sup>83</sup> Tiner, *Tidal wetlands primer: An introduction to their ecology, natural history, status, and Conservation,* University of Massachusetts Press, Amherst, MA, 2013.

<sup>&</sup>lt;sup>84</sup> Baldwin et al., Warming increases plant biomass and reduces diversity across continents, latitudes, and species migration scenarios in experimental wetland communities, Global Change Biology 20:835–850, 2014.

<sup>&</sup>lt;sup>85</sup> State of New Jersey, Department of Environmental Protection, 2020 New Jersey Scientific Report on Climate Change, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

### **Existing Actions and Initiatives to Protect Ecosystems**

As presented in Section 1, the most significant ecological areas are generally protected through environmental policy and regulation. All municipalities in the ACCR are subject to the regulations of the CAFRA. CAFRA aims to preserve and protect sensitive and environmental areas while concentrating growth and development in designated areas. Further, several sites are currently under consideration for ecosystem enhancements and natural hazard mitigation projects.<sup>86</sup>

Federal and state laws were enacted in the 1970s to protect tidal wetlands in New Jersey (Clean Water Act; Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq., Waterfront Development Act N.J.S.A. 12:5-3, CAFRA, N.J.S.A. 13:19, Coastal Zone Management Rules, N.J.A.C. 7:7). These laws have been useful in helping to conserve the acreage of tidal wetlands in the state.<sup>87</sup>

Several areas are protected and designated as state and federal WMAs and are maintained by the U.S. Fish and Wildlife Service (USFWS) and the DEP Division of Fish and Wildlife and supported by local non-governmental organization such as the New Jersey Audubon Society, 88 discussed further in Section 3.

### **Existing Gaps**

Current legislation and initiatives provide some protection to maintain ecosystem health in the ACCR under current conditions. However, as presented above, it is unclear how wetlands and ecosystems may respond to changing climatic conditions, in particular SLR and temperature increases. Wetland vulnerability is dependent on different local factors, such as marsh elevations (in relation to tides), plant types, salinity, tidal ranges, and other factors. Unfortunately, specific studies and assessments focused on the ACCR that take these factors into account and provide a better understanding on how the tidal wetlands and habitats in the ACCR might respond to changing climate conditions are not available. Given the importance of these areas to the ACCR communities, it is important to more specifically determine the vulnerability of the wetlands in the ACCR to rising seas and other changes.

### 2.6 Environmental Justice

The United States' history of slavery and discriminatory policies have resulted in structural racism and inequity that disproportionately affects communities of color and other marginalized populations. In addition, socially vulnerable populations (SVPs) are more often exposed to environmental hazards and unduly bear the brunt of environmental degradation; health risks associated with air pollution, water pollution and toxics releases; inadequate housing, jobs training, and job opportunities; and challenges related to access to resources that impact quality of life. As communities plan for climate resilience and adaptation, fear and distrust may arise for stakeholders who have experienced a history of civil rights violations, broken promises, and disinvestment. Overcoming these obstacles in the planning and design process is key to success in coordinating and working with stakeholders at different levels and across different agencies.

The Resilient NJ program prioritizes identifying and engaging SVPs to plan for their resilience because SVPs are more prone to negative health, financial, and housing impacts from natural disasters. SVPs can

<sup>&</sup>lt;sup>86</sup> New Jersey Department of Environmental Protection, <a href="https://www.nj.gov/dep/oclup/case-studies-projects/nj-ecol-solution-projects.html">https://www.nj.gov/dep/oclup/case-studies-projects/nj-ecol-solution-projects.html</a>.

<sup>&</sup>lt;sup>87</sup> State of New Jersey, Department of Environmental Protection, *2020 New Jersey Scientific Report on Climate Change*, June 30, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64">https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf#page=64</a>.

<sup>88</sup> New Jersey Audubon Society, <a href="https://njaudubon.org/wp-content/wildlife/PineBarrensTrails/Sites/tabid/1698/Scope/site/Guide/PINEBARREN/Site/344/Default.html">https://njaudubon.org/wp-content/wildlife/PineBarrensTrails/Sites/tabid/1698/Scope/site/Guide/PINEBARREN/Site/344/Default.html</a>.

have difficulty preparing for and recovering from such events, including intense storms, nuisance flooding, and even pandemics.

While the COVID-19 pandemic hit the United States after the Resilient NJ program scope of work was finalized and is not directly part of this scope, experiences and lessons from the pandemic demonstrate the similarities and differences between public health hazards and climate hazards like coastal storms and SLR. With more restricted resources and other barriers to opportunity, SVPs once again have been disproportionately impacted by the effects of the pandemic. This includes the devastating impact COVID-19 pandemic has had on the ACCR economy, which is highly dependent on hard-hit industries, including hospitality, entertainment, food and beverage services, retail, and travel as a result of local and national restrictions and guidelines.

### **The Curb-Cut Effect**

"Laws and programs designed to benefit vulnerable groups, such as the disabled or people of color, often end up benefiting all of society." - Angela Glover Blackwell

Frustrated with the lack of ramps in their neighborhood, Michael Pachovas and a few friends took it upon themselves— as a political act and gesture of defiance—to pour cement into the form of a ramp to provide the mobility access they needed.<sup>89</sup> This small act led to a push for access to the basics for disabled individuals that many Americans take for granted, from sidewalks and busses to bathrooms and classrooms. This ripple effect led to the landmark Americans with Disabilities Act (ADA) in 1990. As Glover Blackwell puts it: "Then a magnificent and unexpected thing happened. When the wall of exclusion came down, everybody benefited—not only people in wheelchairs."<sup>90</sup>

Sometimes referred to as a "force multiplier" or "positive externality"—this effect of generating rippling benefits by putting the needs of the most vulnerable first is a principle driving the Resilient NJ program. Through the development of the Resilient NJ Action Plan, the needs and interests of SVPs will be identified and prioritized to ensure the most vulnerable are protected and uplifted by their communities with projects that in turn help everyone create a more sustainable, resilient, and equitable future in the ACCR.

#### **Executive Actions on Climate Change and Equitable Decision-making**

In January 2021, the Biden-Harris Administration took over the Executive Branch and set forth a new trajectory for the nation, outlining an agenda that explicitly called for sharp focus on tackling climate change (domestically and as a matter of foreign policy and national security), racial equity, job creation, and building better infrastructure. Since assuming office, President Biden has taken several actions on climate change and environmental justice, including signing several executive orders on what was deemed "Climate Day." These actions include:

❖ Establishing the White House Office of Domestic Climate Policy and supporting Climate Change Task Force composed of cabinet secretaries with the stated mission to facilitate "deployment of a Government-wide approach to combat the climate crisis," including

<sup>&</sup>lt;sup>89</sup> Angela Glover Blackwell, *The Curb-Cut Effect*, 2017, <a href="https://ssir.org/articles/entry/the\_curb\_cut\_effect">https://ssir.org/articles/entry/the\_curb\_cut\_effect</a>.

<sup>90</sup> Ibid.

- measures "to reduce climate pollution;. . .conserve our lands, waters, oceans, and biodiversity; [and] deliver environmental justice in communities all across America."91
- ❖ Compelling creation of well-paying union jobs to build a modern and sustainable infrastructure, deliver an equitable, clean energy future, and put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050.<sup>92</sup>
- Rejoining the Paris Agreement; stating that he, "having seen and considered the Paris Agreement, done at Paris on December 12, 2015, do hereby accept the said Agreement and every article and clause thereof on behalf of the United States of America."
- Outlining a memorandum addressing climate change policy and scientific integrity, which includes a moratorium on new oil and gas lease permits on federal lands and waters. 94
- ❖ Setting a moratorium on federal leases in Arctic Wildlife Refuge. 95

## **Environmental Justice in New Jersey**

In a victory for SVPs and environmental justice advocates, the recently adopted landmark environmental justice law, N.J.S.A. 13:1D-157, signed by Governor Murphy in September 2020, requires DEP to "evaluate the contributions of certain facilities to existing environmental and public health impacts in overburdened communities when reviewing certain permit applications."

The law (whose application is shown in Figure 2-10) defines overburdened communities as any census block group, as determined in accordance with the most recent U.S. Census, in which:

- (1) at least 35 percent of the households qualify as low-income households; OR
- (2) at least 40 percent of the residents identify as minority or as members of a state-recognized tribal community; OR
- (3) at least 40 percent of the households have limited English proficiency.

<sup>93</sup> The White House, Paris Climate Agreement, January, 20, 2021, <a href="https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/">https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/</a>.

<sup>&</sup>lt;sup>91</sup> The White House, *Executive Order on Tackling the Climate Crisis at Home and Abroad*, §201 - §202, January 27, 2021, <a href="https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/">https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/</a>.

<sup>92</sup> Ihid

<sup>&</sup>lt;sup>94</sup> The White House, *FACT SHEET: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government, January 27, 2021, <a href="https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/">https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/">https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/</a>.* 

<sup>&</sup>lt;sup>95</sup> The White House, Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis §§ 4, 6, January 20, 2021.

<sup>&</sup>lt;sup>96</sup> DEP, Office of Environmental Justice, *Environmental Justice Overburdened Communities (OBC)*, accessed February 2021, <a href="https://www.nj.gov/dep/ej/communities.html">https://www.nj.gov/dep/ej/communities.html</a>.

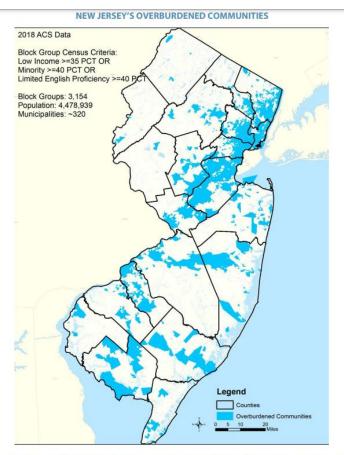


Figure 2-10. NJ Furthering the Promise Map of New Jersey's Overburdened Communities

Map 1: Census block groups that meet any criteria for overburdened communities in the recently signed environmental justice law: low-income OR minority OR limited English proficiency.

DEP released the *Furthering the Promise Guidance Document* that presents data and identifies communities of concern and overburdened communities, outlines criteria for both classifications, and reflects input from stakeholders received during the development of the guidance document.<sup>97</sup> *Furthering the Promise* provides a framework for the New Jersey Executive Branch to incorporate environmental justice into statutory and regulatory responsibilities. The intent is to achieve environmental justice through shared responsibility and improved coordination of all of New Jersey's governmental and regional entities to focus on environmental, social, health, and economic opportunities that improve the quality of life for those within overburdened communities. The framework does this in three ways:

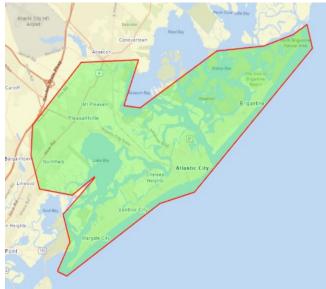
- Apply principles for furthering the promise of environmental justice in New Jersey, as identified by impacted communities and decades of local, state, and federal experience.
- ❖ Launch the Environmental Justice Interagency Council to help agencies adopt principles; complete Executive Branch initial assessments; participate in workshops and trainings; and create Executive Branch action plans.
- ❖ Complete Executive Branch initial assessments and Executive Branch action plans.

<sup>&</sup>lt;sup>97</sup> DEP, Furthering the Promise: A Guidance Document for Advancing Environmental Justice Across State Government, September 2020, <a href="https://www.nj.gov/dep/ej/docs/furthering-the-promise.pdf">https://www.nj.gov/dep/ej/docs/furthering-the-promise.pdf</a>.

# **EPA's EJSCREEN for the Atlantic County Coastal Region**

The U.S. Environmental Protection Agency (EPA) created EJSCREEN, an environmental justice screening and mapping tool, to better meet the Agency's responsibilities in protecting public health and the environment by providing nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports.98 For various grant programs, including those of EPA and the U.S. Department of Transportation, use of the EJSCREEN tool is a metric for scoring grant applications. The tool can help the ACCR understand a combination of environmental and demographic indicators that can be compared to the rest of the state, the EPA region, and the nation, as well as assist stakeholders in making pursuing informed decisions about environmental justice.

Figure 2-11. Map of Approximate ACCR Footprint Selected for EJSCREEN Report (Version 2020)



The EJSCREEN result for screening an approximation of the ACCR (shown in Figure 2-11) indicates the ACCR is home to six hazardous waste treatment, storage, and disposal facilities and is disproportionately impacted by negative environmental impacts, including EPA's National-Scale Air Toxics Assessment (NATA) for air toxics, which include pollutants known to cause or suspected of causing cancer or other serious health effects. As shown in Figure 2-12, the value of 74 for the NATA Air Toxics Cancer Risk - State Percentile indicates what percent of the state population has an equal or lower value, meaning less potential for exposure/risk.

2-23

<sup>98</sup> EPA, EJSCREEN Mapper (Version 2020), March 2021, https://ejscreen.epa.gov/mapper/ejscreen\_SOE.aspx.

Figure 2-12. Results of EJSCREEN screening tool for the ACCR



## **EJSCREEN Report (Version 2020)**



# the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 99,082 Input Area (sq. miles): 61.38

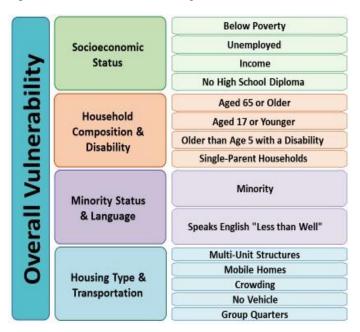
Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	77	73	74
EJ Index for Ozone	80	76	77
EJ Index for NATA* Diesel PM	72	66	76
EJ Index for NATA* Air Toxics Cancer Risk	74	69	72
EJ Index for NATA* Respiratory Hazard Index	73	68	71
EJ Index for Traffic Proximity and Volume	87	81	88
EJ Index for Lead Paint Indicator	77	70	84
EJ Index for Superfund Proximity	77	81	90
EJ Index for RMP Proximity	63	59	60
EJ Index for Hazardous Waste Proximity	71	64	79
EJ Index for Wastewater Discharge Indicator	N/A	75	73

## **Social Vulnerability in the Atlantic County Coastal Region**

The Social Vulnerability Index (SVI), a U.S. Census-based metric developed by the Centers for Disease Control (CDC), has been used in recent years to evaluate the vulnerabilities communities might face in responding to a natural or human-made hazard. The inputs to the SVI are shown in Figure 2-13. As a wide-ranging socioeconomic metric, the SVI is a useful aggregation tool to provide nuance beyond broad economic indicators, such as unemployment rates or income. Importantly, it combines housing and socioeconomic status data, two of the largest determinants of community's ability to establish inclusive growth.<sup>99</sup>

<sup>&</sup>lt;sup>99</sup> Organization for Economic Co-operation and Development (OECD), *Cities will Become Inequality Traps without Better Housing, Transport Policies*, October 2016, <a href="https://www.oecd.org/newsroom/cities-will-become-inequality-traps-without-better-housing-transport-policies.htm">https://www.oecd.org/newsroom/cities-will-become-inequality-traps-without-better-housing-transport-policies.htm</a>.

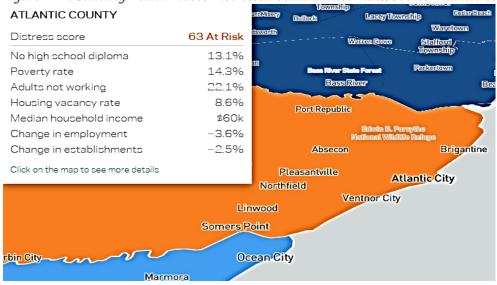
Figure 2-13. Social Vulnerability Index Indicators



Source: CDC, 2018

Another index, called the Distressed Communities Index created by the Build Healthy Places Network, uses U.S. Census Bureau data to combine seven metrics into a broad-based assessment of community economic well-being and distress across 25,000 zip codes in the United States.<sup>100</sup> The Distressed Communities Index enables Americans to understand how their local well-being stacks up at multiples scale of life. The Index groups scores places on performance and ranks across tiers: prosperous, comfortable, mid-tier, at risk, and distressed (Figure 2-14).

Figure 2-14. Building Health Places Distressed Communities Index Scores Atlantic County as "At Risk"



<sup>&</sup>lt;sup>100</sup> Build Health Places Network, *Mapping Tools*, accessed 2021, <a href="https://www.buildhealthyplaces.org/tools-resources/measure-up/mapping-tools/">https://www.buildhealthyplaces.org/tools-resources/measure-up/mapping-tools/</a>.

The series of heat maps presented on the following pages (Figure 2-15 through Figure 2-18; see Appendix C for all ACCR Planning Context Maps) illustrate the geographic distribution of combinations of indicators of social vulnerability, as outlined by the CDC's SVI, with red-highlighted census tracts indicating social vulnerability is most vulnerable. The maps corroborate trends observed in employment and income data that suggest Atlantic City and Pleasantville are hot spots of social vulnerability in the ACCR.

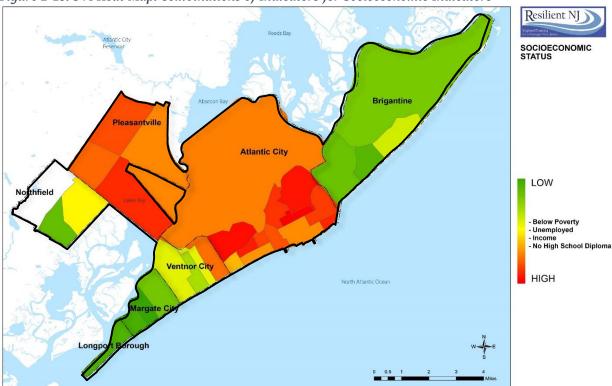


Figure 2-15. SVI Heat Map: Combinations of Indicators for Socioeconomic Indicators

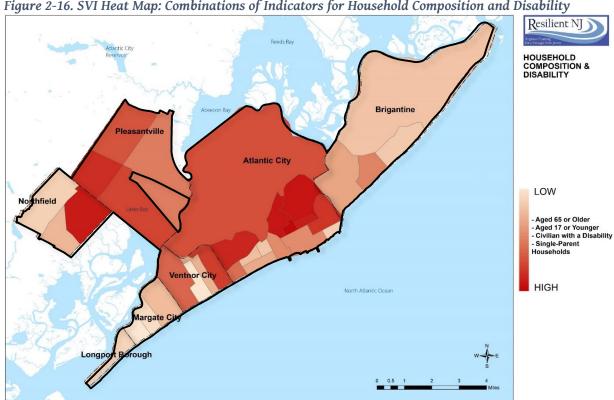
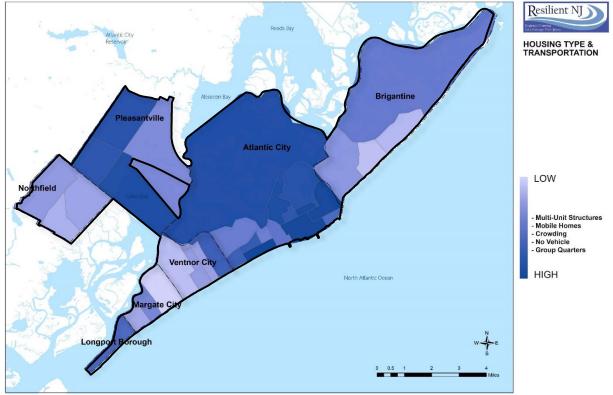


Figure 2-16. SVI Heat Map: Combinations of Indicators for Household Composition and Disability





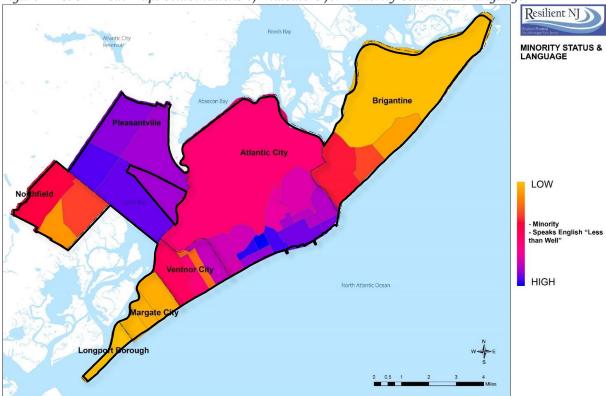


Figure 2-18. SVI Heat Map: Combinations of Indicators for Minority Status and Language

In the early Resilient NJ meetings, ACCR Steering Committee members underscored the importance of considering the most vulnerable in resilience planning and action implementation. Members noted SVPs require special attention for emergency preparedness and development of long-term resilience in the region.

❖ For example, residents with special needs must be considered and planned for during evacuations, and special teams must be particularly aware and trained to assist individuals and families with special needs. ACCR Steering Committee members are developing and maintaining a database for these populations, although data and coordination remain in infancy stages as of winter 2021.

Continuing to collect input from stakeholders and directly engaging with SVPs will be important in the development of the Action Plan. As the Resilient NJ ACCR's community-based organization partner, the American Red Cross will play a strong role in identifying and connecting with SVPs to ensure they are effectively reached, informed, and provided opportunities to collaborate and engage with the Resilient NJ planning process.

#### 2.7 Economic Decline

Atlantic City has been hard hit by the development of competing gambling and entertainment hubs on the East Coast, the financial crisis of 2008, the devastation of Superstorm Sandy in 2012, and rapid closure of casinos following legalization of online gambling in 2013. In 2014, four casinos closed and 8,000

employees lost their jobs, sending rippling effects across the regional economy.<sup>101</sup> This trend follows ACCR's 20th century economic boom after legalization of casino gambling in 1976 that generated an increase in total tax revenues from casinos every year from 1978 through 2006, when revenues peaked at \$500 million.<sup>102</sup> While the advent of online gaming proves to be yet another chronic impact on the hospitality industry, the taxes have helped fund social programs within the region.<sup>103</sup>

Atlantic County has been ranked number one for foreclosure rates in the country for the past 5 years, and Atlantic City and Trenton registered the highest rates of foreclosure for metro areas with at least 200,000 people nationwide.<sup>104</sup> The impacts of the COVID-19 pandemic and its associated unemployment will further increase the risk of additional foreclosures in the ACCR. The impact of foreclosures and other disinvestment can create blighted and other vacant land that has resulted in major demolition projects.



Image: Vacant and underutilized space is common throughout the Atlantic County Coastal Region. Empty lots can be a potential source for new development and green infrastructure projects. Source: Edward Lea / Staff Photography, The Press of Atlantic City. Source: Edward Lea/Staff Photography, The Press of Atlantic City

"Empty lots are a pervasive feature of the land in Atlantic City's South Inlet. A combination of patchwork ownership and needed infrastructure repairs have kept the area unattractive to developers." <sup>105</sup>

<sup>&</sup>lt;sup>101</sup> NJTV Series, *Voices from Atlantic City*, October 18, 2016, <a href="https://www.njtvonline.org/programs/njtv-series/njtv-series/njtv-series-voices-atlantic-city/">https://www.njtvonline.org/programs/njtv-series/njtv

Bloomberg CityLab, "In Atlantic City, a New Master Plan Confronts an Old Problem," March 31, 2017, https://www.bloomberg.com/news/articles/2017-03-31/atlantic-city-s-new-master-plan.

<sup>&</sup>lt;sup>103</sup> The Press of Atlantic City, "Diminished casino taxes neutralized by online gaming" Dec. 7, 2020, https://pressofatlanticcity.com/news/local/diminished-casino-taxes-neutralized-by-online-gaming/article\_41417baa-d83d-5970-982f-663d401b2bf9.html.

<sup>&</sup>lt;sup>104</sup> NorthJersey.com, "New Jersey had the country's highest real estate foreclosure rate – again," January 27,2020, <a href="https://www.northjersey.com/story/news/new-jersey/2020/01/27/new-jersey-had-us-highest-real-estate-foreclosure-rate-2019/4535029002/">https://www.northjersey.com/story/news/new-jersey/2020/01/27/new-jersey-had-us-highest-real-estate-foreclosure-rate-2019/4535029002/</a>.

<sup>&</sup>lt;sup>105</sup> The Press of Atlantic City, "Officials optimistic long-barren South Inlet will see development soon," December 11, 2020, <a href="https://bloximages.chicago2.vip.townnews.com/pressofatlanticcity.com/content/tncms/">https://bloximages.chicago2.vip.townnews.com/pressofatlanticcity.com/content/tncms/</a> assets/v3/editorial/5/e5/5e58277a-7e5f-5bbb-8f4b-f00246a27e7d/5fc68e8b784ce.image.jpg?resize=1200%2C800.

The casino and gaming industry has not fared well over the past 15 years, as competition from legalized gambling in other states increases. Revenues continuously fell and never experienced a recovery from the 2008 recession. Since 2015, gaming revenues have stagnated or moderately increased. Between 2005 and 2016, one-third of the casinos in Atlantic City closed, and only one new casino opened. Atlantic City hotels had occupancy rates of around 80 percent in 2019, 106 while revenues modestly grew 2.7 percent from the year before. These figures prove modest improvements while still not near the success of the industries in the 1990s and early 20th century.

To address development issues in Atlantic City, the Casino Reinvestment Development Authority (CRDA) was created to guide responsible use of tax revenues for larger regional projects. CRDA leverages its available assets and revenues to support redevelopment projects across Atlantic City. Examples of these investments include:

- CRDA approved \$2 million to fund land bank activities in the South Inlet. The program enables CRDA to purchase land from willing sellers at confirmed market values.<sup>107</sup>
- ❖ In 2012, CRDA approved \$8.6 million for the first phase of acquisitions in the South Inlet for the mixed-use project. The South Inlet Mixed-Use Project includes relocation of residential tenants and owners. Demolition and site remediation are complete. The development is ongoing.<sup>108</sup>
- ❖ In 2017, CRDA approved \$15 million for two-phased, \$100 million South Inlet Village Project by the Boraie Development Company that will create 250 units of multifamily housing with amenities, parking, and local-serving retail.¹09

Total CRDA, Land Bank Program, https://njcrda.com/uncategorized/land-bank-program/.

<sup>&</sup>lt;sup>108</sup> CRDA, South Inlet Mixed-Use Project, <a href="https://njcrda.com/all-projects-community-partnerships-and-investments/south-inlet-mixed-use-project/">https://njcrda.com/all-projects-community-partnerships-and-investments/south-inlet-mixed-use-project/</a>.

<sup>&</sup>lt;sup>109</sup> CRDA, The Beach at South Inlet, <a href="https://njcrda.com/all-projects-community-partnerships-and-investments/boraie-mixed-use/">https://njcrda.com/all-projects-community-partnerships-and-investments/boraie-mixed-use/</a>.

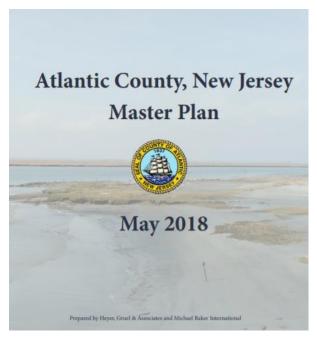


Image: Los Angeles Times. The Trump Plaza Hotel & Casino was imploded in February 2021 after disrepair and neglect.

## 3. STATE OF THE REGION

# 3.1 Comprehensive, Regional, and Master Plan Efforts

#### **County Master Plan**



Pursuant to state legislation, both the counties and the municipalities are required to update their master plans at least every 10 years. Municipal master plans provide a general vision for development for communities, helping to frame zoning requirements and goals and direct land use. County master plans tend to expand their scope to other elements, such as transportation, waste and water management, and regional facilities. Combined, these master plans help frame the direction of the ACCR from a local governance perspective and shape their future development to social, economic, and environmental change.

The *Atlantic County Master Plan*<sup>110</sup> was adopted in 2018 as an update to the prior version, which dated back to 2000. In that time, the county had changed dramatically, with major economic upheaval and the lasting impact of coastal storms, particularly

Superstorm Sandy. It was with post-Sandy planning assistance funds and a renewed focus on sustainability and resilience that the Master Plan was adopted to address the new realities county-wide. The Master Plan includes elements relating to land use, transportation, infrastructure, and sustainability and resilience. Each element details the stakeholders, regulations, assets, risks, and opportunities that exist within the county. Data summaries, maps, and other visualizations help describe the history and status of these elements in the county and describe the institutions and people who are served by this public planning process.

Each element of the Master Plan concludes with recommendations for improvements or new policy that has the potential to renew development. As the newest element of the Master Plan, the Sustainability and Resilience section outlines specific goals and objectives county-wide, and it provides a framework for implementation. The goals and objectives, shown in Table 3-1, approach both sustainability and resilience through environmental, social, and economic lenses. There is a mixture of both qualitative direction for policy practitioners (i.e., consider the impacts of climate change and SLR in infrastructure and development planning) and specific recommendations that can impact projects (i.e., develop electric charging infrastructure and alternative fueling stations). In terms of implementing resilience, the county-wide Master Plan offers a "menu" of policy recommendations that can be applied to the county, although it includes few specifics on what the resulting impacts of these policies might be.

<sup>&</sup>lt;sup>110</sup> Atlantic County Master Plan, Atlantic County, New Jersey, May 2018, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

Table 3-1. County Master Plan Recommendations

Recommendation	Short-Term	Mid-Term	Long-Term
Overall			
Consider the impact of climate change and sea level rise in guiding investment and land use decisions.	Х	X	X
Environmental			
Implement new Land Development Standards that require green infrastructure and other sustainability and resiliency measures.		Ongoing	
Work with municipalities and encourage cooperation in the management of coastal zones.	X		
Identify locations for natural coastal protection such as living shorelines and oyster reefs.		X	X
Promote use of alternative energy at county-owned facilities and to enhance the resiliency of the grid.			
Develop electric vehicle charging infrastructure on County properties and encourage the acquisition of electric fleet vehicles.	X		
Economic			
Coordinate with stakeholders and institutes of higher education to provide job training and retraining for emerging industries.	X	X	
Work with Pinelands Commission to promote new opportunities foreconomic development and growth in targeted areas while ensuring preservation of natural features.		Х	X
upport the growth of local agriculture and necourage connections to local markets, X estaurants, and events.			
Work with Atlantic City to diversify the city's economic base and diversify tourism opportunities.	Х	X	
Support the growth of the Atlantic Economic Alliance.	X		

Recommendation	Short-Term	Mid-Term	Long-Term
Social			
Promote a mix of housing options for residents as the county's demographic profile evolves.	X	X	
Provide recreational and cultural amenities to promote a high quality of life.		X	
Encourage active and healthy lifestyles for County residents that include exercise, recreation, and a balanced diet.	X		
Improve access to healthcare for County residents, particularly those with limited mobility.	X		

Source: 2018 Atlantic County Master Plan

## **Municipal Master Plans**

Every 10 years, municipalities must update their master plans to address changing conditions that may affect development and the built environment. These plans, similar to the county master plan, address different elements that play into the functioning of the city. Municipal master plans differ in their specificity to housing and zoning codes. Whereas the county master plan sets goals for how communities might interact, municipal master plans can specify specific approaches to development that might lead to increased affordable housing, climate-minded local ordinances, or sustainability-focused development plans (like transit-oriented development).

These plans can also recommend communities to consider participating in several larger policy organizations, such as the Community Rating System, Hazard Mitigation Grant programs, and other local partnership programs that can help spur more sustainable development. Examples in the ACCR include Ventnor's 2016 Master Plan,<sup>111</sup> which identifies several planning programs the city has already been involved with or can be involved with in the future. Because of the municipal master plans' tight relationship with development and zoning rules for municipalities, they represent a powerful and potentially under-tapped resource to spur sustainable and resilient development, particularly when developed in coordination with the goals and interests of surrounding communities.

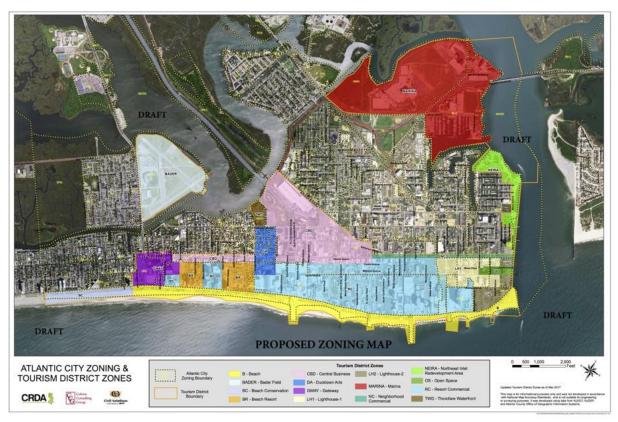
In addition to master plans developed by the municipalities and the county, CRDA is required to develop a master plan for the Tourism District of Atlantic City. As a required document for the specialized authority, the Tourism District Master Plan's key stated objectives are to promote tourism and the gaming industry as a unique and successful tool in urban redevelopment, while promoting sustainable growth and operations that serve the entire Atlantic City community. To that end, the Tourism District Master Plan aligns its recommendations to issues of zoning, land use, housing, and economic development. The Tourism District (shown in Figure 3-1) has defined subdistricts that seek to enhance

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<sup>&</sup>lt;sup>111</sup> City of Ventnor, 2016 Master Plan Reexamination, December 2016, <a href="https://www.ventnorcity.org/media/Documents/CityClerk/Ventnor%20Master%20Plan%20Reexam%20Only%20-%20Final.pdf">https://www.ventnorcity.org/media/Documents/CityClerk/Ventnor%20Master%20Plan%20Reexam%20Only%20-%20Final.pdf</a>.

neighborhood character and recommend incentives for redevelopment, including the development of an arts districts, benefits for second-home buyers, and workforce housing options for casino employees.

Figure 3-1. Map of Atlantic City Zoning & Tourism District Zones created for the purpose of encouraging more mixed-use development



Source: CRDA

Atlantic City's zoning responsibilities are split between the city government and CRDA. CRDA rezoned the South Inlet neighborhood in 2018 to allow for new uses, including multifamily residential, mixeduse, retail, restaurant, and park space as part of its new master plan for the Tourism District. CRDA's master plan calls for the redevelopment of housing at a higher density, as well as increased commercial uses to promote economic diversity. Other projects include the city and CRDA's ongoing Citywide Demolition Project, which has cleared derelict structures as a means of improving the city's image and provided for easier approaches to redevelopment for private parties. Table 3-2 lists all municipal and the county master plans and components that relate to overall resilience.

<sup>&</sup>lt;sup>112</sup> The Press of Atlantic City, "Officials optimistic long-barren South Inlet will see development soon," Dec. 11, 2020, <a href="https://bloximages.chicago2.vip.townnews.com/pressofatlanticcity.com/content/tncms/assets/v3/editorial/5/e5/5e58277a-7e5f-5bbb-8f4b-f00246a27e7d/5fc68e8b784ce.image.jpg?resize=1200%2C800.">https://bloximages.chicago2.vip.townnews.com/pressofatlanticcity.com/content/tncms/assets/v3/editorial/5/e5/5e58277a-7e5f-5bbb-8f4b-f00246a27e7d/5fc68e8b784ce.image.jpg?resize=1200%2C800.</a>

Table 3-2. Highlights of Existing Master Plans

Plan	Resilience Components
Atlantic County	County plan addresses flooding and future coastal concerns, documents sustainability and resilience strategies regarding backup energy sources, acquisition of flood-prone structures, zoning and design standards, and capital investment prioritization changes
Atlantic City 2016 Atlantic City Re- examination Report <sup>113</sup>	<ul> <li>Consistent with state's smart growth principles of developing within areas of existing infrastructure; consistent with surrounding jurisdictions and County</li> </ul>
	Diversify economy and expand tourism and recreational offerings to be more family-oriented to keep residents, create jobs, and attract new residents and employees
	<ul> <li>Plan for revitalizing Atlantic City downtown core: walkable, commercially successful</li> </ul>
	<ul> <li>Arts District, and Eds &amp; Meds corridor, concentration of employment, new business attraction and development, and implementation of Main Street strategies and initiatives</li> </ul>
Brigantine 2016 Master Plan Re- examination Report <sup>114</sup>	Short-term actions for protecting buildings and properties through elevation (through aggregated decisions of multiple property owners in a neighborhood), evaluation of floodplain protection regulations and floodplain mapping, participation in FEMA Community Rating System (currently Class 5 community)
	Moderate-term actions that might involve gradual upgrading of infrastructure with green infrastructure best practices, designation as "Storm Ready Community" by National Weather Service
	<ul> <li>Long-term actions that anticipate the eventual impacts of SLR (e.g., limit new development, elevate streets, raise bulkheads, protect shorelines)</li> </ul>
	<ul> <li>Inter-agency/regional coordination with federal and state agencies</li> </ul>
	<ul> <li>Incorporate resilience into local economy</li> </ul>
	<ul> <li>Area along back bay from (but not including) the North End Redevelopment Area to the Brigantine Bridge (study area ~ 5acres) of particular focus for adaptation/other resilience measures</li> </ul>
	Reconstruct bulkheads to protect City and individual properties
Longport Planning and Zoning Board Municipal Land Use Law Framework	The application review and approval process enhances resilience by ensuring (a) conformance with the Borough Master Plan and developmental ordinances; (b) satisfaction public safety concerns; and (c) adherence to generally accepted design standards as recommended by board professionals and city officials.

<sup>&</sup>lt;sup>113</sup> Atlantic City Planning and Development Department, 2016 Master Plan Re-examination Report, April 2016, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

<sup>&</sup>lt;sup>114</sup> City of Brigantine, 2016 Master Plan Re-examination Report - Resiliency Action Plan (p. 55), as adopted by Planning Board September 28, 2016, <a href="https://li8dbq3dbgtp1wzho84dralo12f9-wpengine.netdna-ssl.com/wp-content/uploads/2016/11/Brig-2016-Master-Plan-Re-examination-Report.pdf">https://li8dbq3dbgtp1wzho84dralo12f9-wpengine.netdna-ssl.com/wp-content/uploads/2016/11/Brig-2016-Master-Plan-Re-examination-Report.pdf</a>.

Plan	Resilience Components
Margate 2016 Comprehensive	Since Superstorm Sandy, there has been an increased emphasis on coastal resilience.
Master Plan Update	Margate also has strong community outreach that has engaged the public in local environmental issues. The result of this work led to Margate receiving a Bronze rating from Sustainable New Jersey in October 2014.
	In 2016, Margate was awarded Blue Star certification by Clean Ocean Action, an organization that works to improve the quality of marine waters off the New Jersey coast.
	In 2014, Margate contracted a consultant to analyze flood risks. It reports that the most pressing issue facing the city and its residents is the need to elevate homes throughout the community.
	Reinforce the protective barriers around the city. Margate is exposed to flooding from storm events (such as coastal flooding and ponding) and SLR. Bay-side street elevations are vulnerable to flooding during coastal storms at only 5 to 6 feet above sea level.
	Economic plan is part of the Master Plan and details efforts for redevelopment in the Central Business District and Waterfront Special District.
Northfield 2008 Master Plan Re-	Encourages all new development to use the latest techniques available to provide energy-efficient buildings.
examination	Encourages the revision of local ordinances to accommodate the use of alternative energy sources, such as wind, solar, and geothermal sources.
	Encourages the preservation of specimen trees and natural wooded areas, where possible.
	Encourage the installation of sidewalks and bikeways.
Pleasantville	General Development Goals include:
2015 Pleasantville Mater Plan Re-examination	Manage growth while protecting against the potential negative impact of growth.
Report	Keep pace with the economic climate in the city and use appropriate tools to update regulations and policies.
	Use all state and federal programs to assist in the city's revitalization.
	Details the goals for working with the Urban Enterprise Zone (UEZ), including the amending of the UEZ Development Plan.
Ventnor 2016 Ventnor Master Plan Re-examination	Committed to protecting and preserving natural assets, including oceanfront, Ventnor West, bayfront, and marshes in Ventnor Heights.
Report	Numerous projects related to energy conservation (including CDM Smith Energy Audit Report for municipal buildings in August 2015).
	City should adopt "aggressive policy" that promotes energy efficiency through building placement and design.

Plan	Resilience Components	
	City promotes mass transit, bicycling, and walking as alternatives to single-occupancy vehicles.	
	Exploring solar on public buildings, installation of electric vehicle charging stations, and bike lanes on Ventnor and Atlantic Avenues.	
	Recycling and trash pickup: including regularly scheduled beach and bay cleanup days.	
	<ul> <li>Analysis of storm vulnerabilities.</li> </ul>	
	❖ Supporting city Climate Adaptation Plan published 9/8/2015 <sup>115</sup>	
	Preliminary report for designation of area in need of redevelopment: Wellington Ave & Ventnor Plaza. Ventnor Plaza is owned by the Lamar Company. They would like the city to consider adding new uses for this parcel of land along Wellington Ave. If the city turns this into a 'redevelopment zone', it could possibly offer a sweet deal to entice developers. Financial incentives could then be made available to upgrade the area. A PILOT, Payment in Lieu of Taxes, could bolster redevelopment plans for Ventnor Plaza.	

# **Redevelopment and Revitalization Plans**

#### Neighborhood Revitalization and Redevelopment Plans

As part of its municipal master plan, Atlantic City has published a series of neighborhood revitalization and community planning initiatives to help define a hyper-local vision and path forward for each selected area. These plans—which have been conducted for the Ducktown, Chelsea Heights, the South Inlet, and other areas of the Tourism District—have been developed with community visioning input while considering infrastructure and economic needs and opportunities. Ultimately, these neighborhood plans open communities to grant opportunities and financial incentives that might not otherwise be available to them, such as consideration in the Neighborhood Revitalization Tax Credit program. In April 2021, the New Jersey Department of Community Affairs announced \$11.4 million in funding to 18 community-based nonprofit organizations—including the Atlantic City Development Corporation—through the program that will use funding to implement revitalization plans covering housing, social services, open space, and recreation improvements. 116

Neighborhood revitalization plans are successful approaches to local planning that a regional plan can leverage and build on. Similar programs that have brought in public dollars to the local level include Pleasantville's successful NJ Transit Village grant, Atlantic City's U.S. Economic Development Agency's grant for storm protection near Baltic Avenue, and the NJ Department of Community Affair's grant for renovations to Gardner's Basin.

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<sup>&</sup>lt;sup>115</sup> Krause, Stacy, *Development of Climate Change Adaptation Elements for Municipal Land Use Plans: building Resiliency in Ventnor City.* 2015, <a href="http://eac.rutgers.edu/wp-content/uploads/Ventnor-Climate-Adaptation-Plan-9.8.15.pdf">http://eac.rutgers.edu/wp-content/uploads/Ventnor-Climate-Adaptation-Plan-9.8.15.pdf</a>. <sup>116</sup> New Jersey Department of Community Affairs, *DCA Awards Funds for Neighborhood Revitalization Efforts in New Jersey*, April 2021, <a href="https://www.nj.gov/dca/news/news/2021/approved/20210408.html">https://www.nj.gov/dca/news/news/2021/approved/20210408.html</a>.

## **Wind Institute/Atlantic Coastal Resilience Institute**

The Atlantic County Economic Alliance projects \$100 billion in investment in wind power by 2030.<sup>117</sup> The report references a number of drivers for the future of economic development in the ACCR, including the State's Strategic Plan for Offshore Wind, tax credits to promote development around ACY, and the development of the New Jersey Offshore Wind Supply Chain Registry (an online portal created by NJEDA in tandem with the Business Network for Offshore Wind).<sup>118</sup> This online portal will connect offshore wind providers to related projects to foster new partnerships and develop the region's industry supply chain.

# 3.2 Climate and Hazard Specific Planning

Technical Note: Most buildings, structures, and land elevations throughout this report are referenced in the North American Vertical Datum of 1988 (NAVD88). Older elevation references may be in the National Geodetic Vertical Datum of 1929 (NGVD29). Because much of this planning report relates to water and water levels, those tidal datums also need to be identified and the conversions to NAVD88 clearly communicated. Tidal water is typically referenced to the following:

- ❖ Mean sea level (MSL), which is the average of 19 years' worth of water levels;
- ❖ Mean low water (MLW), which is the average of 19 years' worth of low tides; or
- ❖ Mean high water (MHW), which is the average of 19 years' worth of high tides.

The relationship among the tidal datums of MSL, MLW, and MHW are not consistent to NAVD88 around the United States; therefore, local relationships are established at fixed tide gauge locations. 119

The nearest tide gauge to the ACCR is in Atlantic City off the pier along the Atlantic Ocean front. Gauge 8534720 is part of the NOAA Center for operational Oceanographic Products and Services (CO-OPS) network of gauges. The next closest gauges are in Cape May and Sandy Hook. Based on data from the Atlantic City gauge, the tides range from a high elevation of +1.57 to a low elevation of -2.44 NAVD88, or roughly a 4.6-foot tidal swing between low and high tides. Figure 3-2 depicts the difference from NAVD88 to MSL as -0.4; NAVD88 to MLW as -2.44; and NAVD88 to MHW as 1.57.

The back bays and marshes experience the same range of tides, but the time they experience the highs and lows lags about 1.5 hours behind the ocean tides. Other factors, such as strong winds from offshore, can push water into the bays and prohibit the high-tide water from ebbing. This effect can compound to create flooding events even when coastal storms may be considered minor.

<sup>&</sup>lt;sup>117</sup> Atlantic County Economic Alliance, *Economic and Business Development in Atlantic County*, May 6, 2019, <a href="https://www.aceanj.com/resources-and-data/pdfs/economic-update-05-2019.pdf">https://www.aceanj.com/resources-and-data/pdfs/economic-update-05-2019.pdf</a>.

<sup>118</sup> Ibid.

<sup>&</sup>lt;sup>119</sup> NOAA, "Tides and Currents Data," November 3, 2020, <a href="https://tidesandcurrents.noaa.gov/datum\_options.html">https://tidesandcurrents.noaa.gov/datum\_options.html</a>.

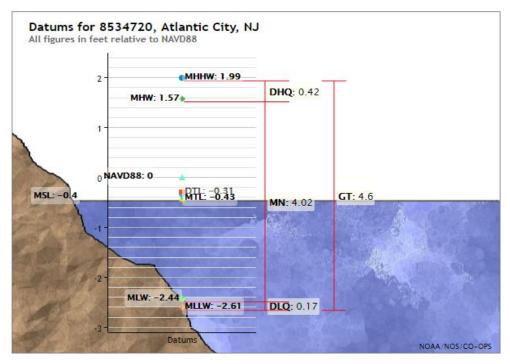


Figure 3-2. Datum Conversions at the Atlantic City Tide Gauge

Source: NOAA

## **Hazard Planning and Risk Assessments in the ACCR**

#### Hazard Mitiaation

Hazard planning for the ACCR is led by the Atlantic County Office of Emergency Preparedness through the Multi-Jurisdictional Natural Hazard Mitigation Plan (MHMP) prepared for FEMA. When the MHMP was first developed in 2010, in response to the Disaster Mitigation Act of 2000, the ACCR opted for a "multi-jurisdictional" approach to involve not just the county government but all the local entities within the county. This multi-jurisdictional approach allows for all the local communities to comply with the Disaster Mitigation Act of 2000 and be eligible to apply for FEMA hazard mitigation project grants. The MHMP is updated every 5 years, and the latest update is under way.

The MHMP assesses the natural hazards to the region—including drought, extreme rainfall, and earthquakes—as well as the coastal hazards of inundation, storm surge, and erosion from tropical and extratropical (i.e., nor'easter) storms. For each hazard, a profile has been developed that includes the location, extent, historical occurrences, and probability of occurrence. The MHMP provides a vulnerability assessment of the local assets and details how each hazard impacts the assets. The goals and locally preferred risk reduction strategies are oriented towards compliance with FEMA and the National Flood Insurance Program (NFIP). The MHMP only qualitatively considers future conditions with SLR. 120

As part of the update, each participating jurisdiction identifies and analyzes mitigation actions and projects. Each jurisdiction evaluates these mitigation actions/projects against the FEMA ACCR 2/s

<sup>&</sup>lt;sup>120</sup> Atlantic County, Atlantic County 2016 Multi-Jurisdictional Hazard Mitigation Study Update, 2016, <a href="https://www.atlantic-county.org/hazard-mitigation/plan-final.asp">https://www.atlantic-county.org/hazard-mitigation/plan-final.asp</a>.

Mitigation Action Worksheet. Communities then consider changing the scope of their mitigation strategies at each update. Atlantic County and its 23 jurisdictions list 260 mitigation actions and projects.

The public and other stakeholders must be given opportunities to become involved during the MHMP update and maintenance. Jurisdictions must take steps to integrate hazard mitigation plan steps into day-to-day municipality operations and each jurisdiction's comprehensive plan. These steps include actions like "revise job descriptions to include mitigation-related duties," "maintain community participation in FEMA's NFIP," and "add hazard vulnerability to subdivision and site plan review criteria."

Key inputs into assessment include:

- ❖ Repetitive Loss Property and Sever Repetitive Loss Property information
- ❖ SLOSH Zones 1-4
- ❖ FIRM V/VE Zones
- Annualized losses, days of recorded extreme heat, days of recorded extreme cold, from the National Climatic Data Center
- ❖ Number of wildfire events, the New Jersey Forest Fire Service

The MHMP vulnerability assessment was conducted using two distinct methodologies—GIS-based analysis and a statistical risk assessment methodology. A GIS-based analysis was conducted for coastal erosion, dam failure, floods, storm surge, wave action, earthquakes, and wildfires. A statistical risk assessment approach was used to analyze extreme temperatures, extreme wind, hurricane and tropical storms, lightning, nor'easters, tornados, winter storms, and drought.

Each municipality in the ACCR has identified needed projects through their Municipal Annex in the MHMP. These needed projects (as of the date of this analysis) are summarized in Section 3.6.

Mitigation actions generally fall into four categories

- Local plans and regulations;
- Structure and infrastructure projects;
- Natural systems protection; and
- Education and awareness programs.

The worksheets developed by municipalities, including Atlantic County, describing the evaluation criteria of different actions are focused on their cost-effectiveness at mitigation, but they also include social factors. The social factors are phrased as, "Will the proposed action affect one segment of the population? Will it disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?" Nevertheless, the focus of the worksheets, and the plan as a whole, is on government operations and critical infrastructure.

Table 3-3 provides examples of responses to the impacts of Superstorm Sandy. Much of these impacts as noted in the Multi-jurisdictional Hazard Mitigation Study are related to beach impacts, though it is important to note that most communities suffered significant losses on the bay sides of their community.

Table 3-3. Hazard Profiles Superstorm Sandy Impacts (October 29, 2012) as presented in the Atlantic County 2016 Multi-Jurisdictional Hazard Mitigation Study Update<sup>121</sup>

Profile	Notes
Atlantic County	Like much of coastal New Jersey, Atlantic County's coastal communities were severely impacted by coastal erosion during Superstorm Sandy.
	Researchers from the Richard Stockton College Coastal Research Center (CRC) monitor shoreline change at 105 beach sites in Atlantic, Cape May, Monmouth, and Ocean Counties. A 25-year shoreline change analysis of each of the 105 monitoring sites was conducted to present the overall trend for each county. The CRC also conducts post-storm surveys and assessments of the New Jersey shoreline in response to severe beach erosion resulting from the impact of storm events.
	Nearly all the 105 NJ Beach Profile Network sites were surveyed immediately after Superstorm Sandy to provide accurate assessments of sand volume losses to New Jersey's beaches. The volume change at each site was normalized with the volume of sand present prior to Superstorm Sandy. Nearly all the sites in Atlantic, Cape May, Monmouth, and Ocean Counties showed evidence of sand volume losses as a result of Superstorm Sandy in 2012.
	❖ Dune breaches, loss and scarping of dunes, and decreased beach width and elevation occurred from southern Absecon Island's oceanfront north into Brigantine. The CRC reports a total sand loss volume for Atlantic County of 845,132 cubic yards.
Atlantic City	Atlantic City has participated in a federal beach nourishment project since 2003.
	The dunes were constructed to an elevation of 14.5 feet NAVD88 and were just high enough to withstand the wave run-up during Sandy.
	The oceanfront beach lost width and elevation, but the dunes prevented damage to Atlantic City's famous boardwalk.
Brigantine	❖ The northern-most profile site on the Island of Brigantine (i.e., the Green Acres Area) is located on the undeveloped northern end of the island now in the possession of the State of New Jersey. This location was over-washed by waves from the ocean to the bay marshes by Superstorm Sandy.
	Moving south, where development begins, the beach has been eroded due to the orientation difference between the physical infrastructure and the long-term changes in the shoreline. The federal project includes placing sand on the natural shoreline to act as a feeder beach to the worst of the erosional segment.

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<sup>&</sup>lt;sup>121</sup> Atlantic County, *Atlantic County 2016 Multi-Jurisdictional Hazard Mitigation Study Update*, 2016, https://www.atlantic-county.org/documents/hazard-mitigation/2015-Update-Final/Risk-Assessemtn-Sect3a.pdf.

Profile	Not	es
	*	Prior to Superstorm Sandy, the beach was wet to the toe of the rock revetment, indicating that the revetment provided little protection. During Sandy, waves crashed over the promenade and flooded Brigantine Boulevard. Dunes and a dry beach begin near the southern end of the promenade where steep scarps were present going south to approximately 25th Street South.
	*	The dune-defended section did much better in stopping the storm waves, except at 15th Street South where a large, multi-story building occupies the footprint of the dune. Both the 15th and 14th Street ends and the building's parking lot were overrun by waves, and sand was transported into Brigantine Boulevard.
	*	However, south of 15th Street South, the widening beach absorbed the storm surge and the wave energy with no ill effects on any public or private property. Farther south, extending to the Absecon Inlet jetty, the berm was eroded, and sand pushed landward into the seaward-most part of the dune area.
Longport	*	After the damage incurred in Longport during Superstorm Sandy, the community decided to seek inclusion in the federal beach nourishment project to continue the work south from Ventnor.
	*	The southern community has an old concrete seawall protecting some of the development with a narrow, low elevation beach seaward. Waves crashed into the wall and poured over it through most of Longport's streets into Atlantic Avenue. Since the homes are very close to the wall, house damage was evident.
Margate	*	Margate had significant amounts of water wash over the existing timber in sufficient force and water volume to move sand into homes, businesses, and the general infrastructure along Atlantic A venue.
	*	At Benson Avenue, a lack of consistent dunes and a wide beach permitted wave energy to deposit sand to the very top of the bulkhead, over it, and into the street.
	*	Fire Station No. 1 is at risk of future flood risk given its location
	*	Some locations did have "island" dunes that acted as protection from the overwash process, but in many cases the water came into Margate. Sand recovered from inland was hauled back to the beach, but since the federal project has yet to start, no organized dune building has occurred in Margate.
	*	The Margate city council has so far not sought inclusion in the federal beach nourishment project because multiple oceanfront owners are strongly opposed to any dune as part of the project at the time of the 2016 report.

Profile	Notes
Ventnor	❖ Ventnor chose to participate in the 2002–2003 federal beach restoration project. Dorset Avenue saw no serious impact from Superstorm Sandy other than beach elevation loss and a narrower berm width.
	Farther south toward Margate, the end effect losses to the federal project allowed waves to reach the timber bulkhead protecting the upland development, and water came over the bulkhead at a variety of locations. The end effect sand losses were significant and a significant reason to complete the project as designed.

## Strategic Recovery Planning

The 2014 Strategic Recovery Planning Reports for Atlantic County and Ventnor intended to provide guidance for future planning-related projects that may be eligible for grant funding under the Post-Sandy Planning Assistance Grant program. 122, 123 As part of that program, both Atlantic County and Ventnor were awarded funds to complete these reports. Each report summarizes the existing conditions, current planning documents, current risks, and impacts from Superstorm Sandy. Each report concludes with an outline of completed and in-process recovery efforts; recommendations for additional reports, planning efforts and infrastructure projects; and identification of potential funding and partnership opportunities to implement these recommendations.

Tables 3-4 and 3-5 represent a summary of findings from both the Atlantic County and Ventnor reports.

Table 3-4. Summary of Findings in Strategic Recovery Planning Report Review

Туре	Findings
Vulnerability assessment	❖ Barrier island communities hardest hit
	<ul> <li>Climate change and SLR exacerbate existing conditions</li> </ul>
	Routes where rescue and recovery were impeded: AC Expressway, U.S. Route 40, Route 30, Margate Boulevard (Downbeach Express), NJ Route 152 (Somers Point Longport Blvd)
Review of damages	❖ Atlantic County incurred ~\$265M worth of damage from Sandy
	❖ 16,000+ insurance claims were processed; 70% paid out to property owners
	❖ Barrier island communities suffered the greatest lost; Atlantic City reported \$83.3M in losses, Brigantine with \$44.2M, Margate \$39.1M, and Ventnor \$37.4
Economic impact	Rapid decline in civilian labor force since 2012
	Only 56% of residential properties are primary homes

Heyer, Gruel & Associates, prepared for New Jersey Department of Community Affairs - Office of Local Planning Services, *Strategic Recovery Planning Report*, *Atlantic County*, November 2014, https://www.state.nj.us/dca/divisions/lps/SRPRs/AtlanticCounty\_SRPR.pdf.

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<sup>&</sup>lt;sup>123</sup> City of Ventnor, "Strategic Recovery Planning Report," September 2014. https://www.nj.gov/dca/divisions/lps/SRPRs/Ventnor%20City\_SRPR.pdf.

Туре	Findings
Public outreach; key concerns:	<ul> <li>Flooding in flood-prone areas, specifically in Ventnor Heights, Margate, Atlantic City and Brigantine</li> </ul>
	<ul> <li>Prolonged displacement is a major issue</li> </ul>
	Rehabilitation, Reconstruction, Elevation, and Mitigation program was helpful, however, it had many requirements for other improvements needed to meet stated standards
	<ul> <li>County and FEMA rent/mortgage assistance programs were beneficial</li> </ul>
	Local charities (Red Cross and Catholic Charities) and government long-term recovery assistance programs were helpful in the recovery
	❖ 50% loss requires raising of the structure by insurance companies
	❖ Debates over dune construction
	❖ Many bay-side areas were flooded due to lack of bulkheads
	* Raising homes may be a better solution than bulkhead installation
	<ul> <li>Inconsistent bulkhead locations and treatment led to further flooding</li> </ul>
	<ul> <li>Natural shorelines and other natural storm water management techniques can be resiliency measures</li> </ul>
	<ul> <li>Debris and flooding of evacuation routes, government buildings (county library), and catch basins was a major issue</li> </ul>
	❖ A refuge area is needed outside the floodplain
	<ul> <li>There were cellular communication service outages</li> </ul>
	There was a need for more information about shelters for displaced residents
	<ul> <li>Predatory contractors were a concern</li> </ul>

 $Table \ 3-5. \ Recommendations \ from \ 2014 \ Strategic \ Recovery \ Planning \ Reports, \ by \ Jurisdiction$ 

Jurisdiction	Recommendations (2014 Strategic Recovery Planning Reports)
Atlantic County	1. Improve infrastructure including:  a. Bulkhead repair and installation,  b. pump station repairs  c. Installation of emergency generators,  d. Evaluation of stormwater piping,  e. Inspection of city-owned facilities,  f. Installation of citywide warning system.
	<ol><li>Participate in buyouts and FEMA's Community Rating System and incorporate best management practices.</li></ol>

Jurisdiction	Recommendations (2014 Strategic Recovery Planning Reports)
	3. The report also identifies some funding and partnership opportunities.  Besides the recommendations, the report does not identify any next steps.
Brigantine	1. Design Standards and Environmental Design of the Bayfront
	2. Community Development Plan for Business Districts
	3. Recreation and Open Space Element/Municipal Public Access Plan
	4. Environmental Design for Brigantine Boulevard Improvements
	5. Master Plan Development
	6. Zoning Ordinance Revisions- Design Standards
	7. Capital Improvement Plan
	8. Capital Improvement Plan for Regionalization and Shared Services
	9. Energy Audit/Energy Savings Improvement Plan
Atlantic City	<ol> <li>Storm Damage Mitigation Projects in Back Bay, North Inlet, and Gardner's Basin</li> </ol>
Margate	1. Environmental Design of Bayfront Area
	<ol> <li>Environmental Design for Amherst Avenue Business District Infrastructure and Development</li> </ol>
	3. Master Plan Development
	4. Zoning Ordinance Revisions-Design Standards
	5. Environmental Design of Beachfront Area
	6. Economic Development Element/Community Development Plan for Business Districts
	7. Sustainable Community Plan
	8. Capital Improvement Plan
	9. Capital Improvement Plan for Regionalization and Shared Services
	10. Energy Audit/Energy Saving Improvement Plan
	11. Bicycle and Pedestrian Plan
	12. Community Rating System
Longport	
Northfield	
Pleasantville	1. Ordinance Amendments
	2. Public Outreach, Community Resiliency and Preparedness
	3. Hazard Mitigation and Preparedness Grants
	4. Participation in FEMA's Community Rating System
	5. Economic Recovery
	6. State and Federal Homeowner Recovery Programs
	7. Recovery for Displaced Families
	8. Affordable Housing
	9. Resiliency and Sustainability

Jurisdiction	Recommendations (2014 Strategic Recovery Planning Reports)		
Ventnor	1. Vulnerability Assessment		
	2. Master Plan		
	3. Redevelopment/Rehabilitation Planning		
	4. Zoning and Related Codes, Ordinances and Regulations		
	5. Post Disaster Recovery Ordinance		
	6. Capital Improvement Plan		
	7. Shared Services Plan		
	8. Design Standards		
	9. Sustainability and Storm water Management Plans		
	10. Blue Acres/Buyouts		
	11. Community Rating System		
	12. Economic Development Plan for Business Districts		

## FEMA National Flood Insurance Program and Community Rating System Participation

Each municipality individually participates in the FEMA NFIP to insure and protect private residences and public property. The NFIP oversees the preparation of the flood maps that help determine flood insurance rates. In 2010, FEMA ACCR 2 initiated a coastal study for New York and New Jersey to update flood risk information for communities. Preliminary FIRMs were issued for coastal communities throughout 2014. In June 2015, New York City submitted an appeal of the maps, citing concerns with aspects of FEMA's storm surge analysis. To resolve the appeal, a *Coastal Restudy* is being performed to improve the storm surge analysis and produce more accurate coastal flood risk information. The reanalysis began in November 2017, and draft maps are expected to be available in 2023.<sup>124</sup>

#### **Evacuation Coordination**

The Atlantic County Office of Emergency Preparedness works closely with municipal emergency managers to coordinate evacuations. The ACCR is divided into evacuation zones with posted evacuation routes designated by blue and white "coastal evacuation route" road signs. Evacuations are announced as voluntary, recommended, or mandatory depending on the predicted severity of the situation. Alerts are sent out through Emergency Alert System messages on local



radio and TV, as well as via community notification networks, such as the Reverse 911 system and going door to door. If the evacuation calls for it, a lane reversal of the major highways can be in initiated to increase evacuation capacity. The State of NJ Office of Emergency Management, in partnership with USACE and FEMA, is in the process of updating the Hurricane Evacuation Transportation Analysis for the Hurricane Evacuation Study. 125

At the municipal level, each local government is responsible for developing and enforcing ordinances and local land use zoning that contribute to resilience planning. Two impactful ordinances that municipalities can enact are the minimum building elevation (required for NFIP participation) and waterside bulkhead elevations. Proper land use zoning is a vital tool to discourage construction in

<sup>125</sup> PBS&J, Inc, FEMA, USACE, *Hurricane Evacuation Transportation Analysis*, 2007, http://ready.nj.gov/plan/pdf/maps/hurrevacution\_study.pdf.

<sup>124</sup> FEMA, Coastal Restudy: New York and New Jersey, ongoing https://fema.maps.arcgis.com/apps/Cascade/index.html?appid=a463a8f877d04aecb35c4f33dbbe486a.

frequently flooded areas, reduce the impervious surface within a buildable lot, and encourage preservation of green space. Existing impervious surface coverage is shown in **Error! Reference source n** ot found..

Ocean-side bulkhead elevation ordinances range from non-existent in Atlantic City to a minimum of 13 feet NAVD88 in Margate. The required bay-side elevations vary from 8.0 NAVD88 in Margate to 9.35 (converted to NAVD88) in Longport.

Absecting City

Continent

City

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City

Attentic City

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Figure 3-3. Variation in Impervious Surfaces across the ACCR

Source: DEP Land Use Land Cover (2012)/New Jersey Conservation Blueprint

Table 3-6 displays the latest ordinances for bulkhead heights and minimum building elevations throughout the region.

Table 3-6. Bulkhead Heights and Minimum Building Elevations Throughout ACCR

Bulkhead Ordinances					
Municipality	Datum	Ocean Side	Bay Side	Adopted	Link to ordinance
		none in building			
Atlantic City	NAVD88	code	8.5	11/1/2019	ecode360
Ventnor	NAVD88	10.5 min	8.0 min 9.0 max	9/18/2014	ecode360

Bulkhead Ordinances					
					Link to
Municipality	Datum	Ocean Side	Bay Side	Adopted	ordinance
Margate	NAVD88	13	8	7/15/2018	ecode360
			9.75 min 10.25		
Longport	MSL*	13 max	max	5/16/2001	ecode360
					ecode360
Brigantine	MSL*	11 MSL	9.0 MSL		ecode360
			none in building		
Pleasantville		NA	code		
			case by case		
Northfield		NA	basis		ecode360

<sup>\*</sup> To convert from MSL to NAVD88 Subtract 0.4 feet.

## **Planning and Studies**

ACCR jurisdictions have led or been involved in many resiliency and climate change impact studies over the past decade. The scopes of work range from large-scale multi-state level, to regional, down to individual municipality and even single communities. This section briefly highlights many of the studies conducted for the ACCR. The overarching hazard study of the region, the MHMP, includes pertinent information on the hazard planning for the ACCR and is summarized above in Section 3.1.

The Rutgers Climate Institute convened a panel of scientist and technical advisors to compile a report, titled Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms. The original report was prepared in 2016, and an update was completed in 2019. The 2019 update states that due to multiple factors, sea levels are rising faster in New Jersey than globally. The updated version also revised the magnitude and rates of SLR. For example, the report indicates high-tide flooding (sunny day flooding) is expected to increase in Atlantic City from less than one event per year in the 1950s to 17–75 days per year in 2030 and 45–255 days per year by 2050. 126

In 2015, in response to Superstorm Sandy, USACE completed the *North Atlantic Coast Comprehensive Study* (NACCS) that evaluated the entire northeast coastline vulnerabilities. The final report includes the findings on exposure and vulnerabilities and the impacts of SLR, lessons learned from Superstorm Sandy, and how communities can mitigate storm risk. Other products developed through the NACCS include a geodatabase of multiple exposure indices in current and future conditions, a report on institutional and other barriers to resiliency, and a coastal program guide to compile funding opportunities for before and after a storm impacts a community. The New Jersey Appendix discusses state-specific conditions, risk analyses, and areas, and identifies comprehensive coastal storm risk management (CSRM) strategies to provide a more tailored framework for the state.<sup>127</sup>

A follow-on study from the NACCS is the *New Jersey Back Bay Study*, conducted at the regional level, for the ACCR and all other New Jersey bays along the coast. USACE is evaluating the ACCR's problems and opportunities and is assessing the feasibility of implementing various alternatives for storm surge attenuation and reduction in back bay flooding. The alternatives that were developed for the ACCR include: storm surge barriers and interior bay closures; perimeter measures (levees and

<sup>127</sup> USACE, North Atlantic Coast Comprehensive Coastal Study, 2015, https://www.nad.usace.army.mil/CompStudy/.

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<sup>&</sup>lt;sup>126</sup> Rutgers NJ Climate Adaptation Alliance, Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: Report of the New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel, October 2016, <a href="https://njadapt.rutgers.edu/docman-lister/conference-materials/167-njcaa-stap-final-october-2016/file">https://njadapt.rutgers.edu/docman-lister/conference-materials/167-njcaa-stap-final-october-2016/file</a>.

floodwalls); nonstructural measures (residential building retrofits; and natural and nature-based feature measures. The report also identifies general impacts and provides a preliminary National Environmental Policy Act environmental analysis. 128 The draft alternatives report will be issued summer 2021.

USACE uses its Continuing Authorities Program (CAP) to evaluate and implement smaller-scale feasibility studies and projects. Within the ACCR, USACE has conducted CAP studies projects underway in Margate to evaluate ways to reduce flooding, and in the Chelsea Heights section of Atlantic City to evaluate potential bulkheads and levees to reduce flooding. 129

The Repetitive Loss Area Analysis Lakes Bay Area for the Lakes Bay neighborhood in Pleasantville presents recommendations and alternatives to address ongoing flooding. The study found that most of the residential lots were built prior to development of flood protection standard codes. Most of the homes also lack flood protection measures through elevation above the base flood elevation (BFE) and installation of flood vents on foundations. The report provides recommendations to address the flooding hazards. These recommendations include preventative actions, property protection measures, natural resource protection, emergency services, structural projects, and public information.<sup>130</sup>

## **Superstorm Sandy Climate Initiatives and Investment**

Various local, state, and federal agencies have led previous and ongoing efforts to advance climatespecific planning and projects in the ACCR by providing funding and partnering on the engineering and construction management. Many of the Sandy recovery projects were completed with FEMA funding (for repairs and improvements) or HUD funding administered through the State of New Jersey Division of Consumer Affairs, as CDBGs. The primary federal partner on coastal storm risk reduction planning and projects is USACE. The ACCR is under the jurisdiction of USACE Philadelphia District. USACE typically shares the cost of a project with the State of New Jersey for large-scale CSRM or with the municipality on smaller-scale CAP projects with a limit of \$10 million.

The State of New Jersey Division of Coastal Engineering is typically the non-federal sponsor on USACE projects but also partners separately with municipalities on state/local shore protection projects throughout the region. The Division of Coastal Engineering aids in the design, permitting, funding, and construction management of the projects. These projects are typically cost shared with the local municipality: the state covers 75 percent of the funds for construction, and the municipality covers the remaining 25 percent as well as components of the project that are not eligible shore protection features (i.e., benches, lamp posts, landscaping).<sup>131</sup>

Individual municipalities also have played a significant role in shore protection planning and projects. Each municipality within the ACCR has designed, permitted, funded, and implemented shore protection or flood control projects within its community. These projects are typically funded through capital improvement bonds or various state or federal grants. Shorelines of the communities and their relative elevation at the highest point to sea level is shown in Figure 3-4.

The Atlantic Cape Coastal Coalition (which is now the New Jersey Coastal Commission) was established after Superstorm Sandy, and all communities working together have found it to be a great asset. The

<sup>&</sup>lt;sup>128</sup> USACE, NJ Back Bays Study, Ongoing, https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

<sup>129</sup> USACE, Continuing Authorities Program, https://www.nap.usace.army.mil/Portals/39/docs/Civil/USACE-CAP-Brochure.PDF?ver=2018-11-07-114048-650.

City of Pleasantville, "Repetitive Loss Area Analysis for the Lakes Bay Area," 2017, http://www.pleasantvillenj.org/pdf/repetitive-loss-area-analysis.pdf.

131 DEP, Division of Coastal Engineering, https://www.nj.gov/dep/shoreprotection/.

Commission has mostly served as a space for coordination and best practices among communities in Atlantic and Cape May counties, although it lacks formal regional decision-making or legislative powers.

Northfield

Ventnor City

Ventnor City

North Asset Conso

Register Ni

PROJECTS - SHORELINE TYPE

Legend

Vegetative Shretine
- Vestate Based
- Seaved and Jeffys
- Seaved and Jeffys
- Seaved Based
-

Figure 3-4. Shoreline Protection across the ACCR

Coastal Resiliency Institute and Marine Science Center

In August 2019, NJEDA, Atlantic City, Stockton University, and their collaborators developed a study to:

- Catalyze planning and key investments within a city and ACCR to augment their innovation ecosystem.
- ❖ Inform the NJEDA's own plans for economic development activities and programs.
- ❖ Foster collaboration with the NJEDA and other local governmental entities to promote innovation across the state. ¹³²

Atlantic City applied to NJEDA Request for Qualifications/Proposals to fund a feasibility study for a Coastal Resiliency Institute and Marine Science Center (herein referred to as the Coastal Resiliency Institute) to be built under the auspices of Stockton University. As required by the grant application, grantees held discussions with several partners to gauge potential interest and encourage participation in the project.

<sup>&</sup>lt;sup>132</sup> NJEDA, Coastal Resiliency Institute & Marine Science Center, *NJEDA Final Report*, August 2019, <a href="https://www.congress.gov/116/meeting/house/109922/witnesses/HHRG-116-II06-Wstate-StraubP-20190916-SD001.pdf">https://www.congress.gov/116/meeting/house/109922/witnesses/HHRG-116-II06-Wstate-StraubP-20190916-SD001.pdf</a>.

Coastal Resiliency Institute Vision: All participants share a common goal, to strengthen coastal resilience in south Jersey, and serve as a model for such work on a national level. This has immediate practical applications, such as the design, maintenance and restoration for buildings and infrastructure in our ACCR able to absorb or avoid damage without suffering complete failure. It also has more systemic and preventative connotations. A resilient structure/system/community should not only be able to resist an extreme event with minimal damage and functionality disruption, but also rapidly recovery its functionality similar to—or even better than—its pre-event level.

The study found that almost \$4.5 billion in property value has been lost since 2005 because of flooding related to SLR and that severe hurricanes cost the United States \$300 billion in 2017 alone. It is estimated that average global flood losses will increase nine-fold, from \$6 billion per year in 2005 to \$52 billion per year in 2050.

The Coastal Resiliency Institute would build on and advance the growing public awareness about the need to strengthen disaster resilience as a critical component of efforts to achieve sustainable socioeconomic development and poverty reduction, for example by way of the just transition to a clean, lower carbon future and energy democracy centered on renewables and the pathway toward a fossil fuel-free future. Perhaps more importantly for New Jersey as it relates to the transition to an equitable, renewable energy future, offshore wind is being pursued as a viable alternative power source for the first time in the United States. While development of smart grid technology sourced from renewables will be a decades-long process, steps can be taken today to ensure system components include design and performance requirements for ensuring local communities benefit from renewable energy generation in the ACCR. This may include measures that require local feeder lines and battery storage to provide reliability and redundancy in times of emergency and disruption to other parts of the energy system.

The proposed Coastal Resiliency Institute would also offer a focal point for scientific research and needed policy debates, as well as continue to diversify the ACCR by providing an economic driver that provides higher-paying jobs, educational opportunities, and innovative branding. Development of the Institute is proposed in two phases:

- Establish a Coastal Resilience Incubator
- Secure funding for a permanent home for the Coastal Resiliency Institute & Marine Science Center

This effort has involved engagement with the following partners and other stakeholders: USACE; DEP; CRDA; SJEDD; Atlantic County Economic Alliance (ACEA); Atlantic City Special Projects Office; Rutgers University, Department of Marine and Coastal Sciences; Stevens University of Technology, Davidson Laboratory; Monmouth University, Urban Coast Institute; New Jersey Sea Grant Consortium; New Jersey Audubon Society; New Jersey League of Conservation Voters; The Jersey Shore Partnership; Build Strong Coalition; Jacques Cousteau National Estuarine Research Reserve; Mott MacDonald Engineering; Ørsted Ocean Wind; Atlantic Shore Offshore Wind, LLC – EDF Renewables North America/Shell New Energies; and DCO Energy.

As part of the study, an economic impact analysis (using RIMS II model and specific multipliers) was conducted to assess the role of "Eds & Meds"—or the "Anchor institution model"—in regional economy. Benefits not measured in the analysis included:

- ❖ Adding impetus for STEM education and careers.
- ❖ Attracting research institutions to the region.

- ❖ Making Atlantic City attractive to new residents.
- ❖ Providing a cushion against unpredictable trends in the casino/tourism industries.
- Generating over 180 full-time-equivalent jobs.

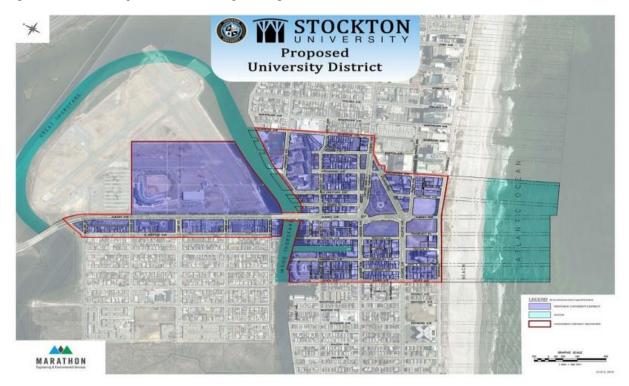
At the time of the report, it was noted that inputs used would change as funding and programming proceed. To accommodate anticipated changes, the economic model created is flexible and can easily be adjusted to changes in size, employment, and purpose. As Resilient NJ develops, Coastal Resiliency Institute stakeholders can provide meaningful input and insights for the project and bring lessons and the study's adaptable template to help evaluate economic impacts of implementing the proposed Institute as it moves toward funding and development stages. At the time of the study, the construction budget for the Institute was estimated to be \$60 million including site development, construction, and off-site improvements based on a January 2017 estimate and more recent analysis. The project is expected to generate overall economic activity in a ratio of 1.4 return for every dollar invested.

The report noted that the Jersey Shore will see approximately \$80.737 billion in direct capital investment and \$495.1 million in annual operations, maintenance, repair, replacement, and rehabilitation expenditures resulting from various coastal resilience projects planned for the Jersey Shore between 2019 and 2035.

## The report included the following action items (the status of all is unknown):

- 1) Advance proposed Coastal Resiliency Institute to feasibility study stage, ideally located within proposed Stockton University District (shown in Figure 3-5).
- 2) Harness Stockton Atlantic City's unique position as a nexus for training and industry support of offshore wind energy due to its central position to much of the currently leased areas for offshore wind development.
- 3) Foster carbon neutral practices and energy sources. An Institute focused on wind energy development would dovetail explicitly with the Coastal Resiliency Institute concept. The Wind Innovation & New Development (WIND) Institute has been proposed by Governor Murphy as a state clearinghouse for education, research, innovation, and workforce training for the future of wind energy. This aligns with NJ Protecting Against Climate Threats (NJ PACT) and the state's 80 x 50 Report objectives.
- 4) Create an entirely brand-new industry in the ACCR that is slowly emerging in the United States: offshore wind. Many of the 8,000 offshore wind turbine components can be manufactured here in the United States. Today, about two-thirds of the components in U.S. land-based wind turbines are manufactured domestically.
- 5) Build on the momentum of the first offshore wind project in the State of New Jersey, which is Ørsted's Ocean Wind project proposed off the coast of Atlantic City. The 1,100-megawatt (MW) wind farm is expected to power about 500,000 New Jersey homes and generate \$1.17 billion in economic benefits, in addition to creating an estimated 15,000 jobs over the project life. This is the first step towards reaching the state's goal of 3,500 MW of offshore wind by 2030. Ørsted Ocean Wind has offices in Atlantic City and plans to develop its operations and maintenance center in the city as well.

Figure 3-5. University District - Overlay Zoning District



The Proposed University District Overlay indicates that 15 acres of Bader Field is reserved for future educational use. The remainder of the Bader Field site is planned as a Tech Park and could be an ideal setting for private sector climate- and resilience-focused companies (e.g., engineering, research and development, architecture, planning). Atlantic City has deemed this site an ideal location for a technology hub. It is understood that given Bader Field's location and low-laying elevation, any proposed development would require a mix of flood-proofing and resilience measures such as incorporating living shoreline to ensure the site's ability to withstand the coastal environment.

Next steps include the following:

- 1) Incubator: Begin 40-month effort to fully develop and buildout the Coastal Resiliency Institute.
- 2) Memoranda of understanding: Execute memoranda of understanding for each partner to detail level of commitment to the effort.
- 3) Capital and operating funding: Establish capital stack for Institute for future operating and research endeavors.
- 4) Leadership Plan: Establish leadership of Institute to mesh with University hierarchy; requirements for director must be established.

#### American Red Cross Prepare NJ: A Pathway to Creating More Resilient Communities

The American Red Cross of New Jersey has taken a lead role in organizing storm preparedness across communities in the state. The organization established Prepare NJ, a preparedness initiative that offers a menu of strategies to prepare communities for emergencies. These programs include Fire Safety Preparedness Programs, Youth Preparedness Programs, and other technical resources for families and individuals to deploy; a sample of which are outlined in Table 3-7. The purpose of the Prepare NJ initiative is to offer "long-term community preparedness options that lays a firm foundation for a more resilient

community, through focused targeting of preparedness information, and resources for individuals and families that are more susceptible to the effects of a disaster or emergency event." <sup>133</sup>

Table 3-7. Summary of American Red Cross Prepare NJ Tools

Prepare NJ Tool/Program	Description		
The Pillowcase Project	With participation from Atlantic City, Pleasantville, Northfield, and Margate, The Pillowcase Project already exists in the ACCR, but could be expanded. The Project is a preparedness education program for grades 3-5 that teaches students about personal and family preparedness and safety skills, local hazards, and basic coping skills. Red Cross volunteers lead students through a "Learn, Practice, Share" framework to engage them in disaster preparedness and survival skills. Upon completion, students receive a sturdy pillowcase in which to build their personal emergency supplies kit." 134		
	First piloted in 2013, this free Red Cross Youth Disaster/Emergency Preparedness program is designed for 3rd to 5th grade students in the form of an in-person 60-minute training session. In New Jersey we now tend to focus on 4th Grade students for this project, though on occasion can also accommodate 3rd and 5th grades in smaller school settings. Can be delivered in Spanish subject to presenter availability.		
	Its content focuses on general Home Fire Safety and an additional local hazard such hurricanes, flooding or urban fire safety. Students receive a Pillowcase to decorate as an emergency kit 'bag' along with a workbook. Red Cross has trained over 1.2 million students since 2013 across the nation and have reached approx. 26,000 in New Jersey since 2015.		
Be Red Cross Ready (BRCR)	This program is a national, standardized free preparedness presentation appropriate for audiences ages 14 years and older. Traditionally delivered in the form of an engaging PowerPoint presentation, this module-based program focuses on individual and family preparedness with disaster modules that are most applicable to New Jersey. There are options to mix and match preparedness modules such as preparedness essentials, fire safety, hurricanes, floods or winter storms. Can be delivered in Spanish subject to presenter availability.		
Emergency App	<ul> <li>More than 35 different severe weather and emergency alerts are included. The App allows users to:</li> <li>Choose the alerts that are important to your location.</li> <li>Monitor activity across the nation to help family and friends.</li> <li>View information on what to do before, during, and after an emergency/disaster strikes.</li> <li>Investigate additional topics on home fires, water safety, and first aid.</li> </ul>		

<sup>&</sup>lt;sup>133</sup> American Red Cross, *Overview of Prepare NJ Tools and Programs*, 2020.
<sup>134</sup> American Red Cross, *The Pillowcase Project*, 2021, <a href="https://www.redcross.org/get-help/how-to-prepare-for-p emergencies/teaching-kids-about-emergency-preparedness/pillowcase-project.html.

Prepare NJ Tool/Program	Description	
	View content in Spanish using a toggle switch.	
	Available as a free phone app.	
Monster Guard App	Prepare kids (7–11 years old) for emergencies in an engaging way. Monster Guard brings Maya, Chad, Olivia, and all the monsters to life so kids can:	
	Learn how to stay safe in real emergencies—at home and around the country.	
	Share with their friends when they pass levels and what they have learned with grown-ups.	
	Available as a free phone app. In English only.	
Readyrating.org	Free, web-based, self-paced organizational emergency prepared organizations of all types prepare appropriate respond effectively, and recover quickly from disasters and other emergencies. Ready Rating tools meet or exceed the minimum standar for organizational preparedness set by the Occupational Safety and Heal Administration (OSHA).	
	This program is targeted to small business, community group or house of worship to improve their preparedness posture. This self-assessment online tool will score or rate and organization's current preparedness posture and suggest/provide solutions to improve the score using the tool's online resource center. Ready Rating will ensure an organization is fully compliant with OSHA requirements, such as providing an Emergency Action Plan template if the small business has more than 50 employees. Only available in English at this time.	

## DEP Blue Acres Floodplain Program

Some developed areas within the floodplain are facing increasing frequency of coastal storms and flooding that cause damage to properties and structures. The State's Green Acres, Farmland, Blue Acres, and Historic Preservation Bond Act of 2007 and subsequent Green Acres, Water Supply and Floodplain Protection, and Farmland and Historic Preservation Bond Act of 2009 approved a combined total of \$36 million for acquisition of lands in floodways that may buffer or protect other lands from such damage. The program focuses on areas near major bodies of water in the state for acquiring lands from willing sellers for coastal resilience, recreation, and conservation purposes. Currently, local management agreement terms refer demolition bids to be solicited by towns to DEP for awarding and contracting the demolition contractor.

Vacant lots in the ACCR may provide an opportunity to begin considering potential sites for the program. In considering a 50-year-plus time horizon, owners of developed and occupied properties and structures may find selling these assets as part of a government buyout program to be a fiscally responsible and safe choice in the face of changing climate conditions.

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<sup>&</sup>lt;sup>135</sup> DEP, *Blue Acres Floodplain Acquisitions*, December 7, 2020, <a href="https://www.nj.gov/dep/greenacres/blue-flood-ac.html">https://www.nj.gov/dep/greenacres/blue-flood-ac.html</a>.

# 3.3 Ecosystem Resilience in the Region

The ACCR includes the Brigantine Bay Marsh Complex, as designated by U.S. Fish and Wildlife Service (USFWS), which is a part of the larger barrier beach and back barrier lagoon system that stretches from Point Pleasant to Cape May, New Jersey. The Brigantine Bay Marsh Complex is 18.5 miles of this system and is characterized by shallow bays and numerous salt marsh islands. The marsh islands are interspersed by a network of tidal creeks. The area experiences an average tidal range of 4 feet, and high tide in the back bays about 1.5 hours after the ocean-side high tide off the Atlantic City Steel Pier. The coastline along the northern end of Brigantine Island is primarily undeveloped, while the coast along the barrier islands and mainland of the southern portion is heavily developed with residential and light commercial.

The planning ACCR contains designated protected areas to preserve important ecosystems and open spaces. Within the ACCR are three WMAs maintained by DEP Division of Fish and Wildlife, a State Natural Area, and a Federal Natural Area. DEP's Office of Natural Lands Management has designated the North Brigantine Island area to be a Natural Heritage Priority Site because of its importance to the health of the natural ecosystem and home to rare and endangered species.<sup>137</sup>

#### **Preserved Land and Wildlife Management Areas (WMA)**

The WMAs are preserved open space for fish and wildlife habitat, as well as natural recreation (sightseeing, hiking, hunting, and fishing). In the southern portion of the ACCR are the Malibu Beach WMA (also known as Dog Beach) and Pork Island WMA. The Absecon WMA is between Brigantine and Pleasantville. These locations comprise primarily saltwater marsh and natural sandy beaches. Each WMA provides habitat for nesting shorebirds and protection for the numerous fish and aquatic species that spawn in the protected shallows.

Along the north end of Brigantine is the North Brigantine State Natural Area, which spans from the oceanfront to the bay. It is a common breeding ground for the federally endangered piping plovers and state endangered least tern, and it offers prime nesting location for the diamondback terrapin sea turtles. The area is open to passive recreation, such as walking and bird watching. Adjacent to the north of the State Natural Area is the Edwin B. Forsythe National Wildlife Refuge. The National Refuge includes more than 47,000 acres of protected coastal habitats that are open to hunting and fishing with proper licenses.<sup>139</sup>

Along the mainland adjacent to Pleasantville in Egg Harbor Township (not part but surrounded by the ACCR) is the Lakes Bay Preserve, which is a sandy spit of 27 acres of preserved land. The preserve is made up of saltwater marshes, bayberry thickets, and sandy beaches. Shorebirds and small mammals are drawn to the preserve. The preserve is popular for bird watching, kayaking, and non-motorized sports. <sup>140</sup> In

<sup>&</sup>lt;sup>136</sup> USFWS, "Brigantine Bay and Marsh Complex Site Description," <a href="https://nctc.fws.gov/pubs5/web\_link/text/bbm\_form.htm">https://nctc.fws.gov/pubs5/web\_link/text/bbm\_form.htm</a>.

<sup>&</sup>lt;sup>137</sup> NJ DEP Division of Parks and Forestry, *The New Jersey Natural Heritage Program*, https://www.nj.gov/dep/parksandforests/natural/heritage/index.html.

<sup>&</sup>lt;sup>138</sup> NJ Audubon Society, "Absecon Wildlife Management Area," <a href="https://njaudubon.org/wp-content/wildlife/PineBarrensTrails/Sites/tabid/1698/Scope/site/Guide/PINEBARREN/Site/344/Default.html">https://njaudubon.org/wp-content/wildlife/PineBarrensTrails/Sites/tabid/1698/Scope/site/Guide/PINEBARREN/Site/344/Default.html</a>.

<sup>139</sup> USFWS, "Forsythe National Wildlife Refuge," 2020, https://www.fws.gov/refuge/edwin\_b\_forsythe/.

<sup>&</sup>lt;sup>140</sup> NJ Conservation Foundation, "Lakes Bay Preserve," <a href="https://www.njconservation.org/preserve/lakes-bay-preserve/">https://www.njconservation.org/preserve/lakes-bay-preserve/</a>.

2006, USFWS completed a 25-acre wetland restoration along Bay Street in Pleasantville to provide forging habitats for shorebirds and improve water quality. $^{141}$ 

Absecon Inlet, that runs between Absecon Island (Atlantic City) and Brigantine Island and back into the bay, is identified by the Audubon Society as an Important Bird Area. The planning ACCR contains more than 260 acres of beach and dune habitat for nesting and migratory shorebirds.<sup>142</sup>

#### **Marsh Restoration**

Margate, in conjunction with DEP, has identified three locations for potential marsh restoration projects. The project sites are being assessed for possible land elevation of existing marsh island or creation of new islands as a beneficial reuse of dredge material. Once locations are selected, Margate and DEP will complete the design and permitting. Additional sites may be included if they offer ecosystem enhancements and natural hazard mitigation solutions. 143

# **National Fish and Wildlife Federation**

Since 1985, the National Fish and Wildlife Foundation (NFWF) has provided grant funding and other support for thousands of conservation projects across the United States. <sup>144</sup> In the ACCR this includes several projects at the Edwin B. Forsythe National Wildlife Refuge, from ecological monitoring and marshland restoration to outreach and educational programs. Other NFWF-funded projects in the ACCR include past partnerships with elementary and high schools to become stewards of fish and wildlife habitats; community workshops for fisherman and scientists on fish habitat protection; and conservation and management of coastal habitats for recovering the American oystercatcher and associated beach nesting bird species in the ACCR.

The ACCR continues to identify and explore opportunities to partner with NFWF on the joint mission to sustain, restore, and enhance fish, wildlife, plants, and habitats for current and future generations.

# 3.4 Infrastructure & Development Projects (Physical)

As a broad plan for the Region's resilient future, the Action Plan takes an inclusive approach to considering the types of physical infrastructure that exist in the ACCR and beyond. Infrastructure systems are some of the few ways in which the ACCR has established regional ties. The water, energy, and transportation networks largely serve more than one municipality (and often all the municipalities in the Region), while critical and civic infrastructure traditionally serves only the community in which it is located. Protecting infrastructure systems has been one of the priorities in establishing coastal protections and plans, and millions of dollars have already been spent on projects to rebuild, replace, and retrofit the various infrastructure networks that were at risk.

#### **Critical and Civic Infrastructure**

Critical and civic infrastructure is a broad term that encapsulates the facilities that house municipal administration or service provision. It generally encapsulates most public buildings, such as municipal halls, emergency service facilities, educational facilities, and services for residents like childcare,

<sup>&</sup>lt;sup>141</sup> National Fish and Wildlife Foundation, "Where We Work: Interactive Map," <a href="https://www.nfwf.org/where-wework">https://www.nfwf.org/where-wework</a>.

<sup>&</sup>lt;sup>142</sup> NJ Audubon Society, "Absecon Wildlife Management Area," <a href="https://www.audubon.org/important-bird-areas/absecon-inlet">https://www.audubon.org/important-bird-areas/absecon-inlet</a>.

<sup>&</sup>lt;sup>143</sup> DEP, "New Jersey Ecological Solutions Projects," <a href="https://www.nj.gov/dep/oclup/case-studies-projects/nj-ecol-solution-projects.html">https://www.nj.gov/dep/oclup/case-studies-projects/nj-ecol-solution-projects.html</a>.

<sup>144</sup> NFWF, Where We Work, accessed January 2021, https://www.nfwf.org/where-we-work.

healthcare, and members of the National Shelter System (Figure 3-6). These assets face issues when they are located in a vulnerable area, like a low-lying part of the Region, or when access to these facilities during an emergency is hampered.

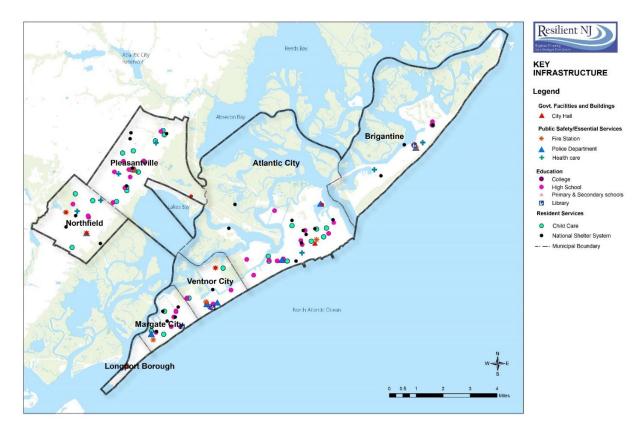


Figure 3-6. Map of Critical and Community Facilities across the Atlantic County Coastal Region

Regular improvements and maintenance occur at these assets. Some recent investments in critical and civic infrastructure include:

- ❖ Atlantic City Police Department Technology Grant: \$3 million grant from the CRDA to the police department to upgrade computer-aided dispatch systems to aid in deployment strategies and engage the anonymous help from the community with the Tip411 program. <sup>145</sup>
- ❖ Since 2016, CRDA has committed nearly \$10 million to funding public safety initiatives in Atlantic City. In March 2020, the CRDA board approved \$40,000 for the Hispanic Alliance of Atlantic County and \$23,500 for Jewish Family Service to finance food assistance and homeless outreach, respectively. ¹⁴⁶

<sup>&</sup>lt;sup>145</sup> Casino Reinvestment Development Authority, Atlantic City Police Department Technology Grant, April 2020, <a href="https://njcrda.com/all-projects-community-partnerships-and-investments/acpd-grant/">https://njcrda.com/all-projects-community-partnerships-and-investments/acpd-grant/</a>.

<sup>&</sup>lt;sup>146</sup> The Press of Atlantic City, "CRDA pays for Class II, neighborhood police officers in Atlantic City," April 2020 <a href="https://pressofatlanticcity.com/news/local/crda-pays-for-class-ii-neighborhood-police-officers-in-atlantic-city/article\_a38e70d6-11bc-5b9c-82ad-93f5679dbea9.html.">https://pressofatlanticcity.com/news/local/crda-pays-for-class-ii-neighborhood-police-officers-in-atlantic-city/article\_a38e70d6-11bc-5b9c-82ad-93f5679dbea9.html.</a>

❖ A \$1,125,000 grant for engineering design of a 20-megawatt microgrid project was approved that would add another combined heat and power unit at the Midtown Thermal Control Center in Atlantic City. The Midtown Thermal Control Center provides chilled water and steam for cooling, heating, domestic hot water, and kitchen use, and it would be upgraded to provide additional energy-efficient electricity, heat, and cooling to microgrid participants, including AtlantiCare Regional Medical Center, Boardwalk Hall, and Caesars/Bally's hotels, including during extended grid outage.¹⁴7

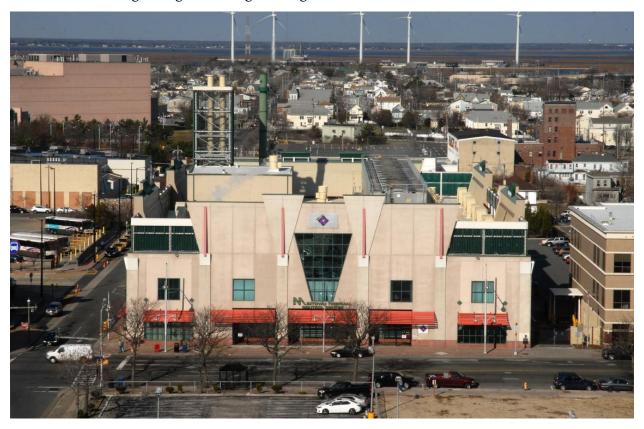


Image: DCO Energy. Atlantic City's Midtown Thermal Control Center

### **Transportation**

Transportation support facilities range from bus stops to rail hubs to regional airports. These facility types and their use and location are summarized in Figure 3-7. The ACCR's transportation network is vital to maintaining the Region's commercial sector, which relies heavily on tourism.

<sup>147</sup> City of Atlantic City, Office of the Mayor, Funding Approved for Design of the Atlantic City Microgrid, March 12, 2021.



Figure 3-7. Map of Regional Transportation Assets in the Atlantic County Coastal Region

#### Airports and Heliports

The ACCR lies east of ACY in Egg Harbor Township. ACY is a joint passenger-military airport with connections to destinations in the southern United States, particularly Florida. Passenger boardings peaked in 2010 and have since declined to an average of approximately 1.2 million passengers a year. ACY is operated by the South Jersey Transportation Authority and is adjacent to the Federal Aviation Administration's William Hughes Technical Center, which is a research and development facility and a major employer for the region.

Privately managed helipads and heliports are located throughout the Region, including at the AtlantiHealth Medical Center in Atlantic City, on Steel Pier, and at the Golden Nugget Casino.

## Transit

The ACCR features one passenger rail line owned and operated by NJ Transit. The rail line provides 12 daily trips between Atlantic City and Philadelphia, with 7 stops at destinations along the way. A critical transportation asset for the region, many of its riders include workers in Atlantic City who use it for commuting purposes. The ACCR Steering Committee highlighted the significant share of local residents in the Region, particularly from Atlantic City, who use the line to access services, businesses, and other leisure activities in Philadelphia. The rail service has suffered from significant shutdowns and service cuts in recent years as maintenance requirements and costs rise. The Atlantic City Chamber of Commerce and the South Jersey Chamber of Commerce have advocated for its reinvigoration for both passenger and potentially for freight rail connections.

In addition to passenger rail, NJ Transit provides robust bus service along the major arteries and through populated parts of the Region. These connections are significant in communities like Pleasantville, where the Pleasantville bus terminal provides access to other areas of interest in the county. Both Atlantic City and Pleasantville have high rates of households without access to a vehicle (a statistic represented in the CDC's SVI), making transit in the ACCR a critical asset. Bus service is an important interregional connection, as NJ Transit and other private operators provide service to points in the New York and Philadelphia metropolitan areas. Finally, a private jitney association plays an important role in connecting points of interest on Absecon Island, particularly between casino destinations and residential hubs in the "Downbeach" communities of Ventnor, Margate, and Longport.

## Highways, Major Roads, and Bike Facilities

The Atlantic City Expressway runs from Atlantic City, through Pleasantville, and northwest toward Philadelphia. The Garden State Parkway runs alongside the ACCR and has offramps to key roads within the ACCR. These two thoroughfares are critical connections to the rest of the state and greater area and serve as key evacuation routes for the ACCR.

Along with the Atlantic City Expressway, various federal and county-owned roads, such as U.S. Route 30, U.S. Route 40, and County Route 563 connect the communities of Absecon Island to Pleasantville, and the rest of the state. The communities on Absecon and Brigantine Islands' main hurricane evacuation routes

run along these roads and lead them inland to safer ground, with the main route being along the Atlantic City Expressway. Bridges, including the tolled Downbeach Express on Margate Boulevard and the JFK Memorial Bridge along NJ-152, are vital elements of the roadway system. According to the Federal Highway Administration's National Bridge Inventory, there are 38 bridges within the Region. This includes the Brigantine Bridge that serves as the sole connector to Brigantine. In addition to these major corridors, the ACCR is served by an expansive municipally owned roadway network and additional federal, state, and county roads.

Roadway connections have been a major source of resilience-based investment because many within the ACCR are low-



Image: Black Horse Pike closure in Atlantic City after Hurricane Joaquin in October 2015.

lying yet critical for everyday connection and emergency services. There are six separate connections between Absecon Island and the mainland or other barrier islands (including the Brigantine Bridge), and some of these crossings are vulnerable even during minor weather events. Streetscape and community revitalization projects have focused on making the area more resilient. Public and private infrastructure like parking garages have worked with the public to provide services like elevated parking to protect private vehicles from flood damage.

The ACCR features a strong network of on-road and off-road bike facilities that connect some of the communities. This includes a network of bike paths in both Pleasantville and Northfield that connect those communities and others nearby, including Linwood and Somers Point. As of 2018, all areas of the

ACCR besides Longport were a part of the Complete Streets Program, which aims to create streets to safely accommodate pedestrians, bicyclists, and drivers.

#### **Water and Wastewater**

The region's sewer trunk and wastewater treatment system is owned and operated by Atlantic County Utilities Authority (ACUA), which treats wastewater from the towns at the ACUA City Island Water Treatment Plant (WTP). The WTP is located in a 100-year-flood zone and has been threatened with flooding in past storms. In 2018, to protect the treatment plant against flooding, a seawall was built 11 feet above sea level around the facility. The facility also invested in portable flood barriers to deploy when needed, in addition to other hazard mitigation measures.

Water supply in the ACCR comes from both surface and subsurface water sources. Two reservoirs, Kuehnle Pond and Doughty Pond, are located near the ACCR in Egg Harbor Township and Absecon operated by the Atlantic City Municipal Utilities Authority. Brigantine Water Department, Longport Water Department, Margate City Water Department, and Ventnor City Water and Sewer Utility all supply their drinking water from groundwater wells. Northfield and Pleasantville are served by the NJ American Water Co. – Atlantic Division, which obtains its water from surface water sources outside of the region. Water and other utilities are shown in Figure 3-8.

#### **Solid Waste**

ACUA manages, collects, and processes solid waste. While no landfills are located directly within the ACCR, the area is served by landfills outside the Region. The ACCR has multiple recycling centers in most of the municipalities. After Superstorm Sandy, debris management was a major concern for many municipalities. Community leaders noted that landfills could not handle the storm-related debris from flooded homes and businesses, so debris management plans were created to sort and manage their refuge on a municipality basis.

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Figure 3-8. Utility Infrastructure in the ACCR

## **Coastal and Flood Protection Structures**

In the aftermath of Superstorm Sandy, coastal and flood protection structures were constructed or rehabilitated in the ACCR. Coastal structures—such as bulkheads, seawalls, stormwater pump stations, groins, dunes, and berms—have been constructed or rehabilitated along the coastal communities on Absecon and Brigantine Islands. In addition, the ACUA WTP has built a seawall around the facility post-Sandy, as noted previously. Drainage channels, such as the one that runs along Baltic Avenue, help drain the area of stormwater flooding. Completed and planned projects are further discussed in Section 3.6.

## **Energy Infrastructure**

Since 2018, the State of New Jersey has made concerted efforts to evaluate its collective emissions and plan for a transformation in its energy production. The state's 2020 80  $\times$  50 report states that the

collective goal of all state agencies is to lower collective emissions to 80 percent of 2006 levels by 2050, setting up a pathway for dramatic change in energy production and distribution within the state.148 To facilitate this goal, the of Public Utilities Board released the 2019 Energy Master Plan, which provides a vision and specific recommendations for transforming energy procurement. This plan has significant implications for coastal regions, including the ACCR, with offshore wind playing a significant role in



Image: The Jersey Atlantic wind farm pre-Superstorm Sandy. The wind farm withstood 90 mph wind during Superstorm Sandy. Source: Ros Davidson

the energy transformation of the state. <sup>149</sup> Electricity is provided to the ACCR by Atlantic City Electric and is mainly produced from outside the Region. ACI Energy Partners LLC, a local energy supplier, has a 7.8-MW natural gas power plant located in Atlantic City. The ACUA WTP is home to the Jersey-Atlantic Wind Farm, which produces 7.5 MW. The energy generated from the wind farm is used to operate the ACUA WTP, and excess energy is released to the main power grid or stored in batteries for the WTP. There are also solar panels at the Atlantic City Convention Center. The Midtown Thermal Control Center in Atlantic City provides heating, cooling, and emergency power to the casinos and other facilities in the Region. Ten substations are located in the Region: eight in Atlantic City, one in Brigantine, and one in Margate.

3-34

<sup>&</sup>lt;sup>148</sup> NJ Department of Environmental Protection, *New Jersey's Global Warming Response Act:* 80x50 Report, 2020, <a href="https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf">https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf</a>.

<sup>149</sup> State of New Jersey, Energy Master Plan, 2019, https://nj.gov/emp/.

#### Recreation

The ACCR provides recreational assets and opportunities for both residents and tourists. These include marinas, beaches, multiple piers, and the famous Atlantic City Boardwalk. Marinas for public use are located throughout the back bay area. In addition, many waterfront homes have their own private docks. Piers are iconic recreational assets for coastal regions, and the ACCR has the Central Pier Arcade, the Playground Pier, the historical Steel Pier, and multiple fishing piers. A major source of recreational opportunity, and a critical recreational asset, is the Atlantic City Boardwalk, which stretches along the



Image: Courtesy of Youchun Yao. Atlantic City Recreational Beach with historic Steel pier and Iconic observation wheel.

coastline from Ventnor to Atlantic City and ends along the Absecon Inlet. The boardwalk was extensively damaged during Superstorm Sandy but has been reconstructed and rehabilitated. The ACCR also is home to beaches that stretch along the coast from Longport to Atlantic City and along Brigantine.

The Steel Pier, one of Atlantic City's top attractions, completed improvements and renovations in 2017. A \$14 million project, \$10.4 million in CRDA funding has been invested in improvements. Of this sum, \$6.4 million of the funding was earmarked for the installation of a 200-foot observation wheel, housing 42 fully enclosed cabins allowing for year-round use, completed in 2017. 151

<sup>&</sup>lt;sup>150</sup> *The Press of Atlantic City*, "Steel Pier \$14 million Observation Wheel open Tuesday," Dec 2017, https://pressofatlanticcity.com/news/breaking/steel-pier-14-million-observation-wheel-open-tuesday/article f43586eb-7d15-59b2-9b47-68ec420f858c.html.

<sup>&</sup>lt;sup>151</sup> CDRA, Steel Pier Observation Wheel, 2020, <a href="https://njcrda.com/all-projects-community-partnerships-and-investments/active-projects/steel-pier-revitalization/">https://njcrda.com/all-projects-community-partnerships-and-investments/active-projects/steel-pier-revitalization/</a>.

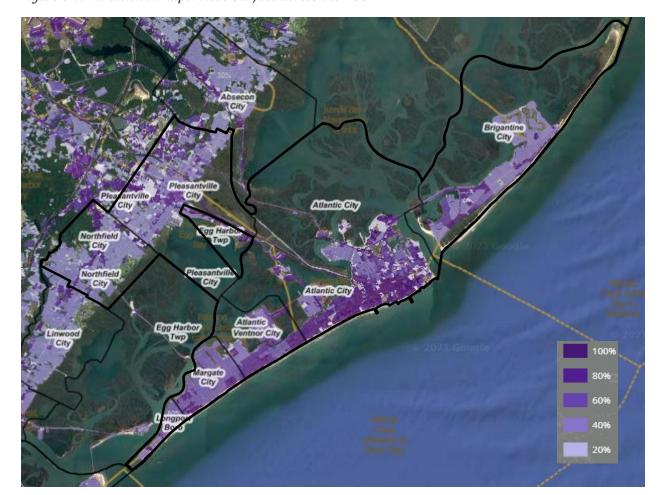


Figure 3-9. Variation in Impervious Surface across the ACCR

Source: DEP Land Use Land Cover (2012)/New Jersey Conservation Blueprint

## 3.5 Economic Development and Changes

## **History**

Since its foundation as a coastal resort community, the economy of Atlantic City and its environs has been strongly tied to tourism. The New Jersey Business and Industry Association estimated that the total tourism-based spending in Atlantic County exceeded \$7.8 billion dollars in 2019, growing 5.3% year-over-year and leading the state in tourism spending. This growth followed modest growth trends in visitation revenue since 2014, bolstered slightly by the opening of two new casinos to stabilize the nine casino resorts in the region. Visitor trips indicate how Atlantic County has struggled. Since 2005, the number of annual visitor trips declined by more than a third, to 23 million in 2019 from 35 million in 2005. However, recent trends indicate annual visitor trips have stabilized. Many of these trips are to one of Atlantic City's nine casinos, spread out along the boardwalk and Marina District.

The tourism and leisure industries are not fully tied to the gaming industry. Four of the seven municipalities within the ACCR feature a robust number of housing units for seasonal, recreational, or occasional use. These homes—whether they be privately used "shore homes," weekly or seasonal rentals, or used for some other purpose—provide visitor housing in the summer, when weekend visitation can top 177,000 people in addition to the permanent population. Local restaurants, retail, boardwalk-based

businesses, and other recreational enterprises rely on this housing, which is a smaller-but-significant aspect of the tourism industry that has been somewhat shielded from the declines in the gaming industry.

The COVID-19 pandemic has impacted the region. Unemployment rates increased, and gaming revenue declined significantly; it is unclear how fast or how strong the economic recovery will be. National trends indicate the potential for a rise in more local vacation destinations, but as social-distancing measures gradually decline, the long-term economic impacts of the pandemic are difficult to forecast.

Beyond the tourism industry, the ACCR is home to several other important economic centers and major employers. The convention center in Atlantic City and Jim Whelan Boardwalk Hall have been home to a variety of entertainment, sports, and professional events, including the Miss America Pageant, concerts, industry conferences, and trade fairs. The Atlantic City outlet mall, located in the heart of the central business district between the new convention center and the major casinos in Midtown, contains more than 70 retail stores and is a major employer. Other economic assets of note include Bader Field, an old airfield adjacent to the Chelsea Heights neighborhood of Atlantic City. Owned by Atlantic City, the old airfield covers more than 142 acres (including the mostly closed 5,500-seat baseball stadium) and is currently for sale.

The decline in use of many of these economic assets over the past 20 years represents a major hurdle to sustained economic growth. While these assets are critical to the economic vitality of the ACCR going forward, many of them are at further risk of flooding and damage from coastal storms and SLR. Bader Field's low-lying position in the back bay area of Atlantic City has hurt its marketability, while access to many of these economic assets for both visitors and employees alike is hampered by flooding on Absecon Island and its access roads during major coastal



Image: MRR. Retails, events, casinos, and hotels along Atlantic City Boardwalk.

storms. The versatility of these assets, however, allows the ACCR to quickly adapt to new opportunities and challenges. During the COVID-19 pandemic, both Bader Field and the Atlantic City Convention Center were quickly adapted to food distribution and vaccine distribution sites, respectively. This versatility can play a major role in attracting new economic uses.

#### **Recent Trends in the Real Estate Market**

Due to the COVID-19 pandemic, Atlantic City suffered a steep decline in visitor population, which had a direct impact on its gambling and tourism industry. As casinos continue to struggle, Atlantic City is taking the opportunity to revamp its economy based on local business, activities, and programs, and reclaim its status as a desirable seaside gateway beyond casinos.

Although tourism was affected throughout 2020, the real estate market in Atlantic City experienced a major surge in home prices (35 percent) according to National Association of Realtors. Atlantic City is the object of real estate investment interest because of increasing demand for ocean-side vacation homes and efforts by local officials to create a live-andwork environment and family-oriented attractions (that can be enjoyed by those younger than 18 years of age). Some of the casino resorts are being redeveloped into mixed-use residential developments.<sup>152</sup>



Image: TJM Properties. The former Atlantic City casino resort is being redeveloped into a new hotel and residential units.

### **Strategies**

SJEDD's Comprehensive Economic Development Strategy identifies various regional strategies for economic growth that seek to build on existing strengths and assets.<sup>153</sup> Themes of the 2020 Strategy included in the report include:

- Building career pathways with a focus on industry-valued credentials
- Expanding high-quality employer-driven partnerships
- Providing career navigation assistance through one-stop career centers and broad partnerships
- Strengthening governance through effective workforce development boards and regional collaborations
- Ensuring system integrity through metrics and greater transparency

Figure 3-10 shows a number of economic assets and other areas of significance for the ACCR's economic vitality, including the casinos, other major employers, and specialized urban enterprise and opportunity zones.

An urban enterprise zone (UEZ) is an area within a municipality (or group of municipalities) in New Jersey suffering from economic distress and meeting other criteria. The UEZ Program offers participating businesses tax benefits, including a Sales Tax Purchase Exemption and Corporation Business Tax credits. A business is not permitted to claim the tax benefits available under the UEZ program until the UEZ Authority certifies it as a qualified business.<sup>154</sup>

The federal opportunity zones program was enacted as part of the 2017 federal Tax Cuts and Jobs Act and is designed to drive long-term capital investments into low-income rural and urban communities. It provides opportunities for private investors to support investments in distressed communities through

<sup>&</sup>lt;sup>152</sup> The Wall Street Journal, "Real Estate Property Report, Atlantic City Housing Market Heats Up as Investors Look Beyond Casinos," Feb. 23, 2021, <a href="https://www.wsj.com/articles/atlantic-city-housing-market-heats-up-as-investors-look-beyond-casinos-11614085221">https://www.wsj.com/articles/atlantic-city-housing-market-heats-up-as-investors-look-beyond-casinos-11614085221</a>.

<sup>&</sup>lt;sup>153</sup> SJEDD, FY 2020 Comprehensive Economic Development Strategy: Annual Update, March 2020, http://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf.

<sup>&</sup>lt;sup>154</sup> New Jersey Division of Taxation, accessed May 4, 2021, https://www.state.nj.us/treasury/taxation/su\_uez\_over.shtml.

participation in Qualified Opportunity Funds. Investors can defer paying federal taxes on capital gains reinvested in Qualified Opportunity Funds that invest in low-income communities. Reinvested capital gains are deferred from taxation until exit from a Qualified Opportunity Fund or December 31, 2026, whichever comes first. The original gains reinvested in Qualified Opportunity Fund investments held for the long term are taxed at reduced rates. Any new gains from Qualified Opportunity Fund investments held for at least 10 years will be permanently excluded from the capital gains tax. 155

Resilient NJ ACY and FAA Training Center
+ Atlantic City International Airport Reeds Bay **ECONOMIC ASSETS Brigantine** Pleasantville Atlantic City Northfield o Legend Casinos Major Employer Leisure **Ventnor City** Tourism Sports Urban Enterprise Zones (UEZ) North Atlantic Ocean Place of Worship Shore Medical Center Opportunity Zone Low-Income Community Commercial & Recreational Fishing Area Predominated Tourism Trade Area -- -- Municipal Boundary

Figure 3-10. Economic Assets in the ACCR

## **Community Affairs**

The ACCR has several nonprofit and publicly run social service programs that provide for community members. The State of New Jersey is an active partner in helping to shape the future of Atlantic City. With city officials and local stakeholders, the New Jersey Department of Community Affairs helped create the Atlantic City Executive Council, whose purpose is to provide a structure for government, private, and philanthropic institutions to share information, establish partnerships, and unite in common purpose. The Executive Council includes members like Stockton University, ACCC, AtlantiCare, casino executives, and special interest groups like the school district, Housing Authority, and civic associations. The Executive Council provides perspectives on community issues (e.g., public safety, youth development

<sup>&</sup>lt;sup>155</sup> New Jersey. New Jersey Opportunity Zones, accessed May 4, 2021, <a href="https://nj.gov/governor/njopportunityzones/">https://nj.gov/governor/njopportunityzones/</a>.

and programming, economic development, and public health) and has provided a conduit for Atlantic City to create a cohesive strategy for future development.

In addition, Stockton University has several programs and initiatives that serve the Atlantic City area, including food drives, homework completion programs, Campus Kitchen, community gardens, school murals, and afternoon teas with older adults. Stockton also provides poetry classes, basketball skills, and strength and conditioning training for the Atlantic City's Evening Recreation Program held at the Dr. Martin Luther King Jr. School.

Major quality of life concerns that the ACCR faces—particularly in Atlantic City but in other parts of the ACCR as well—include poverty, substance abuse, and housing insecurity. Several local institutions work to address these concerns. Atlantic County offers a homeless services program to provide temporary assistance to needy families and individuals and has partnered with the New Jersey Department of Human Services and CRDA to develop and provide assistance under the Atlantic County Integrated Homeless Assistance Model. Nonprofit and subsidized shelters—like Covenant House and the Atlantic City Rescue Mission, Turning Point Shelter, and the Northfield Women's Shelter—provide temporary housing services.

Substance abuse rates have been rising across the state and the ACCR for the past 15 years. In 2016, the county had 4,700 drug-related hospital admissions. Atlantic City was hit particularly hard, with almost 1,300 admissions. The John Brooks Recovery Center in Pleasantville has provided outpatient services since 2017, funded in part by CRDA.<sup>157</sup> In Atlantic City, a syringe access program is operated by South Jersey AIDS Alliance to support public health efforts. Finally, a number of places of worship and nonprofits work with public social service providers to distribute amenities like food and clothing, services and temporary shelter during inclement weather (warming centers), and other services. Groups include the American Red Cross, Jewish Family Service, Salvation Army, and many smaller churches and places of worship in Atlantic City.

## 3.6 Previous, Ongoing, and Needed Projects

Before and after Superstorm Sandy, the ACCR made concerted efforts to lower its risk to coastal storms. Almost all entities that manage or regulate land in the region—including the municipalities, CRDA, the counties, the State of New Jersey, and USACE—engaged in hazard mitigation projects. These projects include beach fill, breakwaters, waterfront green and grey infrastructure, and storm pumps. Post-Sandy projects have come out of evaluative studies that consider the impacts of the storm and the improvements necessary to mitigate those impacts in the future. Still, there are many physical gaps, including around high-value and critical assets, that result in significant exposure to major coastal storm damage. In addition, several projects are in the planning stages and have not been built or allocated funding.

### **Hazard Mitigation Plan Projects**

Each municipality in the ACCR has identified needed projects through their Municipal Annex in the MHMP. These needed projects (as of the date of this analysis) are summarized in Table 3-8:

<sup>&</sup>lt;sup>156</sup> The Press if Atlantic City, "Agencies collaborate to offer new deal for Atlantic City's homeless," Jan 2014, <a href="https://pressofatlanticcity.com/news/local/agencies-collaborate-to-offer-new-deal-for-atlantic-citys-homeless/article\_d8ada9cb-2bd9-5ef0-bfdb-bddac4138f1a.html">https://pressofatlanticcity.com/news/local/agencies-collaborate-to-offer-new-deal-for-atlantic-citys-homeless/article\_d8ada9cb-2bd9-5ef0-bfdb-bddac4138f1a.html</a>.

<sup>&</sup>lt;sup>157</sup> John Brooks Recovery Center, "John Brooks Recovery Center opens new Pleasantville location," Nov 2017, https://www.jbrcnj.org/about-us/blog-newsroom/entry/2017/11/17/john-brooks-recovery-center-opens-new-pleasantville-location.html.

Table 3-8. Hazard Mitigation Plan Projects Identified by Municipality

Location	Needed Projects
Atlantic County	<ul> <li>Reconfigure and elevate the intersection of Wellington Avenue (County Route 629) and Albany Avenue (U.S. Route 40) to alleviate flooding. Project would include new bulkheading and mechanical flood gates.</li> <li>New pump station to convey stormwater out of New Brunswick Ave and Winchester Avenue area of Margate and Ventnor.</li> </ul>
Atlantic City	<ul> <li>Flood-proofing of Historic Boardwalk Hall.</li> <li>Emergency generator for Atlantic City Hall to operate the city's 911 system and 10 others for firehouses and other public buildings (many used for emergency shelters).</li> <li>Elevation Albany Avenue between Sunset Avenue and Ventnor Avenue.</li> <li>Identify repetitive loss properties and explore options for acquisition, elevation, or flood-proofing measures.</li> <li>Elevate all traffic control boxes.</li> <li>New bulkhead, stormwater pump, and piping to control runoff at Massachusetts Avenue and the Bay.</li> </ul>
	Sunset Avenue bulkhead improvements to reduce flooding and stop erosion.
Ventnor	<ul> <li>Bulkhead improvements along the bay from Winchester Avenue from Jackson Street to Dorset Avenue.</li> <li>Elevate Wellington Avenue so it can serve as an evacuation route.</li> <li>Pump stations needed to alleviate flooding in Ventnor Heights.</li> <li>Installation of backup generators at pump stations for water and sewer at Lafayette Avenue, Cornwall Avenue, Fulton and Harvard Avenue. Elevate pump stations out of floodplain.</li> </ul>
	❖ Install more than 40 backflow preventers on outfall pipes to mitigate flooding during rain events at high tide. Every flooding incident causes thousands of dollars and significant storms multiplies such cost.
Margate	Reconstruct bulkheads at beach end of Jefferson Avenue and Frontenac Avenue.
	Reconstruct bulkhead at beach end of Brunswick Avenue.
Longport	❖ Install stormwater pump stations. Drainage pump at 34 <sup>th</sup> and Amherst Avenues designed to accept stormwater from Winchester Ave outfall and pump directly to the bay.
Brigantine	<ul> <li>Upgrades to the boat ramp, add wooden flood gate to reduce repetitive loss claims and Department of Public Works overhead to clear debris.</li> <li>Repair and upgrade storm drain infrastructure and install flood pump station at bulkhead/street end around Hackney Place and 34th Street</li> </ul>
	and lighthouse circle.

Location	Needed Projects	
Pleasantville	<ul> <li>Drainage improvements in several locations. Develop specific mitigation solutions for flood-prone roadways: Edgewater Avenue, Route 9 and Park Avenue, California Avenue and Main Street, Mulberry Avenue between Franklin Boulevard and Main Street, Leeds Avenue 200-300 block, Decatur Avenue and Franklin Avenue, Franklin and Tunis Avenue, Bayview Avenue and Edgely Avenue.</li> <li>Several roads need to be elevated per Atlantic County Flood Hazard Inventory: E. Edgewater Avenue, E. Oakland Avenue, E. Greenfield Avenue, E. Park Avenue, S. Edgely Avenue, Prospect Avenue, S. Main Street from E Bayview Avenue to E. Greenfield Avenue. The mitigation action would protect public and private property, public health, and safety. It will eliminate lengthy detours and prevent the inability of emergency service personnel to reach flood-prone areas in the city during these events. Potential losses include loss of lives, property and compromise of public health and safety.</li> <li>Four new generators for pump stations and one generator for the recreation center. Emergency generators will prevent raw sewage from backing up in the streets. Reduces risk to public health and safety. Citywide environmental ecosystems would be spared catastrophic damages due to sanitary sewer flooding.</li> </ul>	
Northfield	<ul> <li>Generator backup needed at the Public Works facility.</li> <li>Identify and design improvements to existing storm drainage problem areas to alleviate flooding.</li> <li>Potential acquisition of 10 flood-prone homes. Estimated at \$500,000 each buyout. Reduces repetitive losses.</li> </ul>	

#### **USACE**

The USACE Absecon Island CSRM project is the largest shore protection project in the ACCR. It begins at the terminal groin in Longport and covers the oceanfront through Longport, Margate, Ventnor, and Atlantic City before wrapping westward along the Absecon Inlet. The project includes a beach fill, with a 200-foot-wide berm and a dune to elevation 14.75 feet (NAVD88) for Atlantic City and a 100-foot wide berm and a dune to elevation 12.75 for Ventnor, Margate, and Longport and a seawall along Absecon Inlet on the north end of the island. The beach fill portion of the project was initially constructed in Atlantic City and Ventnor in 2004. The seawall and initial beach fill construction in Margate and Longport were completed in 2018. The beach fill is on a 3-year renourishment cycle, pending available funds. 158

The USACE Brigantine Island CSRM project includes beach nourishment with a 100-foot-wide berm and dune at elevation 10.0 feet NAVD88 along 1.8 miles of Brigantine Beach. The project was initially constructed in 2006 and has a 6-year renourishment cycle pending available funds. <sup>159</sup>

<sup>&</sup>lt;sup>158</sup> USACE, Absecon Island Storm Damage Reduction Project, ongoing,

https://www.nap.usace.army.mil/Missions/Civil-Works/Coastal-Storm-Risk-Management/Absecon-Island-Storm-Damage-Reduction/.

<sup>159</sup> USACE, Brigantine Coastal Storm Risk Management, ongoing,

https://www.nap.usace.army.mil/Missions/Factsheets/Fact-Sheet-Article-View/Article/490777/new-jersey-shore-protection-brigantine-inlet-to-great-egg-harbor-inlet-briganti/.

The ACCR municipalities have partnered with DEP's Division of Coastal Engineering over the years to complete projects that address important needs in between and adjacent to the USACE CSRM projects. Together, the following shore protection projects have been constructed in the past decade. <sup>160</sup>

- 1. **Atlantic City:** The Atlantic City North End Project was implemented to address the severe erosion of the beachfront and dune system at the north end between New Jersey Ave and Absecon Inlet. The project consisted of rehabilitating and extending the Vermont Avenue and Massachusetts Avenue groins, construction of a wooden and steel groin just north of the Garden pier, and construction of a rock sill parallel to beach between the steel groin and the Massachusetts Avenue groin. The project was completed in 2013.
- 2. **Atlantic City:** The Oriental Avenue jetty, located on the south side of the Absecon Inlet, was originally constructed with concrete grout that held the large stones in place. During Superstorm Sandy, the core stone was blasted out and strewn about the beach. This project dismantled the 1,000 feet of the shell of the old jetty and reconstructed the jetty with an upgraded core and raised the top elevation. The project was completed in 2019.
- 3. **Atlantic City:** Located inside the Absecon Inlet along the Historic Gardner's Basin was a section of natural shore between two vertical bulkheads that was eroding quickly. This project entailed installation of more than 1,000 feet of steel bulkhead with concrete cap and rock along the toe. The project was completed in 2018.
- 4. **Borough of Longport:** The terminal groin at 11th Avenue required reconstruction to raise the elevation to meet the USACE CSRM project and form a bookend to the beach and dune project. The groin was dismantled and reconstructed with proper materials, core, and appropriately sized stone. The new elevation tied into the beach fill on the ocean end and wrapped around the southern end of Absecon Island to tie into the bay side. The project was completed in 2017.
- 5. **Borough of Longport:** Prior to 2010, the seawall along the bay side of Atlantic Avenue from the 17th Avenue to 22nd Avenue was constructed.

### **Living Shorelines**

Other opportunities to partner with the DEP involve ongoing pilot projects to demonstrate living shorelines. There are two such projects in the Region. In Atlantic City, the Gardener's Basin site has an approximately 100-foot gap between bulkheads inside the Gardner's Basin lagoon. The site previously comprised gravel and debris but now contains a new tiered stone sill with native vegetation to create marshes at various elevations. Upland is a vegetated embankment to provide flood mitigation. The project includes seating and educational signage on living shorelines at a path along the property edge. The other location, the Brigantine Living Shoreline, includes four sites along semi-improved street ends that previously contained vegetated shorelines between bulkheaded shorelines. Each street-end site now consists of a vegetated embankment for wildlife habitat and flood mitigation; the system is designed to slow the flow of the water, convey it to the shoreline, and release it onto small riprap areas and into the bay. Both projects were constructed in 2017 and continue to be monitored through an agreement with the Delaware Estuary and Barnegat Bay Partnerships. 

161

<sup>&</sup>lt;sup>160</sup> DEP Division of Coastal Engineering, Shore Protection Program, ongoing https://www.nj.gov/dep/shoreprotection/.

<sup>&</sup>lt;sup>161</sup>DEP Office of Coastal and Land Use Planning, Living Shoreline Projects, ongoing, https://www.nj.gov/dep/oclup/case-studies-projects/living-shorelines-projects.html.



Image: DEP. Brigantine South Cherokee Blvd Street End Living Shoreline Project

Atlantic City has undertaken many shore protection and flood risk reduction projects on its own. The Baltic Ave Canal Improvements and Pump Station project is currently in Phase 3. The project's original canal and tide gates were built in 1913 and worked with sluice gates and gravity to serve as holding tank for stormwater during high tide. Phases 1 and 2 of the project rehabilitated the canal and tide gates. Phase 3 will complete the pump station. The pump station will have a backup generator to power the twin 250-horsepower pumps during power outages. The project will help to drain a 775-acre basin along Baltic Ave to the back bay. 162

Atlantic City has secured grants to fund \$20 million of resiliency projects around the city. The projects, in various phases of design, bidding, and construction, are as follows:<sup>163</sup>

- ❖ Lower Chelsea Bulkhead Replacement project includes replacing existing bulkheads along the Back Bay, west of Albany Avenue. New bulkheads will have a higher top elevation to withstand wave action.
- Gardner's Basin Park Bulkhead Stabilization and Dredging includes proposed dredging to clear sediment burden and reopen clogged stormwater outfall pipes.
- South Boulevard needs new bulkheads for a small section of Chelsea Heights that was never bulkheaded and that experiences flooding and erosion.

<sup>&</sup>lt;sup>162</sup> Remington & Vernick Engineers, Baltic Avenue Drainage Canal Improvements, ongoing, https://www.rve.com/projects/baltic-avenue-drainage-canal-improvements/.

<sup>&</sup>lt;sup>163</sup> NJ Department of Community Affairs, Superstorm Candy Community Development Block Grant – Disaster Recovery, February 2020, <a href="https://d94.453.myftpupload.com/wp-content/uploads/2020/02/Action-Plan-Amendment-35 Final 2.10.20.pdf">https://d94.453.myftpupload.com/wp-content/uploads/2020/02/Action-Plan-Amendment-35 Final 2.10.20.pdf</a>.

- Ducktown to Chelsea Bayfront Bulkhead Replacement will replace existing discontinuous bulkheads with proposed new bulkhead system to prevent flooding.
- ❖ Inspection and replacement of check valves for drainage near the back bay, flood-proofing public buildings, such as City Hall and the All Wars Memorial Building.
- Public Building Dry Flood-proofing is needed at City Hall and the All Wars Building. At City Hall, the flood-proofing will include protecting the emergency generators on the first floor. The All Wars building will have steel flood doors installed.
- Replacement of 27 traffic signals throughout the city that were damaged during Superstorm Sandy.

## **Casino and Boardwalk Mitigation Investments**

CRDA funded a bulkhead mitigation project around the Atlantic City neighborhood of Venice Park. The island neighborhood has many homes 5 to 8 feet below the BFE and had experienced chronic flooding. Along with flooding, the land was eroding around the island, and privately built bulkheads had begun to fail. The project required the participation of 143 private property owners who came together to support a bulkhead surrounding 3 sides of the neighborhood that has stabilized the erosion and minimized flooding<sup>164</sup>.



Image: Pump station and drainage system improvements included a pump station at the Boardwalk and Resorts International Hotel and Casino. Photo Courtesy: Agate Construction

The Atlantic City Boardwalk Redevelopment Corporation constructed a stormwater pump in 2017 at Mansion Avenue to alleviate stormwater flooding on the street and within Resorts Casino. The project called for a pump station that would pressurize the existing outfall pipe during high-tide storm events

<sup>&</sup>lt;sup>164</sup> FEMA, Venice Park Bulkhead Project, 2009, <a href="https://www.fema.gov/case-study/venice-park-bulkhead-project">https://www.fema.gov/case-study/venice-park-bulkhead-project</a>.

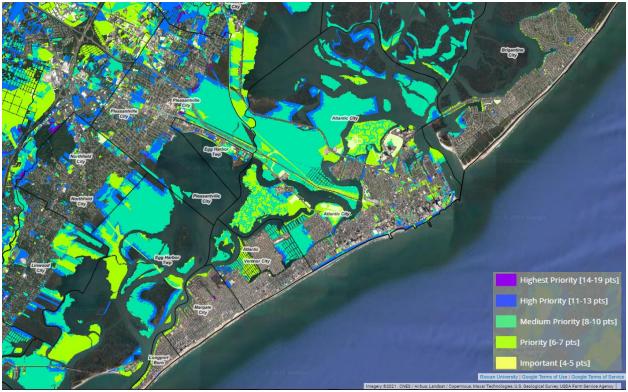
to keep water flowing out and not back onto the street. The pump station also includes a transformer/generator at the boardwalk west of the Casino.<sup>165</sup>

## **Conservation Blueprint: Community Green Space**

The New Jersey Conservation Blueprint layered datasets including land use, tax use codes by parcel, population density, green space deserts (zones with deficit of green space within 1/2 mile walk), flood zones/water corridors (lands that provide flood mitigation potential and stream corridor connections), and areas for green infrastructure augmentation based on proximity to existing preserved open space, recreational lands, schools, and trails.<sup>166</sup>

The resulting map shows prioritized areas, from "important" to "highest priority" based on a point-ranking system, for lands that can be harnessed for improving and protecting public and environmental health. See Figure 3-11.





<sup>&</sup>lt;sup>165</sup> Agate Construction, *Mansion Avenue Outfall Modifications*, no date, http://agateconstruction.net/index.php/mansionave.

<sup>&</sup>lt;sup>166</sup> New Jersey Conservation Blueprint, *Community Green Space: Priority Lands for Community Green Space*, accessed February 2021, <a href="https://www.njmap2.com/blueprint/urban">https://www.njmap2.com/blueprint/urban</a>.



Margate completed a bulkhead improvement project along Amhurst Avenue in 2020. The project replaced and raised the elevation of 1,250 feet of bulkhead, providing greater flood protection as well as preparing the area for a new promenade and other improvements.<sup>167</sup>

Construction.

## **Project Highlight: Ventnor West**

## ECO-PARK | RESTORATION.

Develop Ventnor West as a 120-acre ecopark by restoring the coastal habitat and providing for resiliency improvements including living shoreline stabilization, water access for non-motorized watercraft, creating trails, and overall beatification of the site. The project was identified in the City of Ventnor Master Plan (July 2016) and is currently being led by Ventnor with support from Commissioner Tim Kriebel and Atlantic County Freeholder-at-large Caren Fitzpatrick, among others. The project is exploring use of the Open Space and Recreation Tax (County) and grant sources for project funding, including NFWF grant funds.



Partners include Stockton University Coastal Research Center; Jacques Cousteau National Estuarine Research Reserve; Ventnor Green Team; Ventnor Educational Community Complex; United States Fish & Wildlife Service; and the Forsythe Wildlife Refuge

<sup>&</sup>lt;sup>167</sup> City of Margate, *The City of Margate, NJ Announces Bayfront Improvement Project*, October 2019, <a href="https://www.margate-nj.com/sites/g/files/vyhlif846/f/uploads/construction-updates.pdf">https://www.margate-nj.com/sites/g/files/vyhlif846/f/uploads/construction-updates.pdf</a>.

## 3.7 Preliminary Risk and Gaps Analysis

This section presents a preliminary risk and gaps analysis, based on review of available planning studies and reports, as well as engagement interviews and meetings with local officials. As additional information is provided by the Steering Committee and other regional stakeholders, it will be folded into future reports.

## **Transportation System Risk**

Because the ACCR is a population center and tourist destination, there are multiple ways to access its municipalities, including major highways, county routes, local scenic roads, privately owned bridges, railroad, and waterways. See Figure 3-6. However, these linkages are at major risk of frequent flooding and total inundation during a coastal storm.

The New Jersey Department of Transportation (NJ DOT) does not currently account for SLR or additional flooding in its 2008 New Jersey Long-Range Transportation Plan. Potential impacts identified by NJ DOT are listed in

Table 3-9.168



Image: The Atlantic City-Brigantine Connector.
Photo Courtesy: Edward Lea/ The Press of Atlantic
City

Table 3-9. NJ Impacts and Risk for Transportation Infrastructure as a Result of Climate Change

Climate Impacts	New Jersey Risks	
Sea Level Rise, Flooding, and Storm Surge	Inundation of low-lying infrastructure, including substations, delivery lines, roads, bridges, runnels, rail lines and terminals, land-side port facilities, ferry terminals, airports, and storage and maintenance facilities	
	<ul> <li>Washout and overtopping of roads, bridges, and rail lines</li> </ul>	
	Bridge abutment scours and undermining of road and rail beds	
	Infrastructure closures resulting in travel delays and disruptions Sand deposition and sedimentation in navigable channels	
Severe Wind and Wave Action from Storms	<ul> <li>Damage to bridge piers and abutments, overhead road signs, traffic signal</li> <li>infrastructure, and overhead wires (from falling tree limbs and downed trees)</li> <li>Delays in service restoration from interdependent system restoration (e.g., electrical system)</li> <li>Travel and speed restrictions on bridges</li> </ul>	

<sup>&</sup>lt;sup>168</sup> NJ DOT, *Long-range Transportation Plan*, 2008, <a href="https://www.state.nj.us/transportation/works/njchoices/pdf/atlanticcity.pdf">https://www.state.nj.us/transportation/works/njchoices/pdf/atlanticcity.pdf</a>.

Climate Impacts	New Jersey Risks	
Temperature Extremes and High Heat Days	<ul> <li>Rail expansion and overhead wire sag resulting in operation restrictions and lost distribution efficiency</li> </ul>	
	<ul> <li>Pavement damage such as softening of asphalt and increased rutting</li> </ul>	
	❖ Heat buckling of runways and rails	
	Thermal expansion of pavement and bridge expansion joints	
	Greater demand for air conditioning on mass transit vehicles and at transit facilities	
	<ul> <li>Unsuitable maintenance and capital planning programs</li> </ul>	

U.S. 30 and U.S. 40 in the ACCR both experience chronic flooding during spring tides or strong westerly winds. Both roadways are regularly closed due to flooding, and yet they are both identified as coastal evacuation routes. Based on data from the National Weather Service, the roads experience flooding with just 2 feet of water above an average high tide. There have been some erosion control projects along the shoulder of Route 40, but these projects have not alleviated the flooding.

NJ DOT is in the design and planning phase of a \$27 million project to elevate portions of Route 40 (Black Horse Pike) from Naples Avenue to Bayport Drive by 2.5 feet. The project is slated to begin construction in 2022 and be completed by 2025.<sup>170</sup>

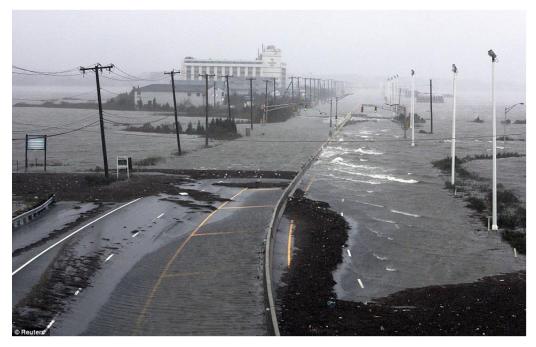


Image: U.S. Route 30, the White Horse Pike, one of three major approaches to Atlantic City, is covered with water from Absecon Bay during the approach of Hurricane Sandy. Photo Courtesy: Reuters, The Daily Mail Reporters

<sup>&</sup>lt;sup>169</sup> National Weather Service, *Refence Tide Gauge* – *Atlantic City*, May 2016, https://www.weather.gov/media/phi/atlant.pdf.

<sup>&</sup>lt;sup>170</sup> Press of Atlantic City, *DOT Shares Plan to Ease Flooding on Route 40, One of AC's Main Evacuation Routes*, May 2019, https://pressofatlanticcity.com/news/local/dot-shares-plan-to-ease-flooding-on-route-40-one-of-acs-main-evacuation-routes/article\_5072355e-1261-5da5-bb86-af756dc1663d.html.

#### **Gaps Analysis**

Since Superstorm Sandy, multiple shore protection and flood control projects have been completed, and additional projects are planned to protect the population, businesses, and infrastructure. With these projects in place there remain locations of localized flooding and erosion risk.

With an intact sand dune protecting the full length of Absecon Island and Brigantine Island, a seawall protecting the north end of Atlantic City, and the recently reconstructed groin protecting the south end of Longport, the points most vulnerable to flooding in these barrier island "walls of protection" are along the back bays. Municipalities have revised their bulkhead height ordinances so new or reconstructed bulkheads will be built at protective heights. But the municipalities are still vulnerable to water flowing around from neighboring properties with existing lower bulkhead heights, unless the entire length of the bay side is reconstructed.

Reconstruction and elevation of the bay-side bulkheads is a slow process because most are privately owned, and there is a lack of incentive or funding to replace or upgrade. Many property owners indicate they do not have funds to replace an aging bulkhead.

With the oceanfront protection system built of sand, there is a potential for continued erosion of the dunes. As evidenced by past beach fill projects, the north end of Atlantic City loses the sand berm placed within weeks of placement, leading to erosion of the dune. The area requires additional study as to why it is an erosional hot spot and what can be done to address the continuing erosion issues.

## 4. ATLANTIC COUNTY COASTAL REGION ENGAGEMENT

As an initial step in the launch of the Resilient NJ program, the ACCR Steering Committee came together to craft a mission and vision that will lead to successful implementation of the Action Plan. In the early stages of the project, an important concept has already emerged:

Without community buy-in from local community leaders, there is little ability to affect future resiliency.

The purpose of engaging with local, state, and federal-level stakeholders through the Resilient NJ planning process is to craft an Action Plan that meets the aspirations of the Region's mission and vision for the future and charts a clear roadmap for how to get there. Engagement efforts strive to provide the forum and tools necessary to:

- ❖ Build capacity among stakeholders and local ownership in the Action Plan process.
- ❖ Prioritize the needs of vulnerable and disadvantaged populations in the Region.
- Establish a clear path and continuously monitor progress to adjust the Action Plan as needed over time.
- ❖ Ensure accountability and consistency for carrying out the Action Plan.
- Collectively celebrate accomplishments along the way.
- ❖ Achieve the goals set forth by the ACCR and the Resilient NJ program.

Together, the Steering Committee and consultant team will implement an Engagement Plan to guide a community-driven process that is guided by guidance from the state and aligned with climate and equity goals set forth at national and international levels.

# 4.1 **Building on Existing Visions**

As part of the Resilient NJ process, Visioning exercises will be carried out to craft the ACCR's vision to:

- Strengthen the Region's identity.
- Strengthen and preserve cultural and natural assets.
- ❖ Provide for the safety and well-being of the Region's residents and visitors (including the protection of lifeline facilities).
- Support economic stability or growth.
- Consider and respond to anticipated future conditions.

Like an independent organization or company's mission and vision statement, the ACCR's vision will represent the consensus of diverse input from individuals (residents, visitors, employees), groups (social clubs, advocacy groups, trade and nonprofit organizations), and other stakeholders (academic institutions, political leaders, project partners). Specific to Resilient NJ, the vision will also incorporate the region's history and relationship with flooding. As a starting point for the visioning process, visions found in existing documents and resources have been tabulated in Appendix E.

## 4.2 Resilient NJ Atlantic County Coastal Region Engagement Plan

Stakeholder feedback will drive the decision-making process for the ACCR Action Plan. Assets within the ACCR will be reviewed to see if they are currently protected by existing planned projects. Flooding scenario models will be run to determine if the assets are protected or if there are gaps in what has been planned. Reports, documents, and other products from the planning process provide the blueprint and are key opportunities for the Steering Committee, other Advisory Committees, and the public to guide the direction of the Action Plan. Ultimately, individuals involved in this process will be the champions, ambassadors, and supporters of the plan who will breathe life into its actions and policies for enhancing resilience and maintaining a sustainable and equitable future.

The Engagement Plan was created to provide a blueprint for how voices of community members, officials, and other stakeholders are to be included in Action Plan development and the methods for engaging diverse populations in effective ways (Figure 4-1).

Figure 4-1. Pillars of the ACCR Engagement Plan, January 2021

RAISE AWARENESS	LISTEN & ENGAGE	EVALUATE	COLLABORATE	EMPOWER
Provide the public with balanced and objective information to assist them in understanding the problem, alternatives and /or solutions	Obtain public feedback on analysis alternatives and/or decisions	Measure performance through benchmark and indicators	Engage public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	Partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution
We will develop brand that will clearly resonate with the communities in the Region  We will designate decision maker from each Regional Team member community or organization  We will share information through project website, social media, monthly newsletters	<ul> <li>We will gather data on community risks, stressess, and vulnerabilities by listening to the communities and their stakeholders</li> <li>We will align key milestones with the tasks of the plan and the public engagement will continue throughout the process</li> </ul>	<ul> <li>We will review past planning studies and gauge our success in the on the benchmark of various strategies and engagement</li> <li>We will monitor and evaluate our success for each method of engagement and continually refine our strategies by monitoring the feedback</li> </ul>	We will identify Community Champions to connect with community groups. The community champions can both help during the planning process.  We will collaborate with the SC, TAC, CAC, FGs, and the General Public to develop the Regional Resilience & Adaptation Action Plan	We will identify Community Champions that will be able to carry forward specific actions.  We will focus last public engagement meeting on utilizing the RRAAP to carry actions forward

The ACCR is governed by various layers of advisory groups (Figure 4-2), including:

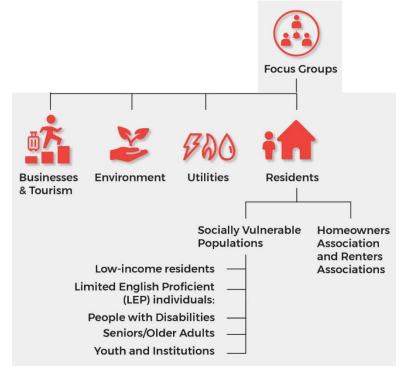
- **Steering Committee:** role is to make final decisions and foster capacity building
- ❖ Technical Advisory Committee: serve as a technical resource to review and provide technical feedback on Action Plan development and identify and assess potential funding
- **Community Advisory Committee:** provide local perspective and guidance and potential community challenges to planned scenarios
- **Focus groups:** provide guidance on community assets, needs and scenarios

Figure 4-2. Stakeholder Groups within the Atlantic County Coastal Region's "Regional Team"



The Engagement Plan is designed to ensure the Action Plan will be driven through community input from stakeholders including residents, businesses, environmental groups, and community-based and youth organizations. Stakeholder and public feedback will help identify chronic challenges in the ACCR, such as aging infrastructure, unemployment, routine flooding and power failure, crime, and limited transportation.

Consultant teams support the Region in developing Regional Resilience and Adaptation Action Plans to help identify and communicate priorities, assess risk in consistent ways, and develop strategies and investment opportunities to reduce the worst



consequences of climate impacts. The key to the Resilient NJ program is uniting technical expertise with community visions, which will occur through both top-down and bottom-up engagement, planning, design, and implementation efforts.

Initial feedback provided by the Steering Committee was to make sure the counsel and committee members on the Community Advisory Committee have the authority to vote on actions and the funding to move projects forward.

Representatives of members of the ACCR expressed initial priorities and areas of interest outlined in Table 4-1.

Table 4-1. ACCR Initial Priorities and Areas of Interest

Member	Priority/Interest Areas	
American Red Cross	Ways to incorporate Preparedness. The American Red Cross can offer the community tools to strengthen resilience. This includes preparedness programs and tools, youth-based programs, and business continuity programming. The American Red Cross seeks to pilot and establish a community preparedness foundation. Foundational questions include:	
	What has American Red Cross done in these communities so far?	
	<ul> <li>What gaps can we fill with our preparedness programs?</li> <li>What does the community want? Can we get their buy-in or willingness to partner?</li> </ul>	
	<ul> <li>Do they know the advantages of community preparedness programs and how it can get them to a more resilient future?</li> </ul>	
Atlantic County	Action Plan must be realistic; funding is key. Many things are proposed that never happen because funding is not available.	
	County is a large source of revenue and needs to be kept in mind when planning; it is important to nurture businesses and keep in mind economic sustainability.	
Atlantic City	Diversity on Community Advisory Committee: communities have many common challenges and assets. Atlantic City has a very diverse population and a high renter population and that there are a lot of equity issues and challenges. Atlantic City Boardwalk is one of the city's assets and that the boardwalk has received funding in the past and has done some improvements but there is still a long way to go. Blue Economy is a part of their economic development and that community involvement and outreach are very important to Atlantic City. County point of view is important.	
Brigantine & Ventnor	Looking forward to prioritizing projects and Actions. Infrastructure, both local and regional, is important to Brigantine and Ventnor. Looking forward to actions and projects that bring resilience in both local and regional ways.	
Longport	Preparedness, regional approach, shared services, consistency of communication. Importance of all communities working together. Regionalization approach is key to getting the plan to work and that may offer ability to procure more funding if communities are working together.	
Margate	Opportunities for shared services like disaster debris management; keep plan simple and allow actions to be attainable for communities to work together. Margate, Longport, Ventnor and Atlantic City especially all have something to gain by improving infrastructure. Regional Debris Management Program would be helpful towards building resiliency. Reinforce Shelter Island to absorb storm surge/effects on bay-side communities. Importance of keeping things simple in order for actions to be attainable and to give communities the chance to start working together routinely.	

Member	Priority/Interest Areas
Northfield	Important to start small and then grow the plan as we work together with other municipalities; shared services; towns depend on each other for evacuation access, primary focus is on emergency response and emergency management. During an emergency, there should be a regional approach so there are not duplicated services.
Pleasantville	On target with the city's goals. Many residents work in surrounding cities; it is important to consider economic actions. Pleasantville is very unique in diversity and that there has been a huge shift in the last ten years where there is a large population of non-English speaking residents and English as a second language residents. It is important to make sure residents have resources; undocumented immigrants, who might be residents and are afraid to reach out because of the resident status, must also be included. Pleasantville has redevelopment plans that are in progress that would be beneficial for the consultant team to review.
Regional Coordinator	Coastal area is an economic engine that needs to be protected. New administration is talking about a major infrastructure bill; the USACE Back Bay Study was refunded, and FEMA has more money than it has in the past; the key is to get Atlantic County their fair share.

Source: Interviews, Steering Committee Meeting - January 2021

# **APPENDIX A: GLOSSARY**

TERM	DESCRIPTION
Base flood elevation	The elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. Source: <u>FEMA</u>
Blue economy	Sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem. <u>Source</u> : World Bank
Climate chronic challenges	The potential for damage to occur as a result of prolonged exposure to an undesirable climate condition.
Coastal economy	Coastal Economy data includes all activities and industries reported by the Bureau of Labor Statistics for the coastal counties. <u>Source</u> : NOAA
Consequence	The outcome of an event, including immediate, short- and long-term, and direct and indirect losses and effects. Losses may include human casualties. Source: USACE
Casino Reinvestment Development Authority (CRDA)	The Casino Reinvestment Development Authority or CRDA is a New Jersey state governmental agency that was founded in 1984 and is responsible for directing the spending of casino reinvestment funds in public and private projects to benefit Atlantic City and other areas of the state. Source: <a href="CRDA">CRDA</a>
Economic development	A process of creating and utilizing physical, human, financial, and social assets to generate improved and broadly shared economic well-being and quality of life for a community or region. Source: Economic Development Finance
Environmental justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Source: <a href="EPA">EPA</a>
Exposure	Exposure occurs when a susceptible asset comes in contact with a hazard.  People and property threatened by the hazard. <u>Source</u> : USACE
Feeder Beach	A beach that is artificially widened and nourishes downdrift beaches by natural currents or forces. Source: McGraw Hill

TERM	DESCRIPTION	
FEMA Flood Hazard Zones	Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded). Source: FEMA	
Greenhouse Gas	Greenhouse gases are gases in the atmosphere such as water vapor, carbon dioxide, methane and nitrous oxide that can absorb infrared radiation, trapping heat in the atmosphere. This greenhouse effect means that emissions of greenhouse gases due to human activity cause global warming. Source: IPCC	
Hazard	A potential source of harm. <u>Source</u> : USACE	
High-tide flooding Also known as "nuisance" or "sunny day" flooding	Flooding that occurs with high tides due to climate-related sea level rise, land subsidence, and the loss of natural barriers. Any acceleration in sea level rise that is predicted to occur this century will further intensify high-tide flooding impacts over time and will further reduce the time between flood events.  Source: NOAA	
Ocean economy	The economic activities of ocean-based industries, together with the assets, goods and services provided by marine ecosystems, compiled from the databases of the Bureau of Labor Statistics in coastal counties. Source: OECD	
Resilience	The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption. <u>Source:</u> U.S Climate Resilience Toolkit	
Risk	The measure of the probability and severity of adverse consequences.  Risk = (frequency of an event) x (Probability of occurrence) x  (Consequences) Source: USACE	
SLOSH	The Sea, Lake and Overland Surges from Hurricanes (SLOSH) model is a computerized numerical model developed by the National Weather Service (NWS) to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by considering the atmospheric pressure, size, forward speed, and track data. These parameters are used to create a model of the wind field which drives the storm surge. The SLOSH model consists of a set of physics equations which are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, levees and other physical features. Source: NOAA	

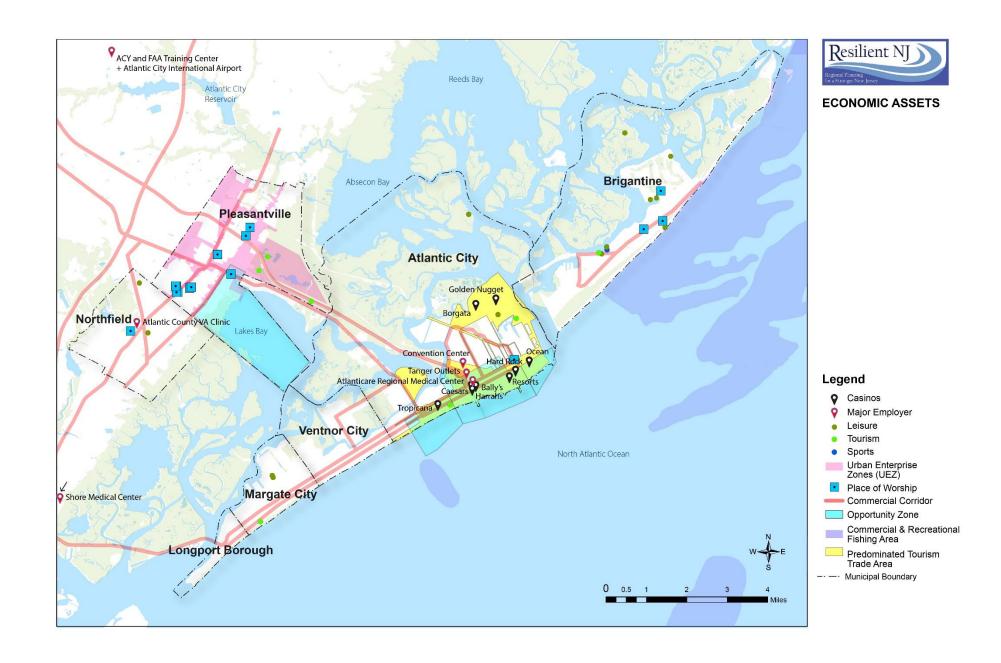
TERM	DESCRIPTION
Social equity	Just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. Source: APA
Socially vulnerable populations	Demographic groups where underlying societal inequities and challenges create the biggest hurdles to achieving resilience, such as people with disabilities and mental health needs, low income residents, senior citizens, and racial minority groups. Source: <a href="Rutgers EAC">Rutgers EAC</a>
Total water level	The combination of sea level rise, tides, surge, and wave run-up at the shoreline. A forecast of TWL is an estimate of the elevation where the ocean will meet the coast and can provide guidance on potential coastal erosion and flooding hazards. Source: <a href="USGS"><u>USGS</u></a>
Chronic impact	An environmental or economic negative effect that is either frequently occurring or long-lasting.
Scarping	Dune erosion resulting in a steep dune face. Source: <u>USGS</u>
Stressor	A condition, event, or trend related to climate variability and change that can exacerbate hazards. Source: U.S Climate Resilience Toolkit
System performance	The system's reaction to the hazard. The capability of the system to accommodate the hazard. Source: USACE
Visioning	Building a vision involves identifying and agreeing on long-term community goals. These goals become the foundation for determining possible scenarios and actions for the community resilience plan. Goals and objectives set by the team should be measurable, consider any requirements that apply, and be monitored and updated as appropriate. Source: DEP
Vulnerability	The characteristics of people and assets that affect the likelihood that they will realize adverse consequences from exposure to the hazard. <u>Source</u> : USACE
Wrack line	Line or zone of organic or non-organic material that is deposited onshore, usually at the mean high water. Source: NOAA

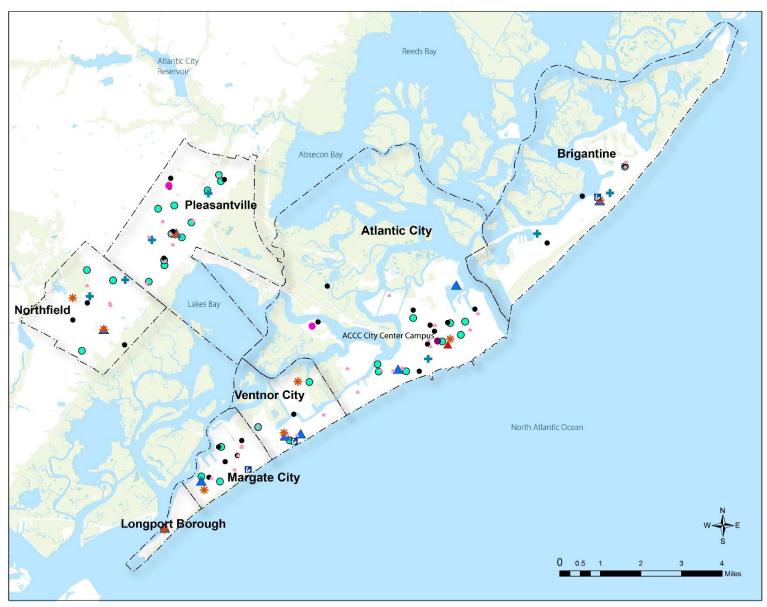
# APPENDIX B: INDEX OF DOCUMENTS AND DATA REVIEWED

**INCLUDED AS ATTACHMENT** 

# **APPENDIX C: REGIONAL MAPS**









#### KEY INFRASTRUCTURE

#### Legend

#### Govt. Facilities and Buildings

▲ City Hall

#### Public Safety/Essential Services

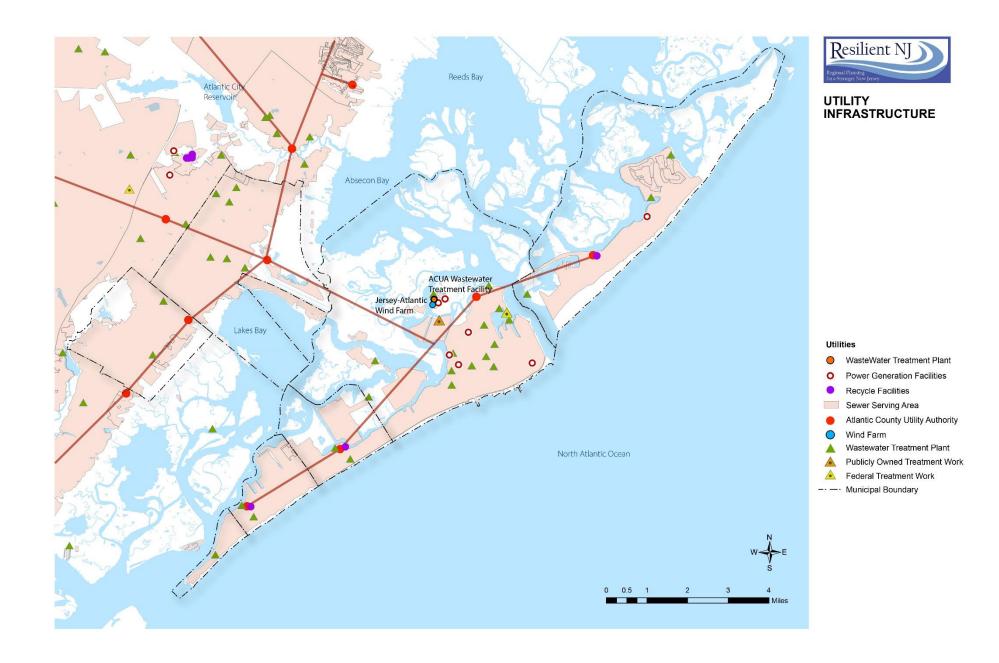
- ★ Fire Station
- A Police Department
- Health care

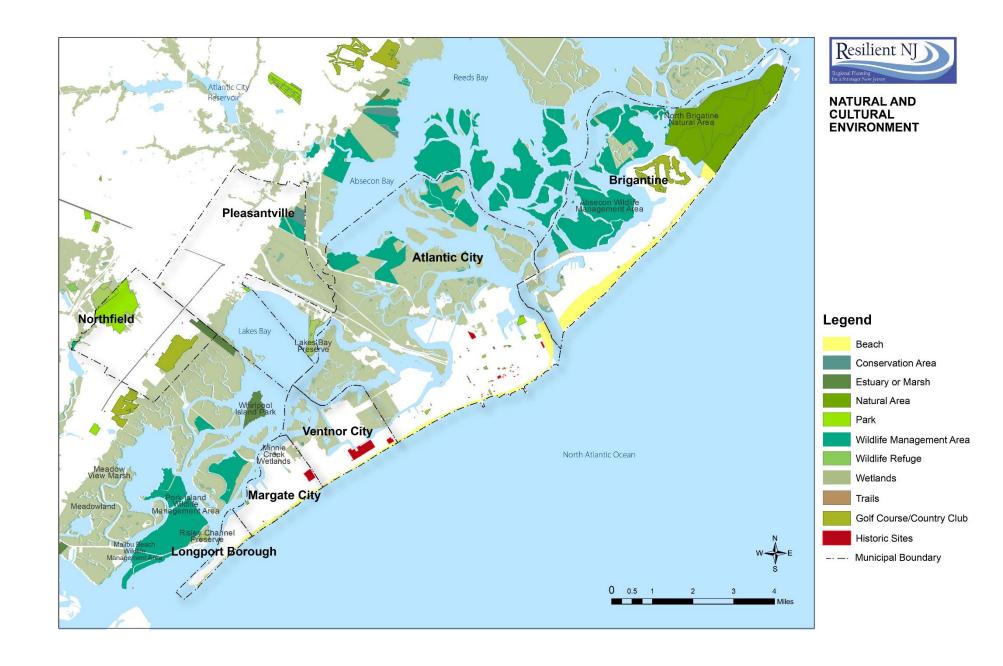
#### Education

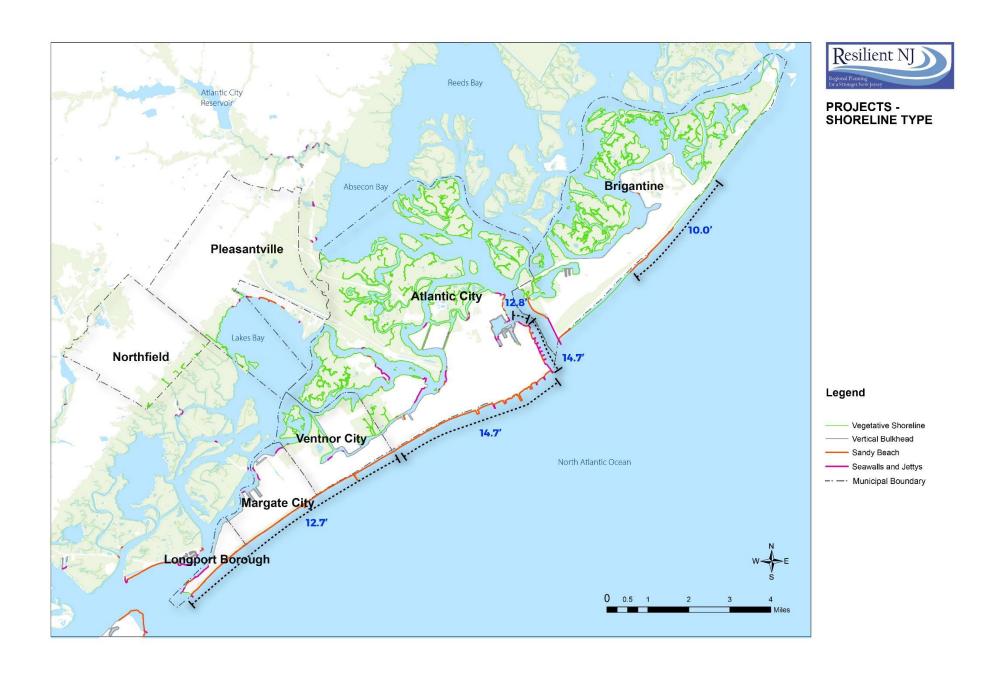
- College
- High School
- Primary & Secondary schools
- Library

#### Resident Services

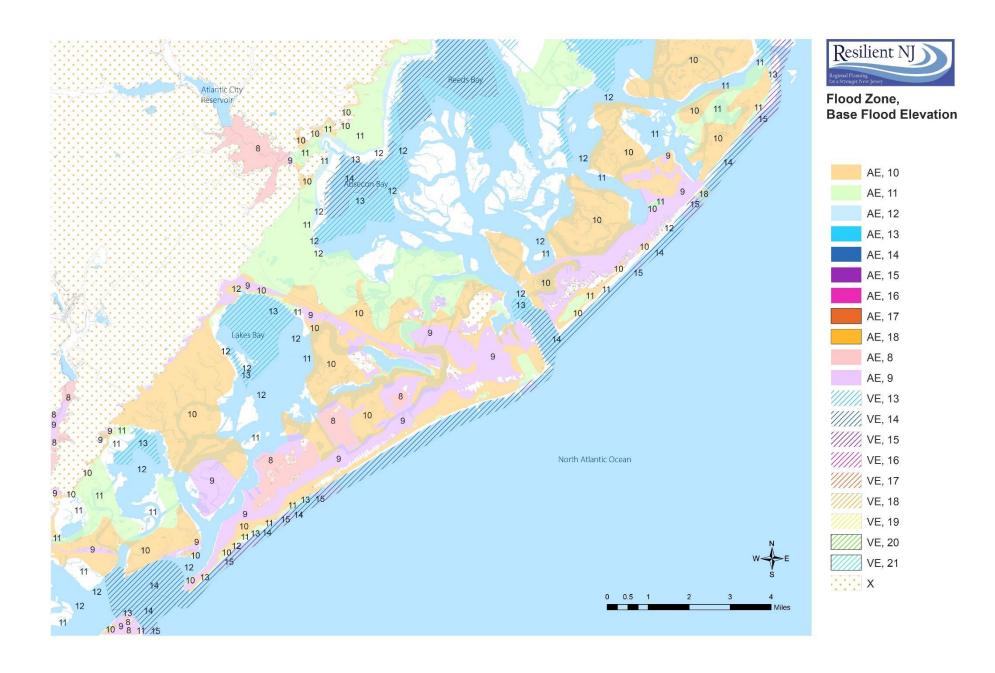
- Child Care
- National Shelter System
- -- -- Municipal Boundary

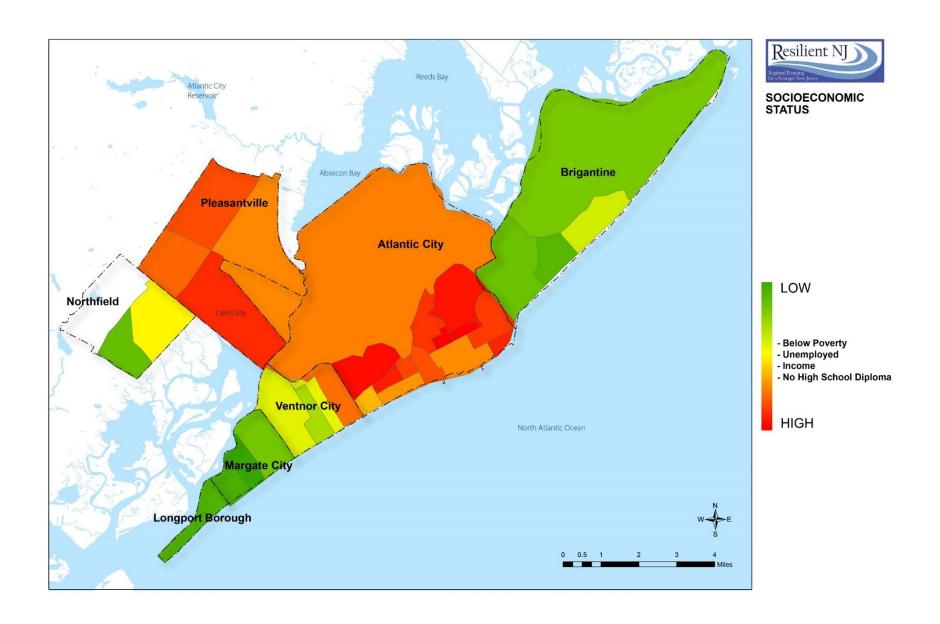


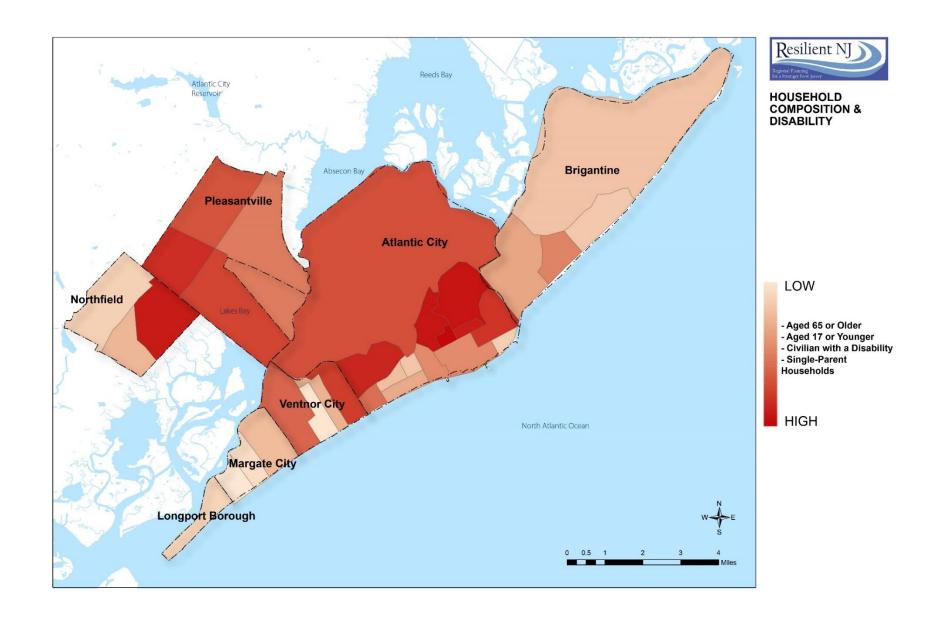


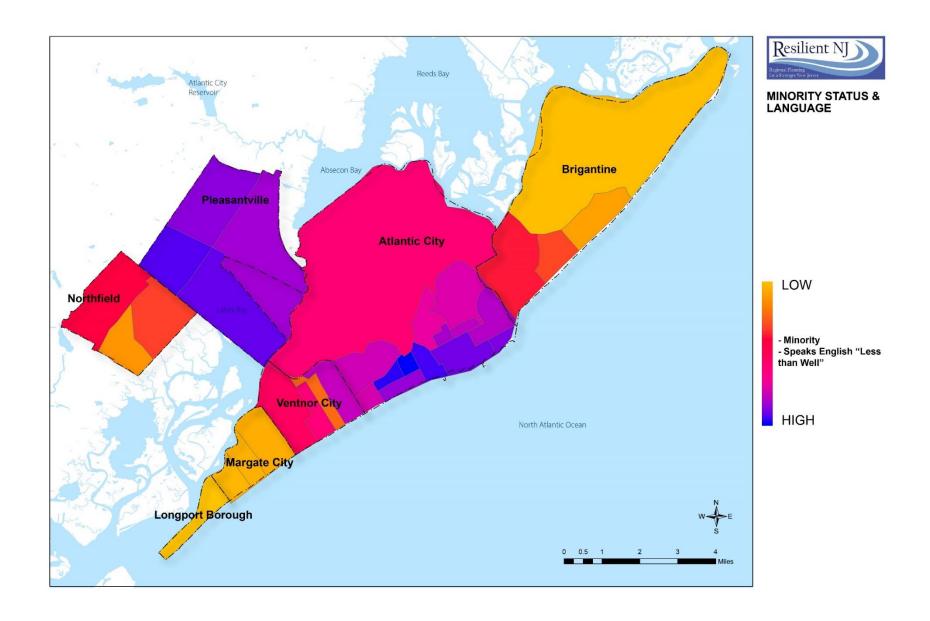


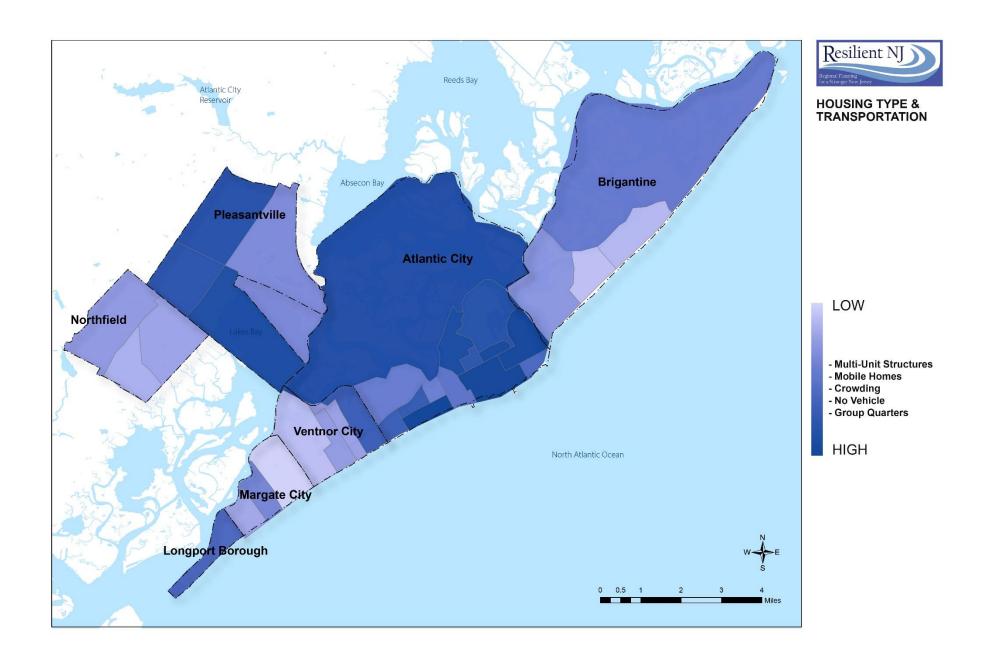


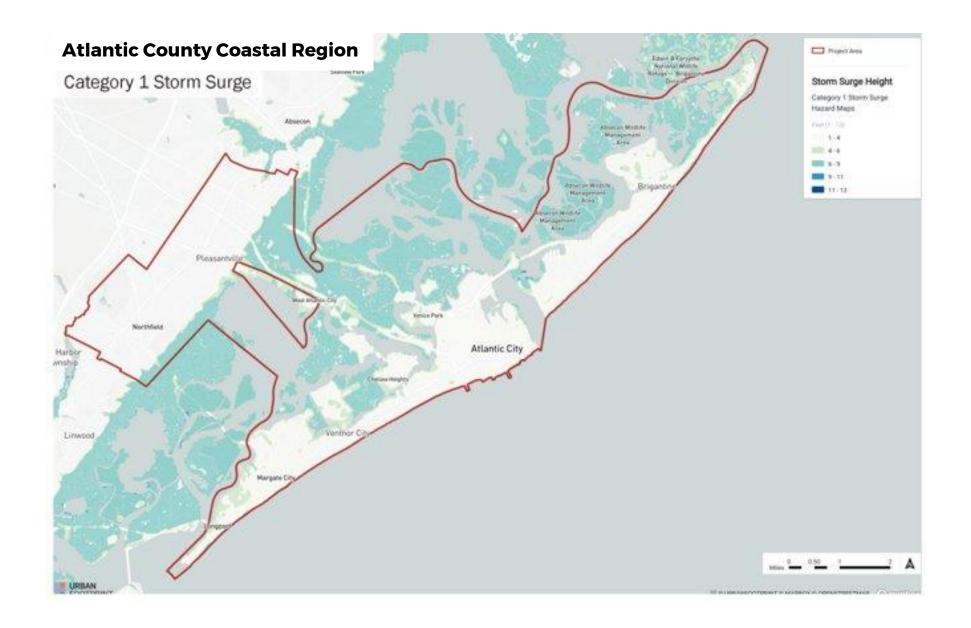


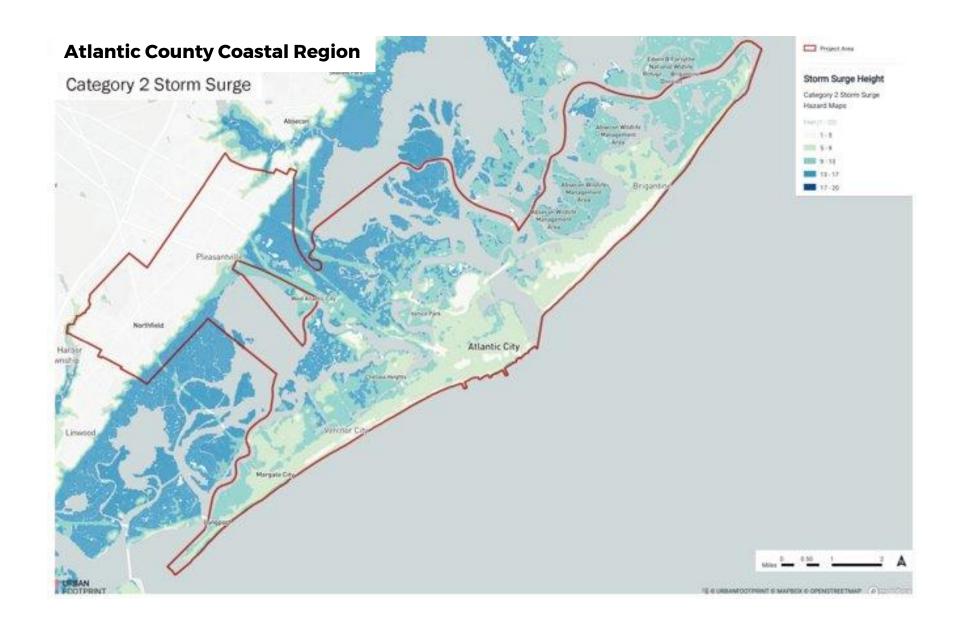


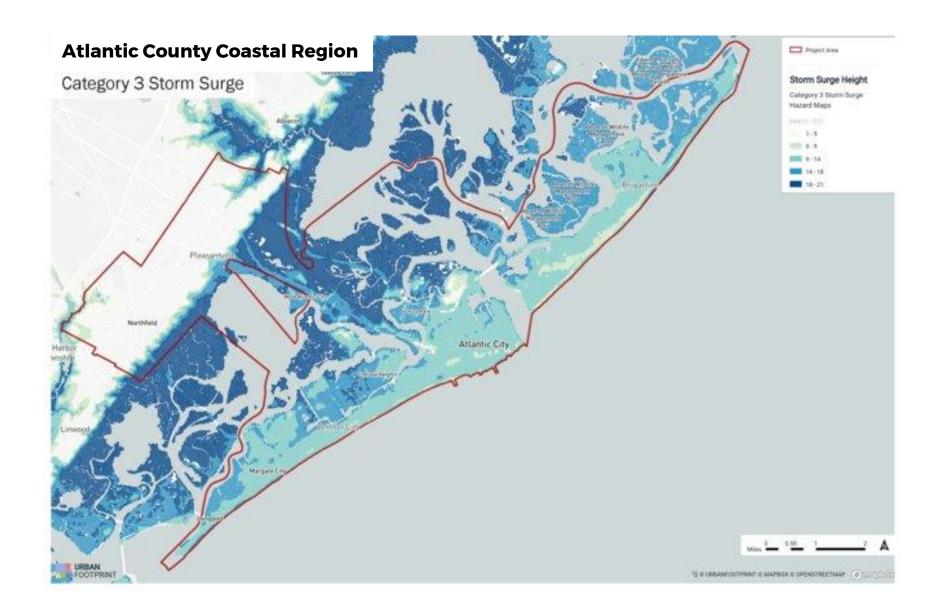


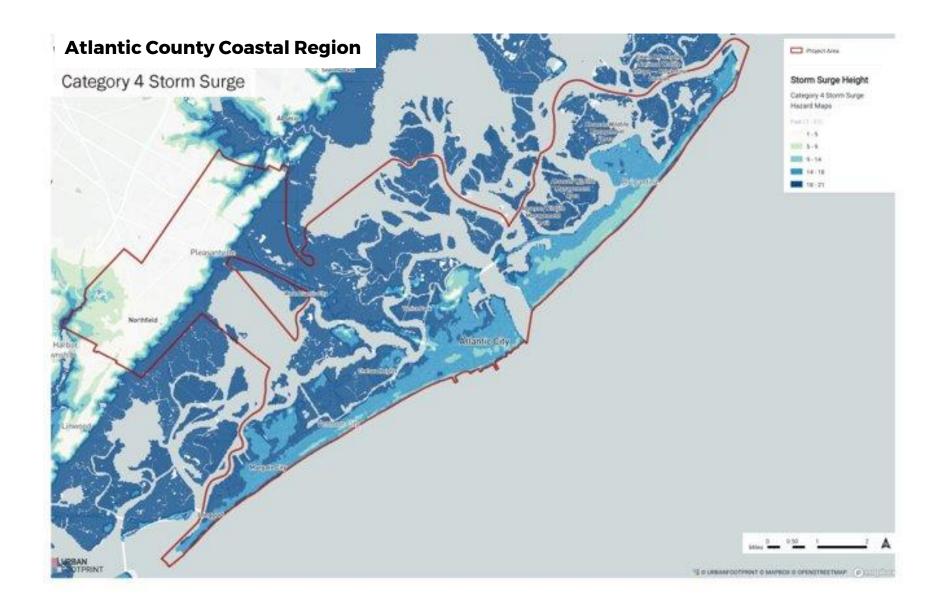


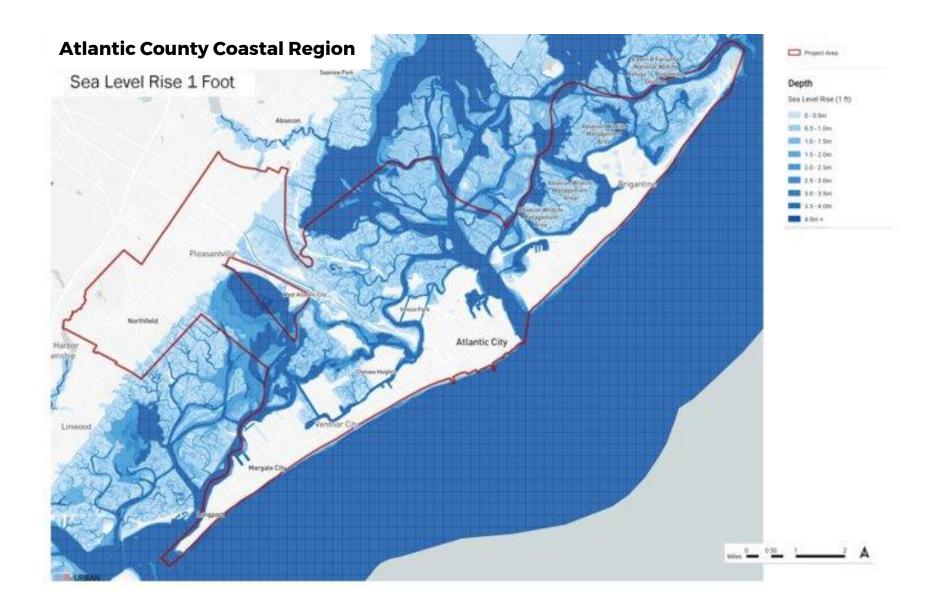


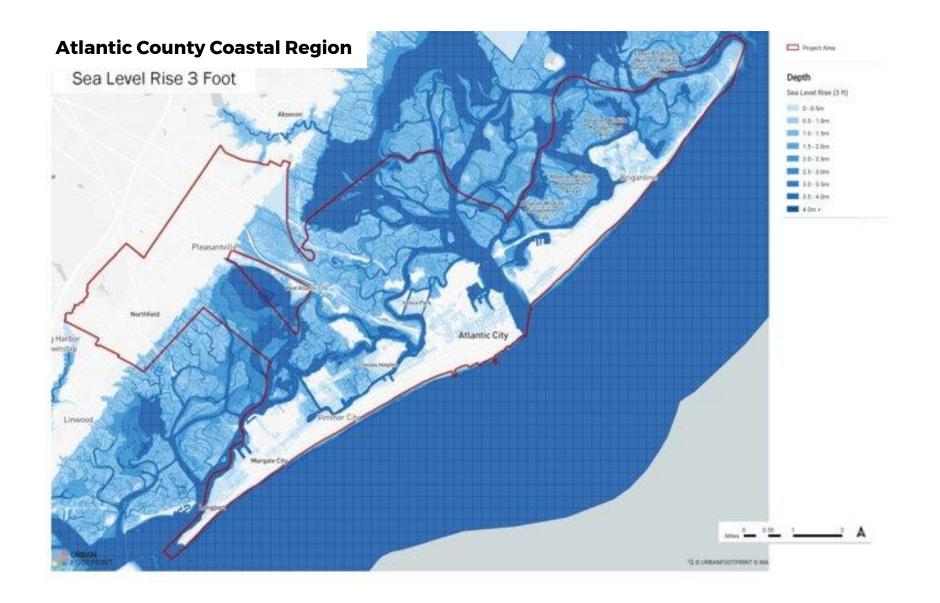


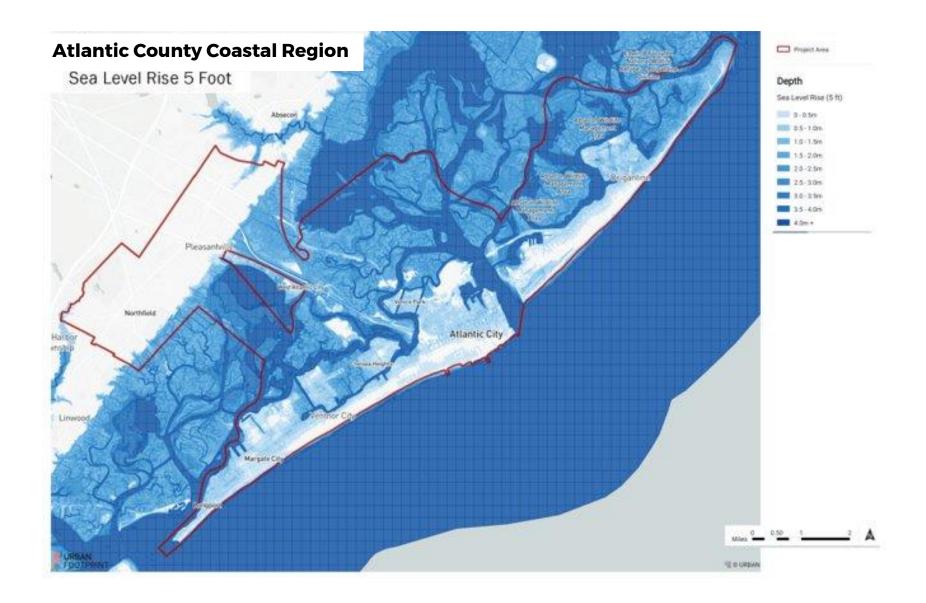












### **APPENDIX D: ADDITIONAL RESOURCES**

### PrepareNJ Program Spotlight: Home Fire Campaign

This is perhaps considered ARC's 'flagship' preparedness program; it spans the entire nation. It was launched in Oct 2014 with the objective of reducing home fire death or serious injury. In collaboration with local fire departments and partner groups, the campaign incentivizes local communities vulnerable to home fires to mobilize by offering residents free smoke alarm installation along with valuable fire safety educational materials.

The campaign service delivery model either centers on a door-to-door canvassing & install event/rally in a pre-identified target area, susceptible to frequent home fires, or an appointment-based model delivering service at pre-identified individual residential addresses. To date New Jersey Region has made **20,400** homes safer, installed over **43,800** free smoke alarms and served over **55,000** residents through the campaign. This program is active across many communities in New Jersey.

HFC participation: AC/Pleasantville/Margate/Ventnor

### APPENDIX E: SUMMARY OF "VISIONS" DISCOVERED IN EXISTING DOCUMENTS

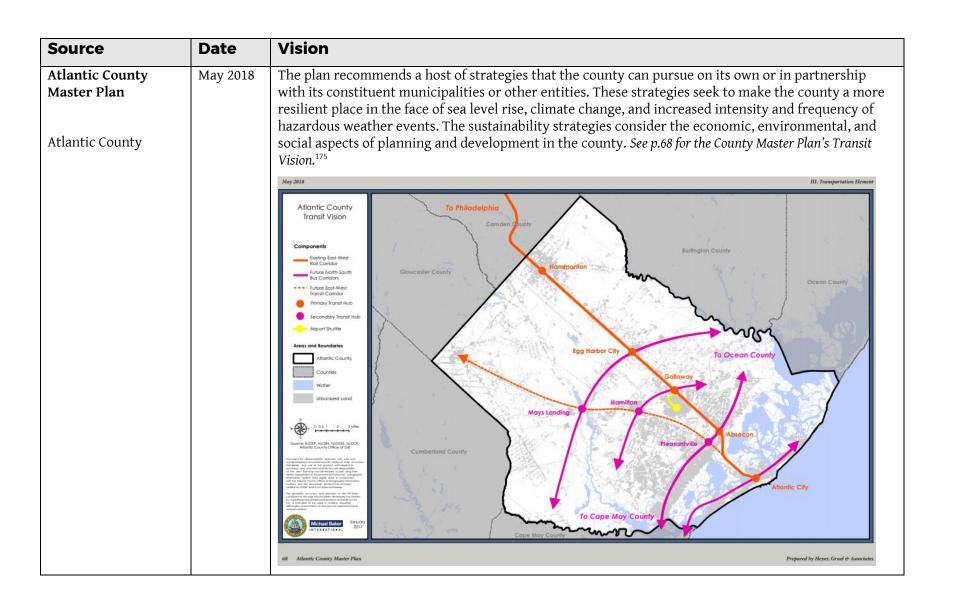
Source	Date	Vision
Mission & Values	2021	Vision Statement: The American Red Cross, through its strong network of volunteers, donors and partners, is always there in times of need. We aspire to turn compassion into action so that
American Red Cross		<ul> <li>all people affected by disaster across the country and around the world receive care, shelter and hope;</li> <li>our communities are ready and prepared for disasters;</li> <li>everyone in our country has access to safe, lifesaving blood and blood products;</li> <li>all members of our armed services and their families find support and comfort whenever needed; and</li> <li>in an emergency, there are always trained individuals nearby, ready to use their Red Cross skills to save lives.<sup>171</sup></li> </ul>
Comprehensive Economic Development Strategy: Annual Update	March 2020	To encourage economic development and redevelopment in Atlantic, Cape May, Cumberland, and Salem Counties. The FY 2020 CEDS annual update revisits stakeholder and community priorities and desire to identify new development priorities in the region. <sup>172</sup>
South Jersey Economic Development District		
Coastal Resiliency Institute & Marine Science Center  New Jersey Economic Development Authority, Atlantic	August 2019	All participants share a common goal, to strengthen coastal resilience in south Jersey, and serve as a model for such work on a national level. This has immediate practical applications, such as the design, maintenance and restoration for buildings and infrastructure in our region able to absorb or avoid damage without suffering complete failure. It also has more systemic and preventative connotations. A resilient structure/system/community should not only be able to resist an extreme event with

<sup>&</sup>lt;sup>171</sup> American Red Cross, *Mission & Values*, accessed February 2021, <a href="https://www.redcross.org/about-us/who-we-are/mission-and-values.html">https://www.redcross.org/about-us/who-we-are/mission-and-values.html</a>.

<sup>172</sup> SJEDD, FY 2020 Comprehensive Economic Development Strategy: Annual Update, March 2020, <a href="https://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf">https://www.sjedd.com/pdf/2020-CEDS-UPDATE.pdf</a>

Source	Date	Vision
City, Stockton University		minimal damage and functionality disruption, but also rapidly recovery its functionality similar to—or even better than—its pre-event level. <sup>173</sup>
Atlantic County Economic Development Strategy and Action Plan Angelou Economics	September 2015	Angelou Economics recommends the creation of an adequately funded, private sector driven, regional economic development corporation to rebrand Atlantic County and to aggressively market and recruit new companies. As part of the 'Target Industry Selection Process,' cluster concentrations, industry trends, and regional assets will be reviewed to evaluate if clusters meet the goals of the community (i.e., "vision alignment"). The vision of the Target Industry Selection is to increase the tax base of Atlantic County by enhancing the business climate and creating higher-paying jobs.  A shared vision of what Atlantic County can become must be created and the realm of economic development must be declared a "no politics zone." 174

<sup>173</sup> New Jersey Economic Development Authority, Coastal Resiliency Institute & Marine Science Center - NJEDA Final Report, August 2019, https://www.congress.gov/116/meeting/house/109922/witnesses/HHRG-116-II06-Wstate-StraubP-20190916-SD001.pdf
174 Angelou Economics, Atlantic County Economic Development Strategy and Action Plan, Sept 2015, https://www.atlantic-county.org/documents/publications/Atlantic-County-SR-Final-Report-092115.pdf.



<sup>175</sup> Atlantic County (New Jersey), *Atlantic County Master Plan*, May 2018, <a href="https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf">https://www.atlantic-county.org/documents/planning/Master%20Plan\_5-1-18.pdf</a>.

Source	Date	Vision
AtlantiCare Community Needs Assessment, Atlantic County, New Jersey  AtlantiCare	2019	AtlantiCare's vision, mission and services are focused on delivering all of the elements necessary to achieve, maintain or return each member of the community to optimal health. These elements include:  Access to safe, equitable and quality healthcare; The promotion of healthy lifestyle behaviors; A commitment to understanding and improving the social determinants that impact one's health and quality of life. 176
About ACEA Atlantic County Economic Alliance	2021	<ul> <li>Our Core focus:</li> <li>Building a robust business retention program</li> <li>Marketing competitive assets to drive industry diversification</li> <li>Relationship building to attract new companies</li> <li>Creating partnerships to recruit, retain and promote a qualified workforce<sup>177</sup></li> </ul>
Stories of Atlantic City  Images and Voices of Hope, community partners, Stockton University, Center for Cooperative Media, Free Press, Community Foundation of NJ	Fall 2019	Stories of Atlantic City is a collaborative project focused on telling restorative, untold stories about the city and its people. The project was built on three core hypotheses:  1) That the project would result in a more positive public perception of Atlantic City.  2) That having been introduced to restorative narrative, newsrooms might begin to incorporate it into their workflow.  3) That the project could help build better relationships between local news media and the local community.  Stories that came out of the project include those focusing on overcoming mental health stigma through holistic healing; coping with loss following Superstorm Sandy; reinvigorating the local economy and local culture from barbershops to casinos to baseball to skate parks; developing music education based on Atlantic City's jazz history; and fostering entrepreneurship from the ground up in Atlantic City.  178

AtlantiCare, AtlantiCare Community Needs Assessment, 2019, <a href="https://user-8muyts.cld.bz/AtlantiCare-Community-Needs-Assessment-2019/3/#zoom=z">https://user-8muyts.cld.bz/AtlantiCare-Community-Needs-Assessment-2019/3/#zoom=z</a>.

177 Atlantic County Economic Alliance, About ACEA, accessed February 2021, <a href="https://aceanj.com/about-acea/">https://aceanj.com/about-acea/</a>.

178 Stories of Atlantic City, Report: These are the stories of Atlantic City, Fall 2019, <a href="https://storiesofatlanticcity.com/wp-content/uploads/sites/9/2019/10/Stories-">https://storiesofatlanticcity.com/wp-content/uploads/sites/9/2019/10/Stories-</a> of-AC-report-07NOV2019.pdf.

Source	Date	Vision
Atlantic City Master Plan Re-examination Report	April 2016	Diversify economy and expand tourism and recreational offerings to be more family-oriented to keep residents, create jobs, and attract new residents and employees. <sup>179</sup>
Atlantic City		
Brigantine Master Plan Re-examination Report	September 2016	"The Brigantine area has been hit hard by the combined impact of the economic contraction of the gaming industry in Atlantic City and the damage from Superstorm Sandy. The city needs to plan for a future that can combine resiliency as a part of the local economy. While
Brigantine		the city presently houses the Mammal Stranding Center, and has a good sense of the historical development of the island through the Historical Society, this period of the
21 guiterie		community's history is tied to the effects of climate change and how to address this relative to the future." <sup>180</sup>
Waterfront Redevelopment Plan	April 2018	The purpose of the Redevelopment Plan is to promote the construction or reconstruction of bulkheads in the Waterfront Redevelopment Area through a public/private partnership to ensure that the city is protected from flooding and storm surges. In addition to this main goal, the Redevelopment Plan includes the following goals:
Brigantine		<ul> <li>Protect the city from flooding and flood surges</li> <li>Ensure that new and rebuilt bulkheads are constructed to the required height 9 feet National Geodetic Vertical Datum (NGVD) or 8 feet NAVD 88</li> <li>Encourage the use of sustainable building materials in the construction of new or rebuilt bulkheads</li> </ul>
		Ease permitting requirements by providing one state permit for all property owners <sup>181</sup>

<sup>179</sup> Atlantic City Planning and Development Department, 2016 Master Plan Re-examination Report, April 2016, <a href="https://development.cityofatlanticcity.org/wp-content/uploads/2017/01/AC-MP-RE-EXAM-April-2016-FINAL.pdf">https://development.cityofatlanticcity.org/wp-content/uploads/2017/01/AC-MP-RE-EXAM-April-2016-FINAL.pdf</a>.

180 City of Brigantine, 2016 Master Plan Re-examination Report - Resiliency Action Plan (p. 55), as adopted by Planning Board September 28, 2016, <a href="https://ii8dbq3dbgtp1wzho84dralo12f9-wpengine.netdna-ssl.com/wp-content/uploads/2016/11/Brig-2016-Master-Plan-Re-examination-Report.pdf">https://ii8dbq3dbgtp1wzho84dralo12f9-wpengine.netdna-ssl.com/wp-content/uploads/2016/11/Brig-2016-Master-Plan-Re-examination-Report.pdf</a>.

181 City of Brigantine, Waterfront Redevelopment Plan, April 25, 2018, <a href="https://brigantinebeach.org/wp-content/uploads/2018/12/RedevelopmentPlans.pdf">https://brigantinebeach.org/wp-content/uploads/2018/12/RedevelopmentPlans.pdf</a>.

Source	Date	Vision
Edwin B. Forsythe Final Comprehensive	June 2004	The following statement was developed to describe the desired future status of Forsythe Refuge.
Conservation Plan, Chapter 1		* Edwin B. Forsythe Refuge will continue to contain some of the most important migratory bird habitat in the National Wildlife Refuge System. It will continue to be a focal point for the protection, management, restoration, and enjoyment of migratory birds and other Federal Trust Resources in coastal New Jersey. The Refuge will provide a true wilderness experience
U.S. Fish & Wildlife Service		on pristine barrier islands and salt marshes, that are premiere examples of these ecological communities and untrammeled by man. It will also provide stop-over and wintering habitats of sufficient size and quality to assist in maintaining migrating birds on the Atlantic Flyway.  The Refuge will expand its role in land protection efforts by acquiring additional habitat along the coast and inland watersheds, and working with all interested parties to promote conservation efforts on non-refuge lands. The Refuge will preserve important plant and animal populations, ecological communities, and the integrity of the landscape by protecting lands from development, restoring fire to the upland habitats, and restoring wetlands. It will play a critical role in preserving biodiversity locally, regionally and within the Refuge System.  The Refuge will build alliances with state, county and local governments, other organizations and local communities to promote the ecological integrity of the landscape, ecotourism and the historical and cultural attractions of the region. The Refuge will provide wildlifedependent recreational opportunities for hunting, fishing, wildlife observation and photography, environmental education and interpretation on Refuge lands. The Refuge will help assure the sustainable economic viability of the area, and supplement and promote the values which attracted people and wildlife to the Jersey Shore in the first place."  182
Chief's Message: Mission, Vision, Motto, & Core Values	2021	Vision: We are dedicated to excellence in service through the commitment of our people to teamwork, integrity and our core values. Together we work to be the safest community in New Jersey. Core Values:
Longport Police Department		<ul> <li>Integrity: We conduct ourselves with uncompromising honesty, honor, ethics, and nobility in all situations and relationships.</li> <li>Human Dignity: We acknowledge and recognize the value of all people by carrying out our duties with dignity, respect, and deliberate regard to all.</li> <li>Justice: We serve our community in an unbiased and impartial manner, applying equal protection to all under the law, and fairly enforcing the rule of law we are sworn to uphold.</li> </ul>

 $<sup>^{182} \</sup> U.S. \ Fish \& \ Wildlife \ Service, \textit{Edwin B. Forsythe Final CCP}, June \ 2004, \\ \underline{https://www.fws.gov/refuge/Edwin \ B. Forsythe/what \ we \ do/finalccp.html}.$ 

Source	Date	Vision
		<ul> <li>Professionalism: We are accountable to ourselves and the public for the quality of our service. We strive for exceptionalism in standards of proficiency and conduct in all aspects of our duties. We seek to continually improve ourselves, our department, and our community relationships.</li> <li>Leadership: Steadfast, resolute leadership is a hallmark of our department. We entrust our members to lead ethically and responsibly within the organization and in the community we serve.<sup>183</sup></li> </ul>
Sustainable Longport Achieves Bronze-Level Certification in	July 2020	Sustainable Longport's mission is to educate residents and visitors of the borough's efforts to protect and conserve our natural resources, reduce waste, conserve energy and leave a better tomorrow for future generations to enjoy.
Sustainable Jersey Program  Borough of Longport		<ul> <li>The Borough of Longport is a member of the Sustainable Jersey program and achieved Bronze certification in 2016. The Sustainable Longport green team will face the challenge of recertifying Longport as Bronze Municipality in the Sustainable Jersey Program.</li> <li>Sustainable Jersey is a nonprofit organization that provides tools, training and financial incentives to support communities as they pursue sustainability programs. By supporting community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity. Sustainable Jersey is empowering communities to build a better world</li> </ul>
		environmental equity, Sustainable Jersey is empowering communities to build a better world for future generations. <sup>184</sup>

Longport Police Department, Mission, Vision, Motto, & Core Values, 2021, <a href="www.longportpd.org/chief-mission-code/pages/mission-vision-motto-core-values">www.longportpd.org/chief-mission-code/pages/mission-vision-motto-core-values</a>.

184 Borough of Longport, Press Release: Longport Achieves Bronze-Level Certification in Sustainable Jersey Program, October 2016, <a href="https://www.longportnj.gov/notices/PR-bronze-certification-101416.pdf">https://www.longportnj.gov/notices/PR-bronze-certification-101416.pdf</a>.

Source	Date	Vision
2016 Comprehensive Master Plan Update Margate	January 2017	"It is the year 2015 and Margate has reinforced its image as a desirable, predominantly year round shore town with a strong sense of communityThe central business district along Ventnor Avenue and Washington Avenue has become an active downtown with sufficient parkingThe pedestrian friendly environment has been enhanced through appropriately located parking, new bikeways, and streetscape improvements. The Bayfront has reinvented itself as a new revitalized neighborhood with residences, marinas, and upscale restaurants. Scattered neighborhood commercial districts continue to provide services to surrounding residential neighborhoodsGateway and wayfinding signage has assisted in defining the city as a desirable community"
		As Margate defines its identity, the city and the tourism commission will be able to target new development that supports the overarching vision. 185
Master Plan Re- examination	March 2008	The City of Northfield Master Plan is based upon the objectives, principles assumptions, policies and standards which have been developed over a period of time by the City Planning Board, City Council, Board of Adjustments, and other City Boards and agencies. Goals of the Master Plan include:
Northfield		<ul> <li>To identify areas within the city to allow greater density in order to accommodate the need for senior housing and affordable housing.</li> <li>To encourage all new development to utilize the latest techniques available to provide energy-efficient buildings.</li> <li>To encourage the revision of local ordinances to accommodate the use of alternative energy sources, such as wind, solar and geothermal sources.</li> <li>To encourage the preservation of specimen trees and natural wooded areas, where possible.</li> <li>To encourage the installation of sidewalks and bikeways.</li> <li>To encourage ordinance changes to recognize the Atlantic City Country Club as a viable recreation, open space, historic and aesthetically pleasing property, while allowing for limited development.</li> <li>To expand all recreation and open space areas to be utilized to their fullest potential.</li> <li>To encourage the revision to the ordinances to be in compliance with the State of New Jersey Guidelines for drainage and wetlands protections.</li> <li>To encourage the protection of the natural areas of Birch Grove Park while upgrading the facilities at the site.</li> </ul>

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<sup>&</sup>lt;sup>185</sup> City of Margate, 2016 Comprehensive Master Plan Update, January 2017, <a href="https://www.margate-nj.com/sites/g/files/vyhlif846/f/file/file/margate-city-master-plan document-draft a for board review.pdf">https://www.margate-nj.com/sites/g/files/vyhlif846/f/file/file/margate-city-master-plan document-draft a for board review.pdf</a>.

Source	Date	Vision
		<ul> <li>To encourage a revision to the local ordinances to restrict commercial and non-transportation vehicles from parking on local streets.</li> <li>To consider the removal of the SIC code designations for allowed uses and to broaden the general use categories in the ordinance.<sup>186</sup></li> </ul>
Pleasantville Strategic Recovery Planning Report  Pleasantville	August 2014	The recommendations set forth in this Report, along with further funding, will allow the city to continue with its hazard mitigation efforts. These recommendations focus on improving the resiliency of infrastructure, updating Master Plan elements to improve consistency with hazard mitigation initiatives, economic development, housing, communication and education, capital improvement, and Community Rating System compliance. The goal of these recommendations is to prevent the loss life and property  caused by future storm events. 187
Pleasantville Master Plan Re-examination Report  Pleasantville	November 2015	<ul> <li>General Development Goals include:</li> <li>Manage growth while protecting against the potential negative impact of growth;</li> <li>Keep pace with the economic climate in the city and utilize appropriate tools to update regulations and policies;</li> <li>Redevelopment in the city should utilize all state and federal programs to assist in the city's revitalization.<sup>188</sup></li> </ul>
Development of Climate Change Adaptation Elements for Municipal Land Use Plans: Building Resiliency in Ventnor City, New Jersey	September 2014	Funded by the New Jersey Sea Grant Consortium as part of their 2014-16 Omnibus Research, the goal of the project was to create recommendations for the incorporation of climate change data, mapping, language, and actions into Ventnor's local land use planning documents and programs. Municipal officials provided initial wants and needs in the first project meeting in September 2014, including:  Relocation of the ball park out of the flood area Creation of an eco-preserve/public park in Ventnor West to aid in storm protection as well as offer an outdoor space for residents to enjoy the waterfront Green infrastructure/enhanced storm water management techniques, such as permeable pavement, throughout the town to aid in flood mitigation. This could be done through the Ventnor Green Team Improve CRS score (currently 7)

<sup>&</sup>lt;sup>186</sup> City of Northfield, *Master Plan Re-examination*, March 6, 2008, <a href="https://www.cityofnorthfield.org/pdf/MSTR\_PLAN\_2008.pdf">https://www.cityofnorthfield.org/pdf/MSTR\_PLAN\_2008.pdf</a>.

<sup>187</sup> City of Pleasantville, *Strategic Recovery Planning Report*, August 2014, <a href="https://www.nj.gov/dca/services/lps/SRPRs/Pleasantville\_SRPR.pdf">https://www.nj.gov/dca/services/lps/SRPRs/Pleasantville\_SRPR.pdf</a>.

<sup>188</sup> City of Pleasantville, *Master Plan Re-examination*, November 2015, <a href="https://pleasantville-nj.org/pdf/Master-Plan-Reexam-Final-2015.pdf">https://pleasantville-nj.org/pdf/Master-Plan-Reexam-Final-2015.pdf</a>.

Source	Date	Vision
Environmental Analysis and Communications Group, Rutgers University		<ul> <li>Collect info on BFE requirements of surrounding towns</li> <li>Recommendations on an update to the Zoning map to direct density and critical infrastructure out of repetitively flooded areas<sup>189</sup></li> </ul>
2016 Master Plan Re- examination  Ventnor	December 2016	Ventnor's General Municipal Goals include:  a. To encourage municipal action to guide the appropriate use or development of all lands in this State, in a manner which will promote the public health, safety, morals, and general welfare;  b. To secure safety from fire, flood, panic and other natural and man-made disasters;  c. To provide adequate light, air and open space;  d. To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the State as a whole;  e. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment;  f. To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies;  g. To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens;  h. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight;

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<sup>&</sup>lt;sup>189</sup> Environmental Analysis and Communications Group, Rutgers University, *Development of Climate Change Adaptation Elements for Municipal Land Use Plans:* Building Resiliency in Ventnor City, New Jersey, September 2014, <a href="http://eac.rutgers.edu/wp-content/uploads/Ventnor-Climate-Adaptation-Plan-9.8.15.pdf">http://eac.rutgers.edu/wp-content/uploads/Ventnor-Climate-Adaptation-Plan-9.8.15.pdf</a>.

Source	Date	Vision
		<ul> <li>i. To promote a desirable visual environment through creative development techniques and good civic design and arrangement;</li> </ul>
		j. To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of land;
		k. To encourage planned unit developments which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site;
		1. To encourage senior citizen community housing construction;
		<ul> <li>m. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land;</li> </ul>
		n. To promote utilization of renewable energy resources; and
		<ul> <li>o. To promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State</li> <li>Recycling Plan goals and to complement municipal recycling programs.</li> </ul>
ACCC Mission Statement  Atlantic Cape Community College	2021	Vision: Atlantic Cape Community College will be the region's preferred choice for higher education and professional training and a leading catalyst for economic and workforce development. The college will anticipate and fulfill regional educational needs, strengthen our community's economy, and partner with K-12 and higher education institutions to create seamless educational pathways and maximize student success. Pead more about ACCC's goals and Strategic Plan here.
Stockton Mission, Vision & Core Values Stockton University	2021	Vision: Stockton University will thrive as a distinctive regional institution, providing a diverse, values-based, student-centered environment of exceptional teaching and learning. As a community builder and partner in public service, Stockton University will remain committed to the positive development of New Jersey through scholarship and creative activity, civic engagement, and active stewardship. 191

<sup>190</sup> Atlantic Cape Community College, Mission Statement, accessed March 2021,
http://www.atlantic.edu/about/mission.php#:~:text=The%20college%20will%20anticipate%20and,pathways%20and%20maximize%20student%20success.&tex
t=Connect%20and%20engage%20students%20with%20opportunities%20to%20be%20successful.
191 Stockton University, Mission Statement, accessed March 2021, https://www.stockton.edu/president/mission-statement.html.

Source	Date	Vision
CRDA Mission Statement  Casino Reinvestment Development Authority	2020	The Casino Reinvestment Development Authority facilitates economic and community development in Atlantic City by leveraging its available assets and revenues with private investment capital to support redevelopment projects throughout the city. Supporting these efforts, the CRDA also oversees land use planning and clean and safe initiatives in the Atlantic City Tourism District. Concurrently, the CRDA continues its mission to attract visitors to Atlantic City by presenting world class entertainment events and conventions at Historic Boardwalk Hall, the Atlantic City Convention Center and other local venues. <sup>192</sup>
Aviation Innovation Hub	2021	Atlantic City Aviation District from Economic Opportunity Act Legislation  Atlantic City Aviation District from Economic Opportunity Act Legislation  Atlantic City Aviation District from    MALICA   100
Atlantic County Economic Alliance		Million Library AGSCON Technical Create
		Aviation District Atlantic City Int. Airport Authority Route US Route County Route

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<sup>192</sup> Casino Reinvestment Development Authority, *Mission Statement*, accessed February 2021, <a href="https://njcrda.com/about-us/mission-statement/">https://njcrda.com/about-us/mission-statement/</a>.

Source	Date	Vision
		193
New Jersey Long-Range Transportation Plan 2030  New Jersey Department of Transportation	October 2008	In 2030 advanced technology and changes in land use have made transportation in New Jersey more convenient and efficient than ever before, sustaining the state's strong economy and high quality of life. Public transportation is available to most destinations for those who don't have cars or choose not to drive. While congestion has not been completely eliminated from the state's roadways, highway travel is less frustrating and more reliable. Energy consumption and greenhouse gas emissions have been significantly reduced since 2008. In response to the enormous increase in the amount of freight moving through and within the state, the use of rail has been optimized, non-rush hour movements have increased, capacity along key truck corridors has been maintained and land use supports efficient freight distribution.
		<ul> <li>Highways in New Jersey are now "smart highways" that use ultra-wideband radar transponders built into the highway that communicate with sensors, receivers, and processors installed in cars and trucks.</li> <li>Public transportation has become an even more welcome alternative to driving. The multimodal, integrated network is seamless and borderless to the people who use it; travelers can move from one system to another at convenient transportation hubs where rail, bus, ferry and local community service options are available. Using a regional smart fare card for all travel needs, including parking, transit, transfers and tolls, makes all travel easier for everyone.</li> <li>Taking public transit to work and school, to shop, to attend to daily needs and to visit with friends and family takes less time than it did in 2008.</li> <li>Given a wealth of travel options and changes in land development patterns, New Jersey's citizens make fewer and shorter trips by car. A greater awareness of the implications of how they travel has led many to eliminate some trips through measures like compressed work weeks and teleconferencing, and to replace some car trips by walking and bicycling.</li> <li>Travel is particularly improved for people who have chosen to live in the numerous locations throughout the state where housing, schools and businesses are clustered together. These centers, created by local ordinances, make providing and maintaining infrastructure more cost effective.</li> </ul>

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<sup>&</sup>lt;sup>193</sup> Atlantic County Economic Alliance, *Aviation Innovation Hub – Garden State Growth Zone*, accessed February 2021, <a href="https://www.aceanj.com/aviation-hub/index.asp">https://www.aceanj.com/aviation-hub/index.asp</a>.

Source	Date	Vision
		New technologies and dependable, adequate funding sources for capital, operating and maintenance needs ensure the transportation system remains safe and in a state of good repair. 194
State Plan		Achieve all the State Planning Goals by coordinating public and private actions to guide future growth into compact, ecologically designed forms of development and redevelopment and to protect the Environs,
New Jersey Department of State,		consistent with the Statewide Policies and the State Plan Policy Map. The Plan must:
Office of Planning Advocacy		<ul> <li>encourage development, redevelopment and economic growth in locations that are well situated with respect to present or anticipated public services or facilities and to discourage development where it may impair or destroy natural resources or environmental qualities</li> <li>reduce sprawl</li> </ul>
		promote development and redevelopment in a manner consistent with sound planning and where infrastructure can be provided at private expense or with reasonable expenditures of public funds. (N.J.S.A. 52:18A-196, et seq.) <sup>195</sup>

<sup>&</sup>lt;sup>194</sup> NJ DOT, NJ Long-range Transportation Plan 2030, October 2008, <a href="www.state.nj.us/transportation/works/njchoices/pdf/2030plan.pdf">www.state.nj.us/transportation/works/njchoices/pdf/2030plan.pdf</a>.

<sup>195</sup> NJ Department of State, State Plan: Statewide Goals, Strategies and Policies, <a href="https://nj.gov/state/planning/assets/docs/2001-state-plan/stateplan030101b.pdf">https://nj.gov/state/planning/assets/docs/2001-state-plan/stateplan030101b.pdf</a>.

Appendix B—Community and Stakeholder Engagement Plan

# RESILIENT N



Atlantic County, Atlantic City, Brigantine, Pleasantville, Northfield, Ventnor City, Margate City, Longport, and the American Red Cross

Submitted by:















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Appendix B- Engagement Tracking Spreadsheets

Appendix C- Monthly Steering Committee (SC) Meeting Minutes

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Appendix E- Community Advisory Committee (CAC) Meeting Minutes

Appendix F- Focus Group (FG) Meeting Minutes

Appendix G- Public Meeting Minutes

Appendix H- Newsletters, Flyers, and Social Media

Appendix I- Introductory Meetings

#### **EXECUTIVE SUMMARY**

The intent of the community and stakeholder engagement strategy is to influence key decisions of the project, and to develop and enhance collaboration and relationships that will extend long after the completion of the plan as Actions are implemented and in the response to future disasters. Our engagement strategy will focus on answering the critical questions that will guide the Consultant Team towards each milestone in the planning process.

The Consultant Team will involve stakeholders that represent all aspects of the communities and the region, including residents, businesses, environmental advocates, institutions, youth, socially vulnerable populations, technical and community leaders. Our messaging will consistently focus on why this plan is so vital to the region.

The goal for this Community and Stakeholder Engagement Plan is to clearly outline the strategy, stakeholders, consistent messaging, the multiple layers of engagement, the identification and strategies for socially vulnerable populations, the key data to be obtained, milestones to be achieved, benchmarks and indicators to monitor the success of the engagement plan, the timing, type, and frequency of each engagement strategy, and the deliverables. The strategy is a layered approach that is consistent throughout the eighteen (18) months of the project. Our stakeholders will be organized as follows:

❖ Steering Committee (SC): One (1) decision member from each of the entities that make up the Steering Committee plus a Regional Coordinator will make up the ten (10) member Steering Committee; one member from each of the seven (7) municipalities (Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville), one member from the County (Atlantic County), one member from a Community Based Organization (the American Red Cross), and one (1) Regional Coordinator which is an individual that works with all the Steering Committee Members.

**Role and Responsibility:** To make final decisions about the Plan by considering feedback from all other stakeholders. Will assist with introductions to CAC and Focus Groups.

Frequency of Meetings: Monthly; 18 meetings;

❖ Technical Advisory Committee (TAC): Consists of leaders that have expertise in these communities on coastal resiliency, disaster response and recovery, economic recovery, transportation, utilities, tourism, coastal engineering, and funding agencies.

**Role and Responsibility:** Serves as a technical resource to review and provide technical feedback on the planning process and deliverables.

Frequency of Meetings: 2-3 meetings;

Community Advisory Committee (CAC): Made up of diverse community representatives from each of the seven municipalities, Atlantic County, and Community Based Organizations that represent socially vulnerable populations. Several nearby coastal communities that were not part of the original application are included on the CAC- Egg Harbor Township, Somers Point, Absecon and Linwood. The CAC members have a local knowledge of the various elements that have affected these communities after natural disasters, such as emergency response, flooding, crime, job loss, road closures, power shortages, loss of business activity, and infrastructure challenges.
Role and Responsibility: To provide local perspective and guidance, potential community challenges to planned scenarios, and advice on how to position actions to align with their

respective funding sources or future plans. The CAC will also advise the Steering Committee on the engagement strategies and project deliverables. It will review the outcomes of the stakeholder surveys and feedback collected at meetings to guide the final recommendation to the Steering Committee for the Actions and Implementation Strategies.

<u>Frequency of Meetings</u>:; 3-4 meetings; due to size of the CAC, the Consultant Team may supplement with stakeholder interviews of CAC members organized into smaller groups either by community, or by expertise with a mixture of members from the various communities;

Focus Groups (FG) Consists of members of the communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, and Atlantic County. Focus groups include Residents, Businesses, Environmental, Youth and Institutions, and Utilities. There will also be focus groups for socially vulnerable populations including low-income people, seniors, people with disabilities, and people with Limited English Proficiency (including immigrants). There are a total of nine (9) Focus Groups.

<u>Role and Responsibility:</u> To provide local perspective and guidance on community assets, needs, vision, potential community challenges to planned scenarios, and the actions that will have the greatest impact on their respective communities.

<u>Frequency of Meetings:</u> The Consultant Team will meet with each of the nine (9) Focus Groups twice, for a total of eighteen (18) Focus Group meetings. The first round of focus groups will take place during the asset mapping and visioning phase of the project which is in the February through May 2021 timeframe. The second round of focus groups will take place later on in the planning process to discuss scenarios and action plans in Winter 2022. In addition to meetings, the Consultant Team will send the Focus Groups invitations to surveys hosted on the website, invitations to add assets to the mapping tool on the website, invitations to Public Meetings, and the Focus Groups will receive newsletters.

In addition to the stakeholder meetings listed above, there will be Public Meetings, and a Project Website that hosts the mapping tool, surveys, opportunities for feedback, copies of newsletters, and access to virtual meetings. Social media blasts will also occur throughout the project and will use existing social media accounts of the Steering Committee since those accounts already have followers. All meetings and engagement will be used to guide the project towards each milestone. An Engagement Matrix is included that aligns every type of engagement with the following milestones:

- > Understanding what has been planned and where the gaps are (Planning Context)
- Understanding Community Needs, Risks, and Assets
- Establishing a unified Vision and Goals for the Region
- Reviewing and selecting Scenarios and Actions
- Aligning Actions with Funding
- Demonstrating how the Region will use the Plan

The engagement plan provides for consistent feedback and self-reflective evaluation opportunities for the Steering Committee and Consultant Team throughout the eighteen (18) month project and provides the framework for the Region to use the Regional Resilience and Adaptation Action Plan (RRAAP) as a guide to meet its Vision for a resilient future.

# I. INTRODUCTION

This Community and Stakeholder Engagement Plan will outline the multi-faceted Stakeholder Engagement Strategy for the Resilient NJ program for the communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, and Atlantic County. The goal for this document is to clearly outline the strategy, the stakeholders, the consistent messaging, the multiple layers of engagement, the identification and strategies for socially vulnerable populations, the key data to be obtained, the milestones to be achieved, the benchmarks and indicators to monitor the success of the engagement plan, the timing, type, and frequency of each engagement strategy, and the deliverables. Stakeholders need to understand their roles and responsibilities in the project, and how much time the Consultant Team is asking of them. This document clearly outlines their roles, responsibilities, number of meetings, and timing in a matrix. The plan will guide not only the project but will aid the communities and the technical leaders in the region in collaborating on the future actions. There also needs to be transparency on the Consultant Team's work, and the outcomes of the various engagement strategies; therefore, multiple layers of transparency are built into the strategy, including monthly Steering Committee Meetings and a website with multiple pages devoted to transparency in the process.

# a. Background

The **Resilient NJ** program is administered through the New Jersey Department of Environmental Protection's (DEP) Bureau of Climate Resilience Planning (BCRP) within the Climate and Flood Resilience Program to identify and implement innovative regional solutions to address vulnerabilities to increased coastal and riverine flood risk and other chronic challenges. Resilient NJ is an important piece of New Jersey's comprehensive efforts to make the state more resilient.

As part of the federal government's Hurricane Sandy recovery efforts, the U.S. Department of Housing and Urban Development (HUD) established the <u>National Disaster Resilience Competition</u> (NDRC), which made \$1 billion available to communities struck by natural disasters in recent years. The competition was designed to promote risk assessment, planning, and implementation of innovative resilience projects to better prepare communities for future storms and other extreme weather events. The competition was funded by Community Development Block Grant Disaster Recovery (CDBG-DR) funds provided by the Disaster Relief Appropriations Act, 2013 (PL 113-2). In January 2016, the State of New Jersey was awarded \$15 million as part of the competition. From that award, \$10 million will fund *Resilient NJ*.

The Regional Team consisting of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, Atlantic County, and the American Red Cross competed and was awarded grant funding to support the development and implementation of a community-driven Regional Resilience and Adaptation Action Plan by May 2022.

## b. Overview

In the last 10 years, the coastal Atlantic County region has experienced Hurricane Sandy, Nor'easters such as Jonas, and a worldwide pandemic. This Region remains the seaside gaming and resort capital of the East Coast, typically hosting more than 27 million visitors per year, making it one of the most popular tourist destinations in the United States. This Region boasts casinos, world class restaurants

and entertainment, conventions, a college campus, pristine beaches, and environmental treasures with back bays and wildlife refuges. The communities are resilient in their strength and have survived many disasters that resulted in chronic flooding, power outages, and the significant decline in tourism due to the COVID-19 pandemic.

Unlike other coastal areas of New Jersey, coastal Atlantic County is distinguished by its year-round population and urbanized area, with much of the region reflecting the economic center of Atlantic City. This Region has adapted repeatedly. However, with each shock there is an effect on the local economy and community infrastructure. The needs of the communities after these disasters are both social and structural. Even though Sandy was a coastal event and the pandemic a health event, the aftermath of both resulted in similar challenges with thousands of displaced families, mental and physical health effects, and disrupted work, school, and living. This Region has some of the most economically distressed communities in New Jersey. In Atlantic City and Pleasantville, 40 percent and 23 percent of the population are below the poverty line, respectively. The closure of casinos, lack of diversity in the regional economy, and seasonal nature of many businesses are major chronic challenges that threaten the region's resilience. Addressing infrastructure improvements without increasing taxes on property owners is an added challenge, specifically when the pandemic has further stressed municipal and county budgets. This timely plan is vital to assist recovery and preparedness for the next coastal and natural disaster.

## c. Engagement Strategy

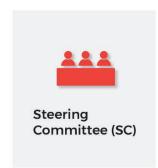
The Engagement Strategy is a layered approach that is thorough and consistent throughout the eighteen (18) months of the project. The intent is to develop collaboration and relationships that will extend long after the completion of the plan, as the actions are implemented and in the response to future disasters. The Consultant Team will involve stakeholders that represent all aspects of the communities and the region, including residents, businesses, environmental advocates, institutions, youth, socially vulnerable populations, technical and community leaders. The messaging will consistently focus on the shared resilience goals of the region and why the RRAAP is so vital to meeting those goals. The engagement strategy will focus on answering the critical questions that will guide the Consultant Team towards each milestone in the planning process:

- What are the assets in the Region that we need to protect?
- ❖ What are the critical environmental, social, cultural, and infrastructure assets in the Region?
- What are the most important assets in the Region?
- What are the areas of risk?
- What are the social and structural impacts and the needs of these communities after a disaster?
- What already has been planned to address these impacts and these needs?
- Where are the gaps?
- ❖ What are the Region's vision and goals for resilience for the future?
- What methods or scenarios do these communities favor to achieve this vision of resilience and goals?
- What actions should be implemented for a more resilient future?

# II. IDENTIFY STAKEHOLDERS

The Steering Committee consists of seven (7) municipalities (Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville), one (1) County (Atlantic County), and one (1) Community Based Organization (the American Red Cross). The Stakeholders represent all aspects of the seven (7) communities, the County, and the community-based organizations of the region, including residents, businesses, environmental advocates, institutions, youth, socially vulnerable populations, technical and community leaders. The various stakeholder bodies present opportunities for feedback, guidance, and peer-to-peer collaboration and learning opportunities.

#### **ENGAGEMENT PLAN**





Technical Advisory Committee (TAC)



Community Advisory Committee (CAC)



Focus Groups (FG)

# a. Steering Committee

## i. Roles and Responsibilities

The seven (7) municipalities along with the American Red Cross and Atlantic County have signed agreements and worked towards this effort for almost two (2) years. One (1) decision member from each of these entities that make up the Steering Committee plus the individual that wrote the grant will make up the ten (10) member Steering Committee. The role and responsibility of the Steering Committee is to make final decisions about the Plan. It shall consider the feedback from the Technical Advisory Committee (TAC), Community Advisory Committee (CAC), Focus Groups, Socially Vulnerable Populations, and the General Public to guide its final decisions.

## ii. List of Members

See Appendix A, Table 1 – Steering Committee
See Appendix C- Monthly Steering Committee Meeting Minutes

## b. Technical Advisory Committee (TAC)

#### i. Roles and Responsibilities

The Technical Advisory Committee (TAC) will serve as a resource to review and provide technical feedback on the planning process and deliverables. The TAC consists of Regional, State, and Federal Agency leaders that have expertise in these communities on coastal resiliency, disaster response and recovery, economic recovery, transportation, utilities, tourism, land use and planning, coastal engineering, agencies that focus on housing, health, human, and social services, and funding agencies. By grouping these highly technical and diverse leaders in one group, they will be able to share their feedback on what has already been planned in the region and where the gaps and risks are,

technical guidance and challenges to planned scenarios, and advice on how to position actions to align with their respective funding sources and/or future plans.

# ii. List of Groups/Members

See Appendix A, Table 2 – Technical Advisory Committee
See Appendix D- Meetings with Technical Advisory Committee (TAC) Members

## c. Community Advisory Committee (CAC)

## i. Roles and Responsibilities

The Community Advisory Committee (CAC) is made up of community representatives from each of the seven municipalities, Atlantic County, and Community Based Organizations that represent socially vulnerable populations. Several nearby coastal communities that were not part of the original application are included on the CAC: Egg Harbor Township, Somers Point, Absecon and Linwood. The CAC members have local knowledge of the various elements that have affected these communities after natural disasters, such as emergency response, flooding, crime, job loss, road closures, power shortages, loss of business activity, and infrastructure challenges.

The role of the CAC is to provide local perspective and guidance, potential community challenges to planned scenarios, and advice on how to position actions to align with their respective funding sources or future plans. The CAC will also advise the Steering Committee on the engagement strategies and project deliverables. The CAC will review the outcomes of the stakeholder surveys and feedback collected at meetings to guide the final recommendation to the Steering Committee for the Actions and Implementation Strategies. The Steering Committee will make recommendations for CAC members. The Steering Committee and the Consultant Team is responsible for ensuring diverse representation and representation of socially vulnerable populations in the CAC and all advisory committees.

Additionally, due to the size of the CAC, the Consultant Team may supplement with stakeholder interviews of CAC members organized into smaller groups either by community, or by expertise with a mixture of members from the various communities.

## ii. List of Groups/Members

See Appendix A, Table 3- Community Advisory Committee (CAC)
See Appendix E- Community Advisory Committee (CAC) Meeting Minutes

#### d. Focus Groups

## i. Roles and Responsibilities

The Focus Groups will consist of members of the communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, and Atlantic County. Focus group members will be required to be residents or individuals that work in the communities. Focus groups will include businesses/employers, environmental organizations/advocates, utilities, and multiple residential groups including homeowners, homeowner associations, renters' associations, and socially vulnerable populations. The focus groups for socially vulnerable populations, include low-income people, seniors, people with disabilities, people with Limited English Proficiency, and youth and institutions that serve youth (colleges, schools). The Focus Groups' role is to provide local priorities that will

drive the plan on community assets, needs, vision, potential community challenges to planned scenarios, and the actions that will have the greatest impact on their respective communities. Information gathered from focus group meetings, and public meetings will be captured in a memo that will be shared with the Steering Committee to inform decision making during the planning process. Ultimately, the Steering Committee makes the final decisions and will be looked to as stewards of the Action Plan after the HUD-funded consultant services end in May 2022. The Consultant Team will also provide briefings on the focus group outcomes to the Steering Committee and NJDEP staff.

See Appendix F- Focus Group (FG) Meeting Minutes

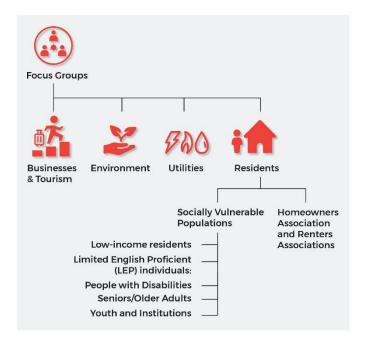
#### ii. Recruitment

The engagement team will work with local community-based, nonprofit, and other relevant organizations to identify and recruit participants for these focus groups. Using a survey instrument like Qualtrics the engagement team will develop an online recruitment screening questionnaire. This questionnaire will be available in English and Spanish and will be linked directly to the project website, and available to the local organizations assisting with focus group recruitment to distribute to potential participants. The screening questionnaire will include the following questions:

- Age
- Race
- Ethnicity
- Primary language
- Level of English Proficiency (for Spanish version)
- Income
- Township of residence
- Do you have a physical or mental disability?
- Are you an employer? If so, please provide the name of your organization or business?
- Are you a member or an officer of a local environmental organization?
- Do you belong to a homeowners or renters association? If so, which one?
- Are you a seasonal resident or year-round resident?

Once a potential participant fills out the screening questionnaire, they will be contacted by a member of the Consultant Team to discuss participation in the focus group and ensure that the potential participant understands the time commitment and nature of involvement in the project. Final selection of focus group participants will be made once the recruitment phase has concluded. The Consultant Team will strive to create balanced and diverse cohorts for each of the focus groups, providing a mix of age, gender, geography and income levels as appropriate for each group.

#### iii. List of Groups/Members



#### 1. Businesses and Tourism

The Consultant Team will engage major employers, the local Chambers of Commerce from each municipality, the Casino Reinvestment Development Authority (CRDA), local unions, local Workforce Investment Boards and other employment services offices, as well as organizations involved in tourism and advertising, such as Meet AC and the local newspapers. In addition, the focus group will include representatives from both the seasonal labor force and year-round employers.

See Appendix A, Table 4 – Businesses and Tourism

See Appendix F- Focus Group (FG) Meeting Minutes

#### 2. Environmental

The Consultant Team will engage the local environmental organizations and leaders, including Surfrider Foundation, the local green teams, coastal and watershed coalitions, and non-profits like Sustainable Jersey, Association of New Jersey Environmental Commissions (ANJEC), and NJ Future.

See Appendix A, Table 5 - Environmental Organizations

See Appendix F- Focus Group (FG) Meeting Minutes

#### 3. Utilities

The Consultant Team will engage the utility companies that service the Region. It should be noted that Atlantic City Electric (ACE), Atlantic City Municipal Utilities Authority (ACMUA), and South Jersey Gas all have their headquarters within the project area. Having these major service providers in the same focus group will enable pertinent discussions on risks as well as collaborative actions.

See Appendix A, Table 6 – Utilities

See Appendix F- Focus Group (FG) Meeting Minutes

#### 4. Residents

Along with the focus groups and targeted outreach, the Consultant Team will also reach out to a broad range of people to get a comprehensive view of the opinions, concerns, experiences, and insight of the region. Homeowners associations, renters, and Housing Authorities will serve as one of the focus groups. Other focus groups will encompass senior organizations, youth organizations, and multiple socially disadvantaged residential populations. The goal of this network is to connect with residents in the area who do not necessarily have institutional power so that their voices are heard. When screening participants for focus group, the project team will ensure that the group includes diverse representation of age, income, race, ethnicity, as well as seasonal and year-round residents.

See Appendix A, Table 7 - Homeowners Associations and Renters Associations

See Appendix A, Table 8 for Socially Vulnerable Focus Groups

See Appendix F- Focus Group (FG) Meeting Minutes

Our outreach to socially vulnerable residents is outlined in Section E below, which includes five (5) additional focus groups for residents.

#### a. Homeowners and Renters Associations

Meeting with Homeowners Associations and renters' associations is one way to connect with residents in the area who do not necessarily have institutional power so that their voices are heard. It is envisioned that the membership of these associations will have a mix of seniors and diversity from the various communities throughout the region.

## b. Socially Vulnerable Populations

i. Low-income residents: Low-income residents have unique vulnerabilities to any hazard or disaster, including rising sea levels, extreme hot and cold temperatures and intense storms. These residents face disproportionate burdens. For environmental hazards—whether from power plants, toxic waste, or landfill sites—are often built alongside low-income neighborhoods and communities of color, creating additional risks during and after extreme storms and flooding. In addition, an extreme weather event may exacerbate financial insecurity for these residents, as lost wages and other financial hardships are more likely to push already struggling families into poverty. The project team will work with community-based organizations in the region to recruit low-income residents to participate in small group meetings to discuss their unique needs and concerns pertaining to resiliency planning. The project team will ensure that the selection of residents for these

discussions aligns with the demographic make-up of the low-income population of the Region to ensure that differing perspectives are well-represented.

- ii. Limited English Proficient (LEP) individuals: Language barriers may prohibit people who are Limited in English Proficiency (also known as LEP persons) from obtaining information or participating in planning process. To ensure that the perspectives of these residents are included in this project, the project team will work with local community-based organizations and English as a Second Language (ESL) classes to identify and recruit residents to participate in small group meeting to discuss their needs and perspectives on resiliency planning. This group may include immigrants from a variety of countries, though the majority are likely to be Spanish-speaking, and these meetings can be conducted in Spanish or English, depending on the level of language proficiency. The project team may work with local ESL instructor to conduct discussions at a language level appropriate for the participants. Publicly available information will be offered in multiple languages.
- iii. People with Disabilities: Residents with physical or mental disabilities have unique needs and vulnerabilities pertaining to housing, transportation, and medical care, and they often rely heavily on social and support services. Often these individuals are also heavily reliant on caregivers to facilitate their needs, coordinate services, and assist them with day-to-day tasks. The project team will convene small-group meetings of people with disabilities and their caregivers, as needed, to ensure that the needs of this unique population are adequately represented in the resiliency planning process. The Consultant Team will work with social services organization in the region to identify and recruit residents to participate. This focus group will include those with physical and mental disabilities. Due to COVID the first meetings will be virtual, however, once it is safe to meet in person, any in-person meetings will take place only in locations with ADA access.
- iv. Seniors/Older Adults: Resilience planning must also consider the unique needs of older adults. Not only do these residents have unique challenges relating to health, transportation, and housing, but they are often isolated and face challenges of communication, limited awareness of resiliency and preparedness, and economic limitations. The Consultant Team will work with community-based organizations, senior centers, and other social services organizations that work with older adults to recruit participants for this focus group. Every effort will be made to ensure a diverse selection of participants in this age group.

v. Youth and Institutions: The Region is home to diverse populations, including a concentration of youth. Given the nature of resiliency planning to make changes in the long-term, children, teens, and young adults will be most affected by the decisions made now. They are an important group from whom the Consultant Team wants to receive feedback and input as well as inform and keep up-to-date on the work of the Consultant Team. Young people and parents of young people can provide feedback on chronic challenges, community assets, and other topics that may be exclusive to their perspectives and experiences. Participation in the development of the Regional Resilience and Adaptation Action Plan may look different for youth. People under 25 are often not engaged in homeowners' associations, businesses groups, or other groups that are traditionally contacted for public engagement. The list of organizations in Table 8 will help to bring youth stakeholders into the process. By reaching out to these organizations, the Consultant Team hopes to establish a connection to youth, parents, and youth-focused organizations in the Region. It is also important to note that climate change is mandated in New Jersey curriculum, so the schools and Boards of Education are included in this focus group, which will help to clarify opportunities where Actions can fit in the curriculum.

#### e. General Public

In addition to the stakeholder meetings listed above, there will be three (3) Public Meetings. The Public Meetings will be hosted virtually on Zoom or a similar platform with the option to call in. The Consultant Team will present information and seek feedback, which may include using polling, breakout rooms, and brainstorming platforms like PollEverywhere to better replicate smaller group discussions that occur with in-person public meetings. Information gathered from public meetings will be captured in a memo that will be shared with the Steering Committee to inform decision making during the planning process.

The Project Website will host the mapping tool, surveys, opportunities for feedback, copies of newsletters, and access to virtual meetings to engage the general public. Social media blasts will also occur throughout the process and will use existing social media accounts of the Steering Committee because those accounts already have followers. All public meetings and engagement will be used to guide the project towards each milestone:

#### Meeting 1-

- ❖ What are the assets in the Region and Why are they critical
- Understanding Community Needs, Risks, and Assets; including what happened during past events and why
- Establishing a unified Vision and Goals for the Region

#### Meeting 2-

- Reviewing and selecting Scenarios and Actions
- Aligning Actions with Funding

#### Meeting 3-

Presenting the Preferred Scenario

See Appendix G- Public Meeting Minutes

# III. RAISE AWARENESS

## a. Brand the Message

The Consultant Team will work with the Steering Committee to develop a brand that will clearly resonate with the communities in the Region. This will make it easy for the public to identify information about this project whether it is shared through the project website or through the social media channels of community leaders. The Consultant Team may consider a project hashtag as part of branding the message that will make finding information about the project on social media sites easier. Participants in the SC, CAC, and FG will be asked if their communities would benefit from non-digital flyers in English and Spanish. If so, flyers will be produced and provided in paper form to these individuals to distribute or place in appropriate locations like libraries, community centers, and senior centers.

See Appendix H- Newsletters, Flyers, and Social Media

#### b. Initial Contact

After the Kick-off meeting, the Consultant Team will request that the Regional Team review the Stakeholder list and designate one (1) decision maker from each Regional Team member community or organization (nine (9) in total including the seven (7) municipalities, the one (1) County, and the American Red Cross) and that that those nine members make the final decisions on the membership from the respective communities for the CAC and TAC. The tenth member of the Steering Committee will be the individual that wrote the original grant and has worked with all the entities that make up the Steering Committee. The Consultant Team will ask that the CAC be reviewed for diversity of membership so that it truly is a representation of the region. The Consultant Team will also request the Steering Committee assist in making those introductions so the Consultant Team are not cold calling. The Consultant Team also envisions a one (1) hour introduction meeting with each of the Steering Committee members and their respective CAC members that will occur before the first collective CAC and TAC meetings. The goal of this first one-on-one meeting will be to review the engagement plan and gather their one-on-one feedback on whether the engagement plan sufficiently addresses the following for their respective community:

- ❖ Is the community you are part of or are representing reflected in this plan? In what ways might the representation of your community be improved in the plan?
- Are the strategies outlined in this plan consistent with strategies you have seen work well in your community? What might be missing?
- Are there local individuals, groups or informal efforts and entities (such as mutual aid groups) that would be important to include?
- Are there any aspects of this plan that stand out to you as particularly effective or particularly needing improvement?

The Consultant Team will also review the CAC and Focus groups for diversity and to determine if the correct members are included to represent the community. The Consultant Team will also gather feedback on branding.

See Appendix I- Introductory Meetings

## c. Staying Connected

The Team will use several online methods for sharing information throughout the project, including a project website, social media, monthly newsletters to the Steering Committee, TAC, and CAC, and quarterly newsletters to all focus group members.

#### i. Website

With virtual engagement being the main method until further notice, the project website will be especially important as a hub of information and engagement. The website will include the following pages:

- **❖** Website (see Figure 1):
  - Main page (about)
  - Crowdsourcing visual mapping tool for community assets
  - Comment form (WSP CommentSense tool)
  - Initial Survey (by adding an initial survey the Consultant Team could raise awareness by having the Steering Committee members, CAC, and TAC respond to the initial survey) the Consultant Team could also consider social media posts to provide to the Steering Committee members to post on their existing social media channels that link to the survey and drive awareness of the project.
  - Sign-up for emails for newsletters, surveys, and meetings which automatically populates to CommentSense.

The website will be web-based platform for engagement, , data storage and retrieval, and the GIS-based mapping tool (geodatabase) to support asset collection.. The crowd-sourced mapping tool will provide user groups the means to provide input on assets and solutions.



Figure 1- Phase 1 website (Splash Page)

#### ii. Social Media

Due to COVID-19, our engagement will be mainly virtual. Social media will be a key component for increasing engagement and sharing information about events, surveys, and the project.

The Consultant Team generally finds that it is difficult for a project to gain a significant social media following with project-specific social media channels. The Consultant Team will therefore rely on the Steering Committee, TAC, and CAC and connections with other officials, community leaders, and advocates who can share social media messages the Consultant Team has drafted. The team will maintain a list of partners who have social media platforms and/or newsletters that may be used for project announcements and updates. Social media updates will be sent out to this list on a regular basis.

Visuals will be an important part of social media advertising because posts with images garner more attention than those without and because sites like Instagram, popular with the younger demographic the Consultant Team seek to engage, require an image for every post. The Consultant Team may consider a project hashtag as part of branding the message that will make finding information about the project on social media sites easier.

See Appendix H- Newsletters, Flyers, and Social Media

#### iii. Newsletters

The Team will create newsletters that include information about the project's status, upcoming milestones, upcoming meetings, schedule, and exhibits. This will be sent to all stakeholders that have signed up to receive communications about the project and posted on the website. This newsletter will be less technical and written at a level that is easily understood by the public. The newsletter will be sent to all Focus Groups via email, will be posted on the Project Website, and will be linked to social media posts that are distributed to the Steering Committee members to post on their respective social media accounts.

See Appendix H- Newsletters, Flyers, and Social Media

# IV. LISTEN AND ENGAGE

The Consultant Team will engage first in a Listening Phase. Through listening to the communities and their stakeholders, the Consultant Team can identify the chronic challenges that are weakening the fabric of communities within the Region. These chronic challenges may include flooding, available transportation, traffic congestion, basic needs, crime, jobs, infrastructure, communication, and representation. These chronic challenges become exacerbated when the community and/or region is impacted by a shock, like a hurricane, a natural event, an outbreak, or an attack, and can be a weakness in its ability to bounce back from a disaster.

## a. Key Data to be Obtained from Outreach

Sharing knowledge is vital to developing a Regional Resilience & Adaptation Action Plan that properly addresses the needs and creates best-fit solutions in the communities within the region. With such sharing, an Action Plan will succeed in addressing and identifying the communities' vulnerabilities to increased risk while positioning them for future benefits through adaptation and building in flexibility/adaptive capacity. Risk reduction and building adaptive capacity includes identifying path dependencies created through practices, policies, methods that in turn harm the

communities over time: for example, infrastructure that relies on greenhouse gas emitting resources for power or other functions. The Consultant Team will create and accelerate a set of outcomes based on the decision to design a system to run on specific resources, such as carbon-free renewable generation. Key data that will be collected throughout the project include:

- Chronic challenges within the community (past and current trauma, flooding, available transportation, traffic congestion, basic needs, crime, jobs, infrastructure, communication, representation, etc.)
- Locations and functions of community assets, especially those not typically identified in public asset collections (informal community meeting areas, popular fishing or surfing spots, cultural assets, etc.). An asset does not necessarily have to be physical. It can be a service (e.g., addiction recovery support group) that is not tied to a physical location for its service.
- Areas of vulnerability and high risk
- Current or future local resilience initiatives
- Potential resilience initiatives (including ideas of what the initiatives should be; Initiatives people know about; Personal investments in enhancing individual / household resilience, etc.)
- Feedback on vision and goals
- Feedback on scenarios
- Feedback on actions

## b. Aligning Key Milestones with the Tasks of the RRAAP

Public engagement will continue throughout the entire process. It will be aligned with key milestones as described below.

# i. Community Assets

The Community Assets will be collected in the following forms of outreach:

- > The website will both have a mapping tool for Community Assets and survey questions. The Team will collect information about community assets on a map that will allow the public to add information.
- Social media posts will be used to drive traffic to the website to use the tool and answer survey questions.
- The Planning Documents that are reviewed will have assets listed; these assets will be vetted with the TAC and CAC for gaps.
- Community assets will also be a topic in the Steering Committee meetings, TAC and CAC meetings, in focus groups, stakeholder interviews, and surveys.
- The first public meeting and the first focus group meeting will be used to collect information about important community assets and their roles in the community.

The key questions to be answered through the public engagement process are:

- What are the assets in the Region that we need to protect?
- Why are they important to you and to your community?

These questions will seek to determine key community assets, critical infrastructure, and major employment centers. Assets can range from infrastructure to economic drivers, cultural, and beyond. An asset does not necessarily have to be physical. It can be a service (e.g., addiction recovery support group) that is not tied to a physical location for its service. The goal is to determine what the residents and regional leaders perceive as having the most impact to their communities post-Sandy, what they perceive as having

the most impact during the pandemic, and what factors they believe are the biggest risk to their communities if they were to encounter another natural disaster. The Consultant Team will anticipate that these assets will include critical infrastructure, employment centers, and community gathering locations. Information gathered from public meetings will be captured in a memo that will be shared with the Steering Committee to inform decision making during the planning process. Ultimately, the Steering Committee makes the final decisions and will be looked to as stewards of the Action Plan after the HUDfunded consultant services end in May 2022.

## ii. Visioning

The first public meeting and first meeting with each of the focus groups will include a visioning exercise to solicit feedback on the general direction of communities and the region against the background of their understanding and appreciation of current and future risks. The Team will bring visions that have been developed through community feedback during Task 1, vet if these vision statements still ring true, and collaborate on creating a common vision for this project. This is an important step in the community engagement process and is directly tied to the identity of the Region and how it wants to evolve in the future. To this end, the Team will visualize different "futures" and make transparent the characteristics and decision-making processes that drive conditions in each of those futures. In addition to the broad-based public meetings, the Vision will also be vetted through the multiple layers of engagement:

- The first meeting with each focus group will gather feedback on Vision and Goals for their Community
- The Vision and Goals will be vetted through the SC for feedback
- Based on the size of the CAC, the Consultant Team may use stakeholder interviews in smaller groups within the CAC to get more intimate feedback on the Vision and goals
- The final Vision and Goals will be decided by the Steering Committee based on the feedback of the CAC, public meetings, and Focus Group meetings.
- Social media posts will be used to announce the Vision and elicit feedback; the posts will also drive more users to engage.

#### iii. Scenarios

Once the scenarios have been developed, the Team will review the scenarios with the Steering Committee, SC, TAC, and CAC. After they are fully vetted the Consultant Team will present the scenarios to the Public as follows:

- A second survey may be posted to the website to gauge preferred scenarios and actions
- > The second public meeting will focus on feedback on scenarios and actions
- The second meeting with each of the nine (9) focus groups will focus on scenarios and gather feedback on potential actions
- Social media posts drive feedback to the survey

After comments and feedback is received, the Steering Committee will select its preferred scenario.

#### iv. Actions

With the feedback from previous meetings, the Team will develop a set of actions to achieve the desired scenario. The Team will solicit feedback from the SC, TAC, and CAC and present these actions to the Public to collect feedback as follows:

- Although the website can be used to host the Action Plan chapter or matrix of the Regional Resiliency Adaption and Action Plan (RRAAP), it is likely that it will be very long. Thought will have to be given on how to organize the Action Plan Matrix so that it can be shared and feedback obtained to prioritize actions. One option is to ask the public to respond with their support of the actions on a Likert-style scale.
- A survey may be posted to the website to gauge preferred actions
- ➤ Public Meeting #2 will gather feedback on Scenarios and Actions;
- The second meeting with each of the nine (9) focus groups will focus on feedback on potential scenarios and actions
- Social media posts will drive feedback to the survey

# v. The Final Regional Resiliency and Adaption Action Plan

The Final Regional Resiliency and Adaption Action Plan (RRAAP)will be vetted with the SC, TAC, and CAC. The final Public Meeting #3 will present the Preferred Scenario.

#### c. COVID-19 Considerations

It is likely that meetings will remain virtual through the project. The meetings will be conducted on a virtual platform (like Zoom) and could make use of features like polling and breakout rooms to allow for smaller group discussions. These meetings could also use online tools like online charettes, PollEverywhere, Stormboard, or others, which allow for online collaborative brainstorming.

The Team may consider attending virtual and/or in-person Civic Events subject to COVID-19 safety guidelines. Outreach at in-person Civic Events often occurs at a booth or table at a popular event like the Downbeach Annual Hurricane Preparedness Meeting, a street fair, community festival, or open-air market. It can also occur at sports games and other less formal events, which can be especially beneficial for engaging individuals and families less likely to attend an event. Event tables could include easy interactive activities, informational postcards, free giveaways, and branded props for "Instagram-able" selfies. Outreach at virtual events would take place at previously planned meetings of groups and organizations. This may include a short presentation and/or brief plug for individuals to take a survey or add to the map on the project website.

# d. Targeted Outreach Activities

The Team will conduct targeted outreach activities including focus groups and methods to make engagement accessible for Socially Vulnerable Populations.

### i. Focus Group Meetings

Focus groups include Business, Environmental, Utilities, Resident Homeowner Associations, Low-Income, People with Disabilities, Youth, Seniors, and People with Limited English Proficiency.

The role of the Focus Groups will be to provide feedback at two (2) key milestones of the project. The Consultant Team will provide the focus group members with the stakeholder

questions in advance of the first meeting so that they can meet with their respective organizations for feedback in advance of the meeting. At the meeting the Consultant Team will discuss their responses to the stakeholder questions.

For the first meeting, the questions will focus on what community assets are important to them and why (questions will seek to determine key community assets, critical infrastructure, and major employment centers), what they perceive as having the most impact to their communities post-Sandy, what they perceive as having the most impact during the pandemic, and what factors they believe are the biggest risk to their community if they were to encounter another natural disaster. The Consultant Team anticipates that these chronic challenges and shocks will include both natural hazards and socioeconomic concerns. For the first meeting the Consultant Team will also cover their Vision and Goals for their Community and discuss potential actions that they think could help their community. The Consultant Team will start reaching out to Focus groups in February 2021, and this first meeting will occur in February through May 2021.

The second meeting with the Focus Groups will occur in Winter of 2022, when the Consultant Team will test and review scenarios and Actions with the Focus Groups. This will allow the plan to be much further along and will give time between the meetings with the Focus groups for the groups to have participated in surveys and public meetings along the way. This second meeting will give them a smaller setting to share their feedback on these critical items in the development of the RRAAP.

#### ii. Socially Vulnerable Populations

Identifying and engaging Socially Vulnerable Populations is key to successful engagement in this region. Socially Vulnerable Populations are defined as low-income people, people with limited English proficiency, elderly persons, and people with disabilities.

Atlantic City and Pleasantville are both majority-minority populations with 40 percent and 23 percent of the population living below the poverty line, respectively. Ventnor City is racially diverse with a large Hispanic and Asian population and a higher median income than Atlantic City and Pleasantville. Longport, Margate, and Brigantine have large senior populations (65+): 43%, 39%, 29%, respectively. Though a smaller overall population, Atlantic City also has concentrations of seniors. Including representatives of Socially Vulnerable Populations on the Community Advisory Committee (CAC) is key to ensuring continuous engagement and feedback from these communities.

#### 1. Use of GIS

The Team will conduct a multi-layered GIS mapping analysis to identify traditionally disadvantaged populations and layer information about local assets and climate risks. Updated with the most recent data available, the Together North Jersey Fair Housing and Equity Assessment (FHEA) "communities of concern" methodology will be considered as the basis for the analysis. This analysis defines communities of concern as: minority, poverty, female head of household with children, carless households, people with limited English proficiency, elderly persons, and people with disabilities. The Team will work with the Steering Committee and CAC to determine communities of concern for the Region.

Additionally, the project team will apply a methodology to identify "areas of environmental concern" related to resilience within the study area based on the stated priorities of the project management team and steering committee, as well as available data. The consultant team will use NJDEP Guidance on Environmental Justice (https://www.nj.gov/dep/ej/docs/furthering-the-promise.pdf).

#### 2. Making Engagement Accessible

It will be important to identify trusted community leaders that can assist in sharing information about the project with their communities. These leaders may include leaders of organizations or agencies, faith leaders, advocates and activists, and others with the trust of their community.

The Team will share information about engagement activities like surveys and public meetings at places frequented by identified Socially Vulnerable Populations. For flyers, these locations include grocery stores, libraries, community centers, bus stops, and bulletins in apartment buildings and senior homes in neighborhoods identified in our GIS analysis. For online advertising, messages about the project will need to be shared by trusted community leaders on social media, organization newsletters, and text chains and by news outlets specific to these communities.

For the public meetings, it will be important that these meetings are accessible. For virtual meetings, that includes having a call-in option, as not all people have internet access; holding meetings at varying times to account for shift workers; and ensuring that the presentation is accessible to those who cannot see the screen but are only listening. This may also include translation, either live translation or captions added onto the recorded meeting. Concern about the digital divide is mainly focused on seniors, as the school districts have made a huge effort to get families with children connected due to virtual school.

For in-person meetings, accessibility includes holding meetings at varying times and/or using open house format that allow individuals to attend when convenient for them; using transit-accessible and ADA-accessible locations in central locations in the community; and having activities for children so that families can attend.

#### 3. Translation Needs

There is a need for Spanish, Hindi, Vietnamese, and Tagalog (Filipino) translation of the website, surveys, and other public engagement materials. About 16 percent of households in Atlantic City and 11 percent in Pleasantville have Limited English Proficiency, meaning they speak English less than "very well." About 24 percent of total households in Atlantic City and 36 percent of households in Pleasantville speak Spanish at home. The Steering Committee also can assist in identifying which languages are prominent.

#### e. Timeline

The project commenced in October 2020 and will extend through November 2022 (originally May 2022, but was extended 6 months). The Public Engagement Matrix, outlines the timing of each type of engagement strategy. The Public Engagement Matrix can be found on page 23-24 of this report.

## f. Matrix of Public Engagement

The Matrix of Public engagement outlines the Type of Engagement, Goal of Participation, Number of Meetings, and Methods of Engagement. Collaboration is key in this project to ensure that the valuable knowledge of the local community is included in the Regional Resilience & Adaptation Action Plan (RRAAP).

The Consultant Team will identify Community Champions who will be influential in helping with engagement throughout this planning effort, helping with engagement when the projects move into implementation, and carrying projects forward. Community Champions are individuals with the influence, knowledge, and ability to connect with community groups that help with engagement and/or carrying projects through to the finish line. They are the consistent community leaders that can both help during the planning process and act on the plan once it is completed.

The Consultant Team will collaborate with the SC, TAC, CAC, FGs, and the General Public to develop the Regional Resilience & Adaptation Action Plan. Feedback received on community assets visioning, and scenarios throughout the process will be used to further each step of the plan and identify and develop Actions recommend in the Plan.

The Consultant Team will identify Community Champions that will be able to carry forward specific actions. This will be included in the Regional Resilience & Adaptation Action Plan. Our last Public Meeting and the final meetings with the SC will focus on utilizing the RRAAP to carry actions forward and will demonstrate how the plan has already been put into Action in Q1 of 2022.

RAISE AWARENESS	LISTEN & ENGAGE	EVALUATE	COLLABORATE	EMPOWER
Provide the public with balanced and objective information to assist them in understanding the problem, alternatives and /or solutions	Obtain public feedback on analysis alternatives and/or decisions	Measure performance through benchmark and indicators	Engage public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	Partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution
We will develop brand that will clearly resonate with the communities in the Region  We will designate decision maker from each Regional Team member community or organization  We will share information through project website, social media, monthly newsletters	We will gather data on community risks, stressess, and vulnerabilities by listening to the communities and their stakeholders  We will align key milestones with the tasks of the plan and the public engagement will continue throughout the process	We will review past planning studies and gauge our success in the on the benchmark of various strategies and engagement  We will monitor and evaluate our success for each method of engagement and continually refine our strategies by monitoring the feedback	We will identify Community Champions to connect with community groups. The community champions can both help during the planning process.  We will collaborate with the SC, TAC, CAC, FGs, and the General Public to develop the Regional Resilience & Adaptation Action Plan	We will identify Community Champions that will be able to carry forward specific actions.      We will focus last public engagement meeting on utilizing the RRAAP to carry actions forward

The Matrix of the following page clearing identifies the number of meetings and timing so that it is clear to all participates how the engagement strategy will drive the project to each milestone.

Table 1- Engagement Plan Matrix

Туре	2020 2021					2022													
of Engagement	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb	Mar	Apr	May- Nov
Steering Committee		One on One Meetings	Mtg. 1	Mtg. 2	Mtg. 3	Mtg. 4	Mtg. 5	Mtg. 6	Mtg. 7	Mtg. 8	Mtg. 9	Mtg. 10		Mtg. 11	Mtg. 12	Mtg. 13	Mtg. 14	Mtg. 15	Mtgs 16-18
(sc)	Kick- off Mtg. / Site Visit	Review Draft Engageme nt Plan	Review Survey/ & Community Assets	Review Input on Community Assets/ Needs Assessment	Review Visioning To Date from Planning Docs	Review Draft Assets/ Risks Report & Planning Context	Verify Key Resilienc e Themes & Review Public Meeting Objective s	Review Outcom e of Public Meeting	Draft Vision and Goals & review results of Survey	Risk Assessme nt Updates, Scenario Developm ent & Initial Ideas	Discussio n on Final Vision & Start to Review Scenarios	Finalize Vision & Start to Present Scenarios	No Mtg November	Next Steps into New Year on Scenarios, Actions, and Innovation Award	Draft Scenario Report & Prioritize d Actions/ Innovati on Award	Review Scenarios and Innovation Presentatio	Preferred Scenario Review	Final Stake- Holder Engage ment Report & Final Scenario	Final Pres ent- atio n & Tran sfer of Data
Technical							Mtg 1								Mtg 2			Mtg 3	
Advisory Committee (TAC)	Г						Resilient NJ Cross Regional Program Mtg								Scenarios & Actions			Invited To Public Mtg #3	
Community				Mtg 1- 10 mtgs*	Mtg 1- 10 mtgs*	Mtg 1- 10 mtgs*	Mtg 1- 10 mtgs*	Mtg 2							Mtg 3			Mtg 4	
Advisory Committee (CAC)				Community Assets/ Needs Assessment Visioning	Community Assets/ Needs Assessment Visioning	Community Assets/ Needs Assessment Visioning	Community Assets/ Needs Assessment Visioning	CAC invited to Public Mtg #1							Scenarios & Actions			Invited To Public Mtg #3	
Focus							Mtg. 1	Mtg. 1	Mtg. 1								Mtg 2	Mtg 2	
Groups (FG) 9- Groups							Communit y Assets/ Visioning (9 FG)	Some FG mtgs carry into June	Some FG mtgs carry into July								Review Preferred Scenario	Review Preferred Scenario	
Public								Mtg 1							Mtg 2				Mtg 3
Meetings								Commun ity Assets & Visioning							Scenarios				Pre- ferred Scenar
Website																			
<ul><li>Mapping Tool</li><li>Surveys</li><li>CommentSense</li></ul>			Launch website	Survey Assets				Links on website For Public Meeting	Links to Survey	Asset tool					Links on Website For Public Mtg	Links to Survey			

Table 1- Engagement Plan Matrix

Newsletters	ResilientNJ One- Pager Newsletter		Flyers For Public Meeting	Flyers for Survey		Flyers For Public	Flyers for Survey	
Social Media		Post to encourage Focus Group sign up	Post for Public Meeting	Post For Survey	Post for Crowd sourcing Asset Tool	Mtg Post for Public Meetin g	Post for survey	1 Post Inspirir action movin
Civic Events				Downbeach Hurricane Preparednes s Program				forwai

<sup>\*</sup>Had 10 CAC Meetings for one-on-one meetings due to size of CAC

Note: 'Visioning' provides community members an opportunity to identify their goals, objectives, and values. The visioning process should not be limited to the community's response to flooding hazards but should be designed to consider all aspects of the community's character and identity through a resilience lens. Visioning should, at a minimum, occur before the detailed risk assessment.

# V. EVALUATE

# a. Engagement Tracking

The Indicators will be monitored by the Consultant Team. Other planning studies within the region will be reviewed to determine if any benchmarks exist from past studies on engagement so that the Consultant Team can gauge the success in the various strategies. Some metrics that will be monitored include diversity of participation, continuity of participation, and effectiveness of engagement efforts in influencing the process. CommentSense is the database that will be used to track engagement. This database will provide metrics on number of emails sent, and opened. It will also track number of participants on website and forms. All survey software will track survey responses.

# b. See Appendix B for Tracking Spreadsheets of all Engagement Review of Feedback

The Consultant Team will monitor and evaluate the success for each method of engagement and continually refine strategies if one method of engagement is more or less successful than others. The Consultant Team will also monitor the feedback on the website (using a tool called CommentSense) and monitor the comments on the various social media handles (by utilizing a # hashtag) when the Consultant Team requests the Stakeholders to post to their various handles. The Consultant Team will also send all newsletters via CommentSense which enables the Consultant Team to monitor the number and specific individuals that open our newsletters. The website will also gather feedback on the mapping tool, surveys, and metrics of visitors. Qualitative feedback will also be sought by asking participants how accessible the meetings are (in terms of language barriers, technical jargon, or physically if in-person), and distributing surveys to the TAC/CAC/Steering Committee halfway through the project to get their feedback on the overall process. All these metrics will be shared with the Steering Committee, NJDEP, and ECP.

# VI. DELIVERABLES

It is imperative that all feedback is transparent. It is important that what is heard in each method of engagement is being shared with the Steering Committee to inform each decision in the process. Therefore, the following deliverables will be produced as part of the engagement strategy and shared with the Steering Committee.

#### a. Meeting Notes

Minutes of minutes will be issued within one (1) week of each meeting in draft form to all attendees, with attendees given time to review and advise of any revisions. Then minutes are then issued Final.

# b. Newsletters

Newsletters will be sent via CommentSense to the SC, TAC, and SAC, and to all Focus Groups. They will also be posted on the website, sent to those that sign up on the website, and linked to social media posts.

#### c. Tracking of Outreach Activities

The success of each strategy will be tracked as indicated under the Section V.

# d. Results of Surveys

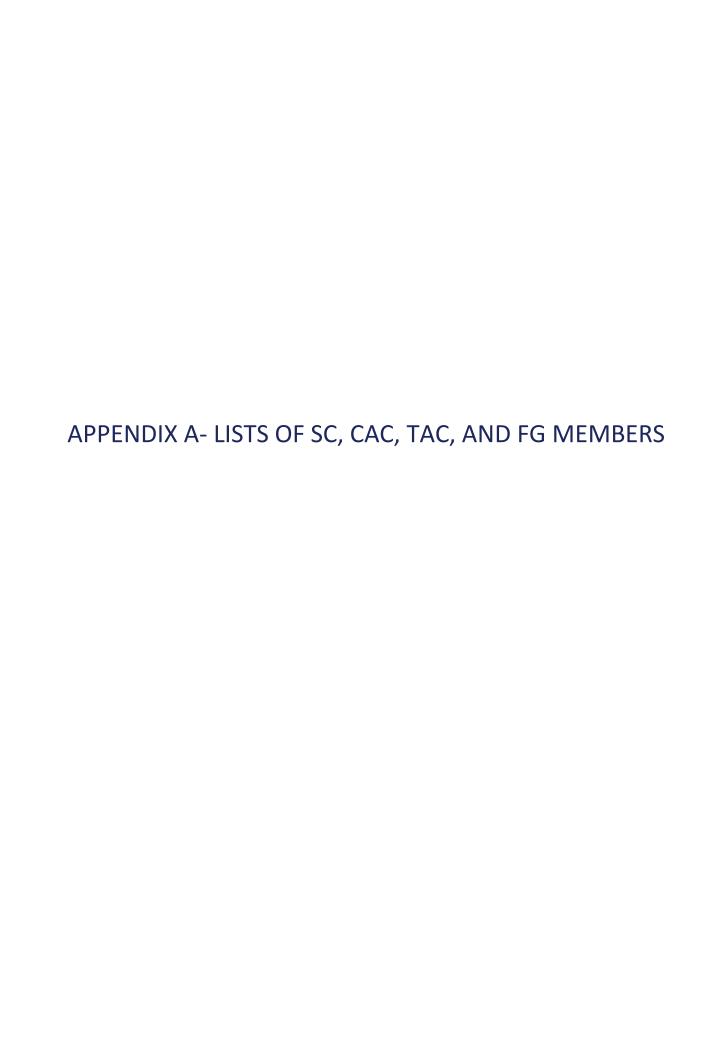
The results of all surveys will be documented and shared with the SC, TAC, CAC, and with permission of the Steering Committee and NJDEP published on the website and shared with Focus Groups and in Public Meetings.

# e. Results of Stakeholder Questions

The results of the Stakeholder questions will be summarized and provided to the Steering Committee and NJDEP.

# f. Visioning Report

The Visioning Report will be drafted in Q3 of 2021 and finalized by Q4 2021.



# **APPENDIX A- TABLE 1- STEERING COMMITTEE (SC)**

Made up of 10 members: one (1) decision maker from each of the 7 municipalities, 1 decision maker from Atlantic County, 1 decision maker from American Red Cross, and a Regional Coordinator

Organization	Name
Margate	Roger McLaren
American Red Cross	Rodric Bowman
Longport	Bruce Funk
Pleasantville	Shurlana Stewart
Atlantic County	John Peterson and Francis Brown
Ventnor	Ed Stinson (contact for Brigantine too)
Atlantic City	Barbara Woolley-Dillon and Jacques Howard
Northfield	Tim Joo
Brigantine	Jim Bennett (contact Ed for Brigantine)
Regional Coordinator	Jim Rutala

# APPENDIX A- TABLE 2- TECHNICAL ADVISORY COMMITTEE (TAC)

Organization	Name
State Office of Emergency Management, Hazard Mitigation	Chris Testa; Bradley Waugh (SHMO)
South Jersey Transportation Planning Organization (SJTPO) / South Jersey Transportation Authority (SJTA)	Jennifer Marandino, P.E.,
NJDOT, Maritime Resources	Scott Douglas
Forsythe National Wildlife Refuge	Virginia Rettig
New Jersey Coastal Coalition	Tom Quirk
NJ Coastal Resilience Collaborative	Laura A. Kerr, NJCRC Support Staff
NJDEP	Dave Rosenblatt
NUDED Division of Coastal Engineering	Rob VonBriel
NJDEP, Division of Coastal Engineering	Bill Dixon
	Erick Doyle
NJ TRANSIT (Bus and Rail), Transit Friendly Planning	Megan Massey, PP/AICP, Asst Director
SJTA	Stephen F. Dougherty
	JB Smith
USACE	Peter Blum
OSAGE	Stephen Rochette
	Adrian Leary
NJ Board of Public Utilities	Joseph L. Fiordaliso, President
NJDOT Assistant Commissioner for Planning Multi-modal and Grants Administration	Michael Russo, PE
NJDOT Asst Commissioner for Transportation Operations System & Support Coordinator	Andrew Tunnard
	Lance Landgraf
Casino Reinvestment Development Authority (CRDA)	Matt Doherty and
	Rosa Farias
NJ Department of Community Affairs, Sandy Recovery Division	Neda Hartman
FEMA Region II	Kelly Pflicke
EPA Region 2, EJ and Children's Environmental Health Coordinator	Towana Joseph
NJDEP Blue Acres Program	Fawn McGee
NJEDA	Christina Fuentes
	Dr. Stuart Farrell
Stockton College, Coastal Research Center	Steve Haffner
AUDED COS D	Joe Ruggeri
NJDEP, CRS Program	Becky Jones

Forsythe National Wildlife Refuge	Virginia Rettig
JC National Estuarine Research Reserve	Vanessa Dornisch
Mott McDonald	Tom Thornton
Ponzio Engineering	Art Ponzio
Marathon Engineering	Rick Riccardi
Remington & Vernick	Ed Dennis
County Engineer	Mark Shourds

# APPENDIX A- TABLE 3- COMMUNITY ADVISORY COMMITTEE (CAC)

	Organization	Name
	County Emergency Management and County DPW	Vince Jones
	County Technician, Office of Emergency Preparedness, Department of Public Safety	Marc A. Ramantino; Karen Koptic (HMP)
Atlantic County	County Workforce Development Board Acting Executive	Director Francis F. Kuhn
Ą	County EM Coordinators Association	Jim Manski, Southern Region VP
	GIS Specialist	Sarah Taylor-Deak
	County Public Works	Bill Reiner
	Atlantic City Housing Authority	Tom Cannon

	Organization	Name
	Mayor or Mayor's Designee	Mayor Marty Small Sr.
	Assistant to the Mayor	Steve Perskie
	Director, Special Projects NJDCA	Michael Epps
	Assistant Director, Special Projects NJDCA	India Still
	Council Member 1	Kaleem Shabazz
	Council Member 2	Jesse Kurtz
	Council Member 3	Latoya Dunston
	Atlantic County Commissioner	Ernest Coursey
Atlantic City	Interim Business Administrator	Anthony Swan
tlanı	DPW Director	Paul Jerkins
4	Assistant Director of Public Works	Crystal Lewis
	Police	Deputy Chief James Sarkos
	Emergency Manger/Coordinator/OEM Director	Scott Evans
	City Engineer	Uzo Ahiarakwe
	Construction Official	Anthnoy R. Cox, Jr.
	Atlantic Housing Authority	Tom Cannon
	600 North Beach Resident's Association	
	The Executive Council	Mike Epps

	Organization	Name
	Mayor or Mayor's Designee	Mayor Vince Sera
	Council Member 1	TBD
	Council Member 2	TBD
ne	Public Works Superintendent	John Doring
Brigantine		
rigo	Chief of Police	Chief Richard Casamento
B	Emergency Manger/Coordinator/OEM Director	Lt. Bill Stroby
	City Engineer	Matthew F. Doran, PE, PP, PLS, CME
	Construction Official	Rich Stevens

	Organization	Name
	Mayor or Mayor's Designee	Mayor Judy Ward
	Council Member 1	TBD
	Council Member 2	TBD
	Administrator	Linda D. Peyton
all.	DPW Director	Mark Alexander, Sr.
Pleasantville	Emergency Manger/Coordinator/OEM Director/ Chief of Police	Sean Riggin
	City Engineer	CME Associates - Laura Neumann, PE, PP
	Construction Official	Kevin Cain
	Recreation Director	Debra Washington
	Pleasantville Housing Authority	TBD

	Organization	Name
	Mayor or Mayor's Designee	Mayor Erland Chau
	Council Member 1	Greg Dewees
	Clerk	Mary Canesi
Northfield	Superintendent of Public Works/Stormwater Mgmt Coord.	Qwin Vitale
	Chief of Police	Paul Newman
	City Engineer	Rami Nassar, PE, PP, CME
	Construction Official	Richard Stevens
		Tim Longnecker
	Recreation Board	TBD

	Organization	Name
	Mayor or Mayor's Designee	Mayor Beth Holtzman
	Commissioner 1	Lance B. Landgraf, Jr.
	Commissioner 2	Tim Kreble
	Fire Chief	Michael Cahill
t	Administrator	Maria Mento, James E. Pacanowski II
r	Chief of Police	Chief Joseph Fussner
Ventnor City	Emergency Manger/Coordinator/OEM Director	Donna Peterson
	CRS Coordinator	Dino Cavalieri
	CFO	Albert Stanley
	Tax Collector	Margaret Pacanowski
	Community Based Groups per Ed Stinson	

	Organization	Name
	Mayor or Mayor's Designee	Mayor Michael S. Becker
	Commissioner 1	John Amodeo
	Commissioner 2	Maury Blumberg
City	Administrator	Richard Deaney
Margate (	DPW Director	Frank Ricciotti
	Chief of Police	Chief Matthew Hankinson
	Fire Chief	Chief Dan Adams
	Emergency Manger/Coordinator/OEM Director	Chuck LaBarre
	CRS Coordinator	Jim Galantino
	City Engineer	Ed Dennis, PE

	Organization	Name
	Mayor or Mayor's Designee	Mayor Nicholas Russo
	Commissioner 1	Dan Lawlor
	Commissioner 2	James Leeds
	Administrator	Scott Porter
Longport	Supervisor Public Works	Chris Berenotto
ong	Chief of Police	Chief Frank Culmone
7	Fire Chief	Levon Clayton
	Emergency Manger/Coordinator/OEM Director	Monica Kyle
	Chairman to Planning Board	
	Borough Engineer	New Engineer

# **American Red Cross**

Organization	Name
American Red Cross	Madhuri Rodriguez
American Red Cross	Jim Eden
American Red Cross	Paul Gass
American Red Cross	Peter Grey
American Red Cross	Lauri Gill
American Red Cross	Lisa McGee
NJ VOAD	Keith Adams
Tri-County COAD	Vikki Phillips

# Absecon, Linwood, Somers Point, and Egg Harbor

Organization	Name
Absecon Administrator	Jessica Thompson
Linwood Clerk	Leigh Ann Napoli
Somers Point Administrator	Wes Swain
Economic Development Advisory Commission	Greg Sykora
	John Helbig
Egg Harbor Township Administrator	Peter Miller

# APPENDIX A- TABLE 4- FOCUS GROUPS (BUSINESSES AND TOURISM)

E.	Organization	Name
Businesses/Tourism	Casino Reinvestment Development Authority (CRDA)	Lance B. Landgraf, Director of Planning and
		Development
	Casino Association of NJ	Terry Glebocki, Head of the Casino Association
		Joe Muskett, GC
		Joe Dougherty
	Counsel for Casino Association of NJ	
	Hard Rock Casino and Hotel	Joe Lupo, President (Atlantic City Hotel & Casino) at
		Hard Rock Café

	Resorts Casino	Mark Giannantonio, President & CEO at Resorts Casino Hotel
	Caesars, Harrah's, Tropicana	Joe Lodise, Senior Vice President & General Manager at Caesars Entertainment
	Bally's	Nick Polcino, General Manager & Chief Gaming Executive
	Tropicana	Jacqueline Grace, senior vice president and general manager of Tropicana
	Торісана	Melonie Johnson, President and Chief Operating Officer at Borgata Hotel
	Borgata	Tom Pohlman, Sr. VP and General Manager at Golden Nugget Atlantic City
	Golden Nugget	Gregg Klein, SVP & General Manager - Harrah's Atlantic City at Caesars
	Golden Nugget	
	Harrah's	
	The Atlantic City Metropolitan Business and Citizens Association	Gary Hill
-	Orsted	Vince Maione
	Orsted	Marc Reimer
-	EDF/Shell	Jessica Dealy
-	South Jersey Economic Development District	Lou Joyce
	South Jersey Chamber of Commerce	Christine Renna
	Southern NJ Development Council	Marlene Z. Asselta
	Atlantic City Boardwalk Committee	Sherrie Kendall
	Atlantic County Economic Alliance	Lauren H. Moore, Jr.
	Meet AC	Larry Sieg
	Greater Atlantic City Chamber of Commerce	Michael Chiat
	Brigantine Chamber of Commerce	
_	Somers Point Business Association	Greg Sykora
	Margate Business Association	Anna Maria Blescia – Courter, Executive Director,
		Margate Business Association
-	New Jersey Sustainable Business Council	Richard Lawton
-	Atlantic City Jitney Association Operating Engineers Local 825	Emmanuel (Manny) Mathioudakis  Joseph Grace
	Operating Engineers Local 025	Kate Gibbs
-	Casino Workers Unions	Bob McDevitt
	Local Real-estate Agent (Longport) – Long and Foster	Jerome DiPentino
	Local Real-estate Agent (Longport) – Dilorenzo Realty	Joseph Dilorenzo
	Local Builder (Longport) – Legend Construction Manager	Leonard A. Geria, Jr.
	Local Builder (Longport) – C Alexander Building	Chris Alexander
-	Local Builder (Longport) – David Nicholas Building & Property Maintenance	
}	Restaurant (Longport) – The Catch	Frank Plac
ŀ	AtlantiCare Stackton University	Frank Blee Brian Jackson
}	Stockton University Atlantic Cape Community College	Natalie Devonish
-	Atlantic Cape Community Conege  Atlantic City International Airport	Stephen M. Mazur
	Auantic City International Airport	Stephen IVI. IVIdZui

# APPENDIX A- TABLE 5- FOCUS GROUPS (ENVIRONMENTAL)

	Organization	Name
	Surfrider Foundation South Jersey Chapter	
S	Ventnor Green Team	Diane Berbeck
ion	Sustainable Margate	Monica Coffey
zatı	Atlantic City Green Team	Jim Rutala
ani	Great Egg Harbor Watershed Association	Julie Akers
Environmental Organizations	Brigantine Green Team	
) <i> </i>	Linwood Green Team	Jim Rutala
ent	Somers Point Green Team	Lisa Bender
) III	NJ Association of State Floodplain Management	Brian Kempf
iror	New Jersey Coastal Coalition	Tom Quirk
2	Egg Harbor Township Green Team	Donna Burger
F	NJ Future	Peter Kasabach, Executive Director
	Pleasantville Green Team	Shurlana Stewart
	Sustainable Jersey	Maureen Jones

# **APPENDIX A- TABLE 6- FOCUS GROUPS (UTILITIES)**

	Organization	Name
	Atlantic City Electric (ACE)	Ken Mosca, Government Affairs
	Atlantic City Municipal Utilities Authority (ACMUA)	Mike Armstrong, Exec. Director
	Atlantic County Utilities Authority	Richard Dovey, President
		Joseph Pantalone, Vice President
	NJ Am Water	Denise Venuti Free, Director of Communications and
ies		External Affairs, Eastern
Utilities		Don Shields, Vice President Engineering
お	South Jersey Gas	Rich DeRose, Government Affairs
	Verizon	Jennifer Young, Government Affairs
		Phillip McBurrows
	Orsted	Vince Maione
		Marc Reimer
	EDF/Shell	Jessica Dealy, External Affairs Lead
	Comcast	Fred Deandrea, Sr. Director

# APPENDIX A- TABLE 7- FOCUS GROUPS (HOMEOWNERS AND RENTERS ASSOCIATIONS)

	Organization	Name
	First Ward Civic Association - AC	Libbie Wills
ers	Midtown Neighbourhood Assoc - AC	Evan Sanchez
8	Ducktown CDC	Mike Cagno
omeo	North Beach Ventnor Residents Association	
	Margate Homeowners Association	
\ \	Harbour Pointe Residents Association (Atlantic City)	
ent. Ass	Venice Park Civic Association (Atlantic City)	
Residents, Asso	Chelsea Neighborhood Association (Atlantic City)	
Re	Bungalow Park Civic Association (Atlantic City)	
	Councilman MD Hossain Morshed was suggested to be added by Atlantic City as he	Councilman MD Hossain Morshed
	can recommend members from growing Bangladesh Populations in Atlantic City	

# APPENDIX A- TABLE 8- FOCUS GROUPS (SOCIALLY VULNERABLE FOCUS GROUPS)

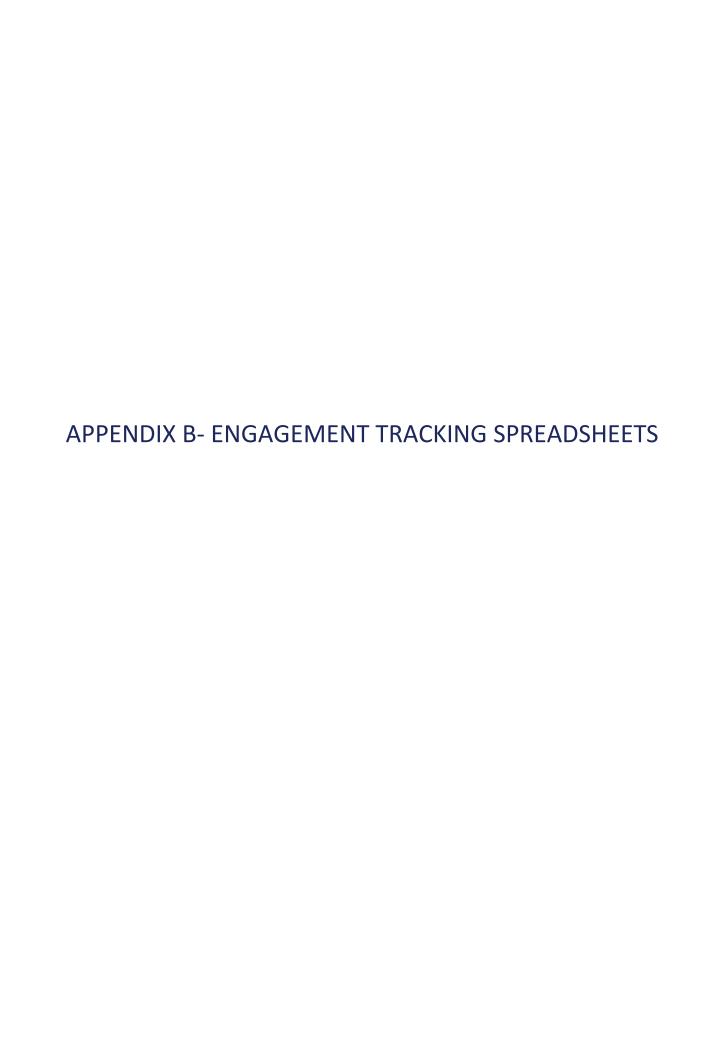
	Organization	Name
	Boys & Girls Club of AC	Stephanie Koch
	Police Athletic League – AC	Monica Coursey
	Young Activists of Atlantic County	
	Agape Community Youth Center	
_	Girl Scouts of the Jersey Shore (Ocean County)	
Outreach	Girl Scouts of Central and Southern New Jersey (Atlantic County)	
tre	Boy Scouts of America Jersey Shore Council (Atlantic and Ocean County)	
00	Atlantic County Community College	Dr Barbara Gaba, President
Youth		Maria Mento, Board Chairperson (from Ventnor)
	Stockton University	Dr. Harvey Kesselman, President,
		Dr. Susan Davenport, Executive Vice President & Chief
		of Staff
	Local Schools	
	Mainland Regional BOE	Superintendent
	AC BOE	Superintendent
	Pleasantville BOE	
	Ventnor Margate Brigantine BOE	

	Organization	Name
	Atlantic City Housing Authority	Tom Hannon
	Pleasantville Housing Authority	Vernon Lawrence
	Brigantine Elks Lodge No 2428	Pat Orchard
ω.	American Legion Post 396 - Kline-McAnney, Brigantine	Joe Handle
ior	American Legion Post 81- Mainland – Pleasantville	Richard Johns
Seniors	Brigantine Senior Center (Operated by Katz JCC)	Linda Nace
	Ventnor Senior Center (Operated by Katz JCC)	Diane Cherry
	Jefferies Tower Senior Center	
	Pogachefsky Center	
	BERON Jewish Older Adult Services of Atlantic County (JOAS), Atlantic City	Adrianne Epstein
	Jewish Older Adult Services	

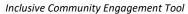
# The following will be reviewed for Limited English Proficient/Low Income/People with Disabilities/ Seniors for potential focus group members:

Organization	Name
Community Food Bank of New Jersey Egg Harbor	Kimberly Arroyo
Atlantic City Community Fund	Ben Zeltner
Atlantic City Arts Foundation	Joyce Hagan
Seasons of Giving	
Volunteers of America	Amanda Leese
Friends of Sister Jean Webster, Inc.	Rev. John Scotland
Seasons of Giving	
Neighborly Needs	
Literacy NJ Atlantic Cape	Katherine Micale
Oceanside Family Success Center	
Atlantic City Rescue Mission	

Covenant House New Jersey (LGBTQ welcoming)				
Atlantic Homeless Alliance				
Salvation Army				
Atlantic City Meals on Wheels				
NAACP Atlantic City	Valcom Chahazz Drasidant			
,	Kaleem Shabazz, President			
Black Lives Matter Atlantic City				
South Jersey Chapter of Jack and Jill of America				
Alpha Phi Alpha Fraternity (Atlantic City Chapter)	21.00			
Alpha Kappa Alpha Sorority (Atlantic City Chapter)	Shawn Sawyer-Phillips			
Omega Psi Phi Fraternity (Pleasantville Chapter)				
Delta Sigma Theta Sorority (Atlantic City Alumni Chapter)	Diane Epps			
Phi Beta Sigma Fraternity (Galloway Chapter)				
Sigma Gamma Rho (Atlantic City Chapter)				
Kappa Alpha Psi (Atlantic City Chapter)				
Zeta Phi Beta Sorority (Atlantic County Chapter)				
Iota Phi Theta (Atlantic County Chapter)				
Oziel Grand, Atlantic City Chapter				
St. James AME Church, Atlantic City				
St. Paul AME Church, Pleasantville				
Victory AME Zion Church, Pleasantville				
Spanish Community Center				
Hispanic Association of Atlantic County	Bert Lopez			
La Casa Dominicana				
Greater Atlantic City GLBT Alliance				
PFLAG Egg Harbor Township				
Jewish Community Center at Margate				
Shirat Hayam (Ventnor)				
Chelsea Hebrew Congregation				
Atlantic City Chabad-Lubavitch				
Congregation Rodef Sholom				
Young Israel of Margate				
Beth El Synagogue				
Temple Beth Shalom				
Chabad at the Shore - Chai Center (Orthodox synagogue)				
Muslim Community Organization of South Jersey				
Masjid Al-Hera Mosque				
Masjid AL-Taqwa Mosque (and possibly Community Center)				
Masjid Muhammad Atlantic City				
Masjid Baitul Nasr				
UnMask Inc.Joy (Advocacy-People with Disabilities), Atlantic City	Donna McClary			
	·			











# **Public Meeting and Communication Stats**

#### INSTRUCTIONS

This tool is designed for use by consultants and regional teams seeking to gauge the effectiveness of outreach methods to support participation in planning processes and plan development. It provides measures to assess the breadth, depth and relevance of outreach to socially vulnerable/underrepresented people.

Breadth: A measure of how many people received a particular piece of outreach. Consultants and regionals teams should identify demographic factors relevant to their geographies and planning process.

**Depth:** A measure of how much engagement each piece of outreach generates, such as click-throughs from links embedded in emails, etc.

Relevance: A measure of how a particular piece of outreach will influence planning and decision-making, contribute to plan development, or impact strategic recommendations.

Engagement Method (e.g. survey, text campaign, email, newsletter, etc.)*	Focus Groups	CAC Meetings	Public Meeting 1	Survey	Crowdsource map	Public Meeting 2	Municipality Meetings	CAC Meetings	Focus Groups	Public Meeting 3
Engagement Date:	4/2021-8/2021	2/2021-5/2021	6/15/2021	June-July 2021	8/1/2021	2/10/2022	February-March 2022	Mar-22	Apr-22	18-May-22
BREADTH										
Total # of persons targeted for outreach	N/A	N/A	10	0		105	N/A	N/A	N/A	
Total # of organizations targeted for outreach	82	15		6 12	8	19				
# of social media/website posts	6	N/A		5 14	6	5	N/A	N/A	N/A	Α !
# of known emails sent by organizations		N/A		2 1	-			·	·	
Percentage open rate	N/A	N/A	809				N/A	N/A	N/A	A N/A
# of meetings held	7	10		N/A				1 3		•
# of registrants		N/A	9					N/A	N/A	
# of attendees	65	55		N/A	N/A	116				1!
# of survey respondents	N/A	N/A	~99 response	S	100+ comments	~250 responses	N/A		·	
Percentage survey completion rate	N/A	N/A	9 Pol	S		6 Polls	N/A	N/A	N/A	A N/A
DEPTH										
Total # increase in visits to project website following engagement event										
within 3 days of event			709	%		40%	, D			
						Press of Atlantic City				
Total # shares/reposts of digital outreach						Article				
						Latino Motion				
Total # participants sharing with their own groups, communities						Appearance			F 6	
I									Focus Group	
Total # of repeat participants in planning events			Names optional	N/A	N/A	Names optional	Steering Committee	CAC Members	Members	Names optional
Total # increased newsletter/e-blast sign-ups following engagement event				4			1.1			
Total # comments responding to social/digital media/post-event survey						ject Website Forms Co				
Total # website views (January 1, 2021 - October 9, 2022)				3.4K (Page		ish 204, Ventnor Regio	n Team 196)			
Total # website users (January 1, 2021 - October 9, 2022)										
Website user categories (Where do users come from?)			D ( 1540 C )				-	. 1.20.5 :		
Website sessions (Top campaigns)				ons / Direct: 476 Session	, 0	, ,	•	- U		
Website users by country			U	nited States: 1.7K / Irela				ce: 8		
Website user engagement		Page View: 3.4K / Session Start: 3.3K / User Engagement: 1.9K / Scroll: 848 / Click: 343								
Total # downloaded documents from project website	documents from project website 172 File Downloads									
RELEVANCE										
<b>Timeliness:</b> Community engagement takes place when there is an										
opportunity for community input to influence decisions.	Early Engagement	Early Engagement	Early Engagement	Early Engagement	Early Engagement	Plan Development	Plan Development	Plan Development	Plan Development	Plan Development
	Incorporate input									
	into Vision, Risk	Incorporate input into	Incorporate input into	Incorporate input into						
	Assessment and	· ·		t Vision, Risk Assessment						
Expectations: Communication is clear about what level of community input	Scenario	and Scenario	and Scenario	and Scenario		Identify Scenario Action	Identify Scenario Action	Preferred Scenario	Preferred Scenario	Preferred Scenario
will have influence.	Development	Development	Development	Development	Risk Assessment	Preferences	Preferences	Feedback	Feedback	Feedback
Action: There is a clear strategy for how community input will be synthesized	, , , , , , , , , , , , , , , , , , , ,	Asset Identification,	Asset Identification,	Asset Identification,	Asset Identification for		Preferred Scenario	Preferred Scenario	Preferred Scenario	Preferred Scenario
and integrated into the plan	issues, and Visioning	Issues, and Visioning	Issues, and Visioning	Issues, and Visioning	Risk Assessment	Development	Development	Development	Development	Refinement

\*Use N/A if metric is not applicable



# APPENDIX C- MONTHLY STEERING COMMITTEE (SC) MEETING MINUTES













# Resilient NJ - January 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** February 4, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – January 2021 – Steering Committee Meeting #1

A meeting was held January 27, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss Assets. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email				
Rodric Bowman	American Red Cross	Rodric.bowman@redcross.org				
Barbara Woolley-Dillon	City of Atlantic City	BWoolley-Dillon@cityofatlanticcity.org				
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org				
John Peterson	Atlantic County	Peterson_john@aclink.org				
Frances Brown	Atlantic County	Brown_Frances@aclink.org				
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org				
Jim Rutala	Regional Coordinator	jmrutala@comcast.net				
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com				
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org				
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us				
Bruce Funk	City of Longport	zoning@longport-nj.us				
Jonathan Carey	WSP	Jonathan.Carey@wsp.com				
Alyssa Curran	WSP	Alyssa.Curran@wsp.com				
Allyson Powers	WSP	Allyson.powers@wsp.com				
Bryan Kiel	WSP	Bryan.kiel@wsp.com				
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com				
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com				
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com				
Jenna Scott	CDM Smith	ScottJ@cdmsmith.com				
Ayesha Dolasa	CDM Smith	dolasaar@cdmsmith.com				
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com				

The following was discussed at the meeting:

#### I. MEETING OBJECTIVES

- 1. Alyssa Curran, WSP, started the meeting at 10:00. She took the Steering Committee through the meeting objectives which included a shared understanding of project plan, roles and responsibilities of Steering Committee, names for project branding/identity, confirmation of meetings every month, consultant team progress report, and Steering Committee feedback.
- 2. She explained that in this first Steering Committee Meeting the Consultant Team is looking to hear from the Steering Committee:
  - ❖ What are the assets in the Region that we need to protect?
  - What are the critical environmental, social, cultural, and infrastructure assets in the Region?
  - ❖ What are the most important assets in the Region?

## **II. INTRODUCTIONS**

3. Alyssa Curran then asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves.

## III. ROLES AND RESPONSIBILITIES OF STEERING COMMITTEE MEMBERS

- 4. Alyssa Curran then turned the meeting over to Jacki Flor, ENGenuity, who reviewed the roles and responsibilities of the Steering Committee.
- 5. Jacki Flor explained the goal is a locally driven action plan and that we will need involvement throughout the project to ensure local needs and visions are collaboratively developed and actions are best-fit to unique characteristics of neighborhoods while achieving coherent strategy across the region and the broader Resilient NJ program.
- 6. Jacki Flor explained that the Steering Committee's role was to make final decisions, that the Technical Advisory Committee (TAC) is to serve as a technical resource to review and provide technical feedback, the Community Advisory Committee (CAC) is to provide local perspective and guidance and potential community challenges to planned scenarios, and focus groups will provide guidance on community assets, needs and scenarios.
- 7. She then walked the committee through the key milestones which include collection of community assets, visioning, scenarios, action development, innovation award and implementation phase.
- 8. Jacki Flor then turned to each Steering Committee member to touch on what they were looking forward to in this project and key take-aways from the introductory meetings. Jacki Flor turned it to Dr. Rodric Bowman first.
- 9. Rodric Bowman, American Red Cross (ARC) explained that the ARC can offer the community tools to strengthen resilience. This includes preparedness programs and tools, youth-based programs, and business continuity programming.
- 10. Next John Peterson, Atlantic County, emphasized that funding is key and that we need to be realistic when planning and consider funding. He has seen many things proposed that never happen because funding is not available. He explained that the County is a large source of revenue and

- needs to be kept in mind when planning; it is important to nurture businesses and keep in mind economic sustainability.
- 11. Barbara Woolley-Dillon, Atlantic City, spoke next and said she agreed with everything John Peterson just said and that the County point of view is important. She mentioned that John Peterson and Jim Rutala have been great influencers for Atlantic City. She explained diversity is important in Atlantic City as they have a very diverse population and also a high renter population and that there are a lot of equity issues and challenges. She added that the Atlantic City Boardwalk is one of the City's assets and that the boardwalk has received funding in the past and has done some improvements but there is still a long way to go. She mentioned that the Blue Economy is a part of their economic development and that community involvement and outreach are very important to Atlantic City.
- 12. Ed Stinson, Brigantine and Ventnor, added that infrastructure, both local and regional, is important to Brigantine and Ventnor. He is looking forward to the actions and to projects that bring resilience in both local and regional ways.
- 13. Bruce Funk, Longport, stressed the importance of all communities working together. He believes a regionalization approach is key to getting the plan to work and that we may be able to procure more funding if communities are working together.
- 14. Roger McLarnon, Margate, added that Margate, Longport, Ventnor and Atlantic City all have something to gain by improving infrastructure. He suggested that a regional Debris Management Program would be helpful towards building resiliency. He also suggested reinforcing shelter island to absorb the storm surge/effects on bayside communities. He emphasized the importance of keeping things simple in order for actions to be attainable and to give communities the chance to start working together routinely.
- 15. Tim Joo, Northfield, explained that his primary focus is on emergency response and emergency management. He said that during an emergency, there should be a regional approach so there are not too many duplicated services.
- 16. Shurlana Stewart, Pleasantville, added that Pleasantville is very unique in diversity and that there has been a huge shift in the last ten (10) years where there is a large population of non-English speaking residents and English as a second language residents. She said it is important to make sure residents have resources and that undocumented immigrants, who might be residents, and are afraid to reach out because of the resident status, are also included. She explained that Pleasantville has redevelopment plans that are in progress that would be beneficial for the Consultant Team to review.
- 17. Jim Rutala, Regional Coordinator, said he agreed with what everyone said and that the coastal area is an economic engine that we need to protect. Jim Rutula added that the new administration is talking about a major infrastructure bill, that the USACE Back Bay Study was refunded and that FEMA has more money than they had in the past so the key is to get Atlantic County their fair share.

### IV. CONFIRM REGIONAL TEAM NAME

18. The discussions then moved to branding and a regional team name.

- 19. Alyssa Curran, WSP, then reviewed the team name with the steering committee. It was agreed upon that Atlantic County Coastal Region (ACCR) works well and that name will be used for the website and future materials. Alyssa Curran said that she will let NJDEP know about the new name.
- 20. Eric Fang, Perkins Eastman, then asked if there were any organizations that may have worked together previously, specifically after Superstorm Sandy.
- 21. Barbara Woolley-Dillon, Atlantic City, said that previously SJTPO worked together as regional and transportation planners and worked on evacuation routes.
- 22. Bruce Funk, Longport, advised that after Sandy the Atlantic Cape Coastal Coalition (which is now the New Jersey Coastal Commission) was started and all communities working together have been a great asset.
- 23. Eric Fang stated that it was great to hear that towns have worked together previously. He then turned the meeting to Bryan Kiel, WSP and Bill Cesanek, CDM Smith to discuss asset collection and planning context.

### V. ASSET COLLECTION & PLANNING CONTEXT PROGRESS

- 24. Bryan Kiel explained that the Consultant Team had conducted a review of contemporary plans and projects for asset collection. He then reviewed what defines an asset and the process for collection. He explained the intended output of assets were on maps and databases, however, it will be used for community centered risk assessment and planning approach.
- 25. Bill Cesanek explained that in order to get funding it is important to have an effective and persuasive prospectus that creates a regional identity. He was excited to hear from the Steering Committee about the critical assets in the region.
- 26. Bryan Kiel then described the different asset categories and explained that some assets may fit into more than one category. He explained asked for the Steering Committee feedback on transportation assets, critical facilities, civic infrastructure, economic, social and cultural, environmental and natural environment, and shore protection. He explained that it would be great to hear from the steering committee on locations and functions of community assets, especially those not typically identified in public asset collections like informal community meeting areas, or cultural assets. An asset does not necessarily have to be physical. It can be a service that is not tied to a physical location for its service.
- 27. Bryan Kiel then provided a map and different transportation assets and asked the Steering Committee to provide feedback. Eric Fang added that if there are assets that the Consultant Team pulled from public data that are not so critical, we would want to know that as well. For example, if the rail line was not so critical to this Region.
- 28. Barbara Woolley-Dillon, Atlantic City, said the Rail Line is critical to the area.
- 29. Shurlana Stewart, Pleasantville, emphasized that that rail line is important to casino workers because they use it as transportation to get to work.

- 30. Barbara Woolley-Dillon added that the rail line is used as reverse transportation for residents to get to Philly for appointments, etc.
- 31. John Peterson, Atlantic City explained that there are four (4) stops on the rail line and that NJ Transit should put more emphasis on the rail line and marketing it. The AC Chamber of Commerce and South Jersey Chamber of Commerce are advocating reinvigorating it for both freight and passenger.
- 32. Barbara Woolley-Dillon said that for local residents bus transportation is important and that at the Ohio and Arctic Avenue stop provides service for NJ Transit and Greyhound buses.
- 33. Shurlana Stewart added that bus services are also important in Pleasantville as it is a transit village.
- 34. Barbara Woolley-Dillon also mentioned Jitneys as a form of transportation that should be considered and she also added that the multi-level parking garages in Atlantic City are often used to store resident's vehicles during major storm events.
- 35. Jacki Flor, ENGenuity, asked what happens when there is a critical disaster and residents to not have their own transportation. She asked the Steering Committee to consider the needs of socially vulnerable populations when thinking about critical assets.
- 36. John Peterson, Atlantic County said that the hierarchy or highways is the Atlantic City Expressway (evacuation route), Route 30 and 40 (evacuation routes), Route 152, Longport/Somers Point Causeway (which has potential early in a storm event to be an evacuation route/ingress-egress daily but still needs some work), and the Blackhorse Pike which needs a lot of work.
- 37. John Peterson and Barbara Woolley-Dillon brought up that we should consider special needs residents during an evacuation and that they are working on developing database implementation for these populations but that it is in infancy stages. Barbara Woolley-Dillon added for example if a person has autism you cannot just send someone in to grab them and evacuate, as they may react. You need someone to be aware of the location and trained in dealing with special needs individuals.
- 38. Bryan Kiel, WSP, then moved the discussion to critical facilities and infrastructure assets.
- 39. Tim Joo, Northfield, stated that sewer pumping stations should be included.
- 40. Barbara Woolley-Dillon, Atlantic City, said there are a number of pump stations on the beach and back bay and that she would work with the city engineer to ID those locations and provide them to the Consultant Team.
- 41. Barbara Woolley-Dillon added that there are two transitional facilities in Atlantic City Covenant Care and Turning Point and that Atlantic City also has a needle exchange program.
- 42. Shurlana Stewart, Pleasantville, added that Pleasantville has the John Brooks Recovery Center but that it is an outpatient facility.
- 43. Bryan Kiel, WSP, asked what assets have changed since COVID.

- 44. Barbara Woolley-Dillon said that Bader Field is a food distribution site and that the Convention Center is one of six (6) designated mega-centers for COVID testing and vaccinations.
- 45. Jim Rutala, Regional Coordinator, added that there are several independent power producers in Atlantic County. After Sandy, the city was shut down for 7-10 days so micro-grid opportunities are key.
- 46. Barbara Woolley-Dillon mentioned that there is a reservoir in Absecon.
- 47. Bryan Kiel, WSP, then moved the discussion to economic and social assets. He walked through how the mapping currently included commercial corridors and parks.
- 48. Tim Joo, Northfield, said that Birch Grove Park is a nature reserve as well as a park.
- 49. Barbara Woolley-Dillon suggested adding Opportunity Zones to the mapping. She added that there are four (4) opportunity zones in Atlantic City that were created in the last 4 years.
- 50. Jacki Flor, ENGenuity, added that we want to make sure economic drivers are captured when thinking about assets and that many residents live in one community and work in another so we need to think about how transportation and economics work together.
- 51. Bill Cesanek, CDM, added that he'd also be interested in hearing from the Steering Committee about large employer recovery versus smaller business recovery after a disaster. Do we focus on large employers? Is recovery critically related to them or is recovery really about main street stores and businesses? The answer is typically both.
- 52. Eric Fang, Perkins Eastman, added that he'd like to know what the drivers are to set up the region for the future? He mentioned that in addition to the Casinos, what else.
- 53. Tim Joo, Northfield, said there is a VA Center for Veteran's that should be added.
- 54. Jim Rutala said Atlantic City has major employers. He mentioned FAA Tech Center as a major employer.
- 55. Barbara Woolley-Dillon mentioned WaWa as a major employer.
- 56. Shurlana Stewart, Pleasantville, said that healthcare and hospitals in the area are major employers, specifically Atlantic Care.
- 57. Bruce Funk, Longport, said to also include independent contractors for construction and residential as a major employer.
- 58. Barbara Woolley-Dillon also mentioned ACCC and Stockton as employers in the area.
- 59. Eric Fang, Perkins Eastman, then asked about the Blue Economy and what encompasses it in the area.

- 60. Jim Rutala, Regional Coordinator, said offshore wind is key and located in Atlantic City. There are 3,000 construction jobs for offshore construction. Jim Rutala added that the wind industry is big and that there is also a large fishing zone that should be added.
- 61. Barbara Woolley-Dillon said she could provide some Redevelopment Plans and that could be added.
- 62. Alyssa Curran, WSP, mentioned that we should keep in mind churches and other community organizations that also provide social services.
- 63. Bryan Kiel, WSP, then turned the meeting to Jenna Scott, CDM Smith to review environmental and natural environment assets.
- 64. Jenna Scott reviewed the Environmental Assets map and walked through the assets that were located from public datasets. She asked what assets should be added.
- 65. All felt the map was comprehensive. Bill Cesanek, CDM, asked if there were any specific areas for a conservation plan for Atlantic City.
- 66. Jim Rutala, Regional Coordinator said he would send to the Consultant Team.
- 67. Jenna Scott, CDM Smith, then reviewed the shore protection assets.
- 68. Bill Cesanek, CDM, asked if there were any critical gaps in shoreline and flood protection facilities.

  Jenna Scott added that she is aware that the back bayside still has gaps.
- 69. Ed Stinson, Ventnor and Brigantine, said that the back bayside is vulnerable to flooding.
- 70. Barbara Woolley-Dillon added that a USACE study was partially done.
- 71. John Peterson, Atlantic City added that there is a NJDOT Study in the early stages for shore protection for state highways but that it also ties into the county roads.
- 72. Ed Stinson, Ventnor and Brigantine, said there is a federal study in Ventnor for the area of Edgewater Bulkhead Heights that will address flooding that ends up closing Dorset Avenue. The Study has been awarded but hasn't started yet; it will come later this year.

### VI. OUTSTANDING QUESTIONS AND NEXT STEPS

73. At that point Jonathan Carey, WSP, thanked everyone for their participation in the meeting. He walked the Steering Committee through the next milestones in the project for February and March.

### VII. ADJOURN MEETING

74. The meeting ended at 12:02 PM.

#### **Action Items:**

1. The Consultant Team to send out calendar invites for meetings to occur on the 4<sup>th</sup> Wednesday of every month.

- 2. The name of the Region will be changed to Atlantic County Coastal Region. The Consultant Team will contact NJDEP with the new name and will launch the Phase I website.
- 3. All assets mentioned will be added to the mapping and planning context by the Consultant Team.
- 4. Shurlana Stewart and Barbara Woolley-Dillon both mentioned that they could provide some Redevelopment Plans and that could be added. Barbara Woolley-Dillon also mentioned stormwater pump station locations that she could provide.
- 5. Jim Rutala to provide the location of the fishing zone and conservation plan areas to the Consultant Team.
- 6. The Steering Committee will send any additional assets to the Consultant Team.
- 7. Consultant Team to soft launch Phase I website.
- 8. The Steering Committee to confirm members of CAC for each of their communities.











## Resilient NJ - January 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** March 12, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – January 2021 – Steering Committee Meeting #2

A meeting was held February 24, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss what happened during past climate events/natural disasters and why, receive input from the Steering Committee (SC) on questions for finalizing Planning Context Chapter, to discuss the formation of the Community Advisory Committee and the next steps for engagement. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Rodric Bowman	American Red Cross	Rodric.bowman@redcross.org
Barbara Woolley-Dillon	City of Atlantic City	BWoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Frances Brown	Atlantic County	Brown_Frances@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Bruce Funk	City of Longport	zoning@longport-nj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Allyson Powers	WSP	Allyson.powers@wsp.com
Bryan Kiel	WSP	Bryan.kiel@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Jenna Scott	CDM Smith	ScottJ@cdmsmith.com
Ayesha Dolasa	CDM Smith	dolasaar@cdmsmith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com

The following was discussed at the meeting:

#### I. MEETING OBJECTIVES

- Alyssa Curran, WSP, started the meeting at 10:00. She took the Steering Committee through the
  meeting objectives which included a brief progress update on project, a discussion on what
  happened during past climate events/natural disasters and why (to help with goal-setting and
  priority identification), input from the Steering Committee (SC) on questions for finalizing Planning
  Context Chapter, a discussion on the formation of a Community Advisory Committee (CAC) and next
  the steps for engagement. She further explained that we are looking forward to hearing from
  everyone to supplement the Consultant Team's desktop research.
- 2. Alyssa Curran encouraged that everyone, as we go through these questions posed throughout the presentation, consider the impact on Socially Vulnerable populations. She further explained that it is an essential theme in this work. When thinking about social equity both in our procedures and in the context of where we are approaching people, as well as this idea of trans-generation equity since the work we are doing today is going to impact generations to come. We have discussed this in the past and it is a really important part of this work. So, as we are thinking through these questions, we encourage you to think about who is going to be impacted and how and are those individuals represented through our process. It is imperative that our process is inclusive. We should be continually making sure that those voices that were marginalized or discriminated against in the past are being heard in this process and incorporated into the work that we are doing here.
- 3. She explained that since we met last time, a couple of really big things have happened. The government signed the new Senate Bill. Climate vulnerability is now in the municipal planning process. The Trump Hotel and Casino has come down. Also, the is a future art installation in Atlantic City that DEP has awarded for risk communication.
- 4. Alyssa Curran then roll-called to check who was present for this meeting. Everyone introduced themselves and told a little about themselves.

## II. PROGRESS UPDATE

- 5. Alyssa Curran then turned the meeting over to Jonathan Carey, WSP, who reviewed the progress update.
- 6. Mr. Carey explained that the Consultant Team incorporated the feedback that was received in the last meeting into the asset maps. We are now in February and we have accomplished many milestones to date. We have recently soft launched the website: www.resilientnj-accr.com.
- 7. Mr. Carey advised that the first inter-regional coordination meeting was held February 16, 2021, and explained to all participants that there are four (4) regions included within New Jersey in Resilient-NJ.
- 8. He explained that using everything the Consultant Team heard from the Steering Committee (SC) we aggregated all data into the Planning Context Chapter of the report and that the Consultant Team will be looking for SC feedback on the Planning Context Chapter.
- Mr. Carey explained that looking forward to March the Consultant Team will be holding CAC meetings, working with the CAC, SC, Focus Groups on developing a project vision, working with CAC,

TAC and Steering Committee on asset collection/risk assessment and launching a web-based mapping tool.

- 10. Mr. Carey further explained the new climate-related legislation: S2607 that was signed into law earlier this month by Governor Murphy on February 4, 2021. Mr. Carey took everyone through the new legislation and explained that it requires the land use plan element of municipal master plan to include climate change related hazard vulnerability assessment. He touched on the types of analysis that would need to be incorporated.
- 11. Mr. Carey explained that NJDEP is aware that this is a new lift for municipalities and this project correlates well with many items that can inform the requirements of S2607 for municipalities in the region that can aid in their Land Use Element update.
- 12. Ms. Barbara Wooley- Dillon, Atlantic City, asked if this legislation would need to be incorporated in Atlantic City's current draft Master Plan that they just recently completed working on. Mr. Carey said that he will check with NJDEP to be certain, as it was his understanding that it was immediately effective. She further explained that AC has a whole separate Resiliency and Sustainability Element, she is curious if she could make a reference to S2607 there as AC has a whole element on sustainability. Jonathan said he will check with NJDEP.
- 13. Ms. Curran then deferred to Mr. Jim Rutala's, Regional Coordinator, about his thoughts on the new legislation. Mr. Rutala expressed that elements of what we are preparing collectively now could become part of the Land Use elements of the various communities and it would be beneficial to the communities.

### III.EXPERINCE WITH PAST EVENTS, PLANS AND PROJECTS

- 14. Alyssa turned the meeting to Bill Cesanek, CDM Smith, and Bryan Keil, WSP. Bill Cesanek explained that the Consultant Team has asked the SC about assets, but we have not just asked the SC about what happened during past disasters. So that is what the Consultant Team would like to learn today.
- 15. To set the stage of the types of information the Consultant Team is looking for, he asked following questions to all members,
  - a. What have been the principal impacts during past disasters?
  - b. What it comes to socially vulnerable populations, what are the priority needs as the result of past events?
  - c. Where in your region are the major areas of concern? What was most disrupted and who is impacted the most?
  - d. What do past short-term responses look like? What were you able to achieve quickly?
  - e. What were strengths that allowed you to bounce back?
  - f. What did you try that didn't work? What are the gaps or vulnerabilities?
  - g. Which areas have you identified where issues continually occur?
  - h. To what extent has hazard mitigation planning process helped coordinate disaster response and resiliency actions?

- 16. The Steering Committee members then answered one at a time. Atlantic County started.
- 17. Atlantic County John Peterson, Atlantic County, answered that there were several events over the past decade that were impactful- Irene, the derecho in 2012 that knocked out electricity for weeks, and Hurricane Sandy. Bridges were impacted significantly by all storms; in Irene they lost a bridge on a secondary evacuation route; and electric was an issue in most storms. Hurricane Sandy had the eye cross over Brigantine, and impacted evacuation and people not evacuating in a timely manner. Brigantine had issues where people could not get out. Atlantic City had issues where people were told to weather the storm in place and that was probably not a good idea. In Irene Atlantic County lost a secondary evacuation route which Somers Point/ Mays Landing Road (CR-559) and closed for two (2) and half years and impacted commuter and visitor traffic in County. The derecho knocked out electric grid for entire northeastern half of county and shore road/route 9 communities due to trees knocking power lines down and older infrastructure failing. That issue is in the process of being taken care of and has improved. He explained that when you plan for roads you plan for that 75<sup>th</sup> to 80<sup>th</sup> percentile, you can never plan for that ultimate disaster. Sandy was that ultimate disaster. He explained that you cannot plan for a Sandy but you can for most disasters. John Peterson expressed there are reasonable things we can do to save the lifeblood of these communities. He is not in favor of retreat as we are about 100 years too late for that. He is in favor of doing projects that support the economic lifeblood of communities. He feels we need to evaluate what happened and mitigate for those events that are reasonable to plan for and use best management practices. Raise roads to the extent we can, and don't house critical infrastructure in flood prone areas. Regarding the social impacts, as a result of Sandy many full-time residents were affected and could not afford to lift houses/repair them so they wound up selling out and leaving. There were also a mix of full-time and seasonal residents. The State did not give good advice early on about raising houses, how much money was going to be available, etc. Atlantic County anticipates a significant drop in population as well as Cape May County because of this and a lot of the properties have become income properties, bought by developers. The new properties are built to current building standards but they are not providing year-round residents. Many year-round residents just left. Mr. Fang, Perkins Eastman, asked what bridge was blown out by Irene? Mr. Peterson answered, its CR-559, it is a bridge outside of study area. Dorset Ave Bridge in Ventnor (lost electric and functional issue); Atlantic County has since raised those electrical components after Sandy it was a 100-year-old bridge; Longport bridge from Somers Point to Egg Harbor (had structural issues) it is a high-level bridge so elevation was not an issue it was the roads leading up to it; Brigantine Blvd has flooding issues; it would be very expensive to raise the roads therefore people raised their houses. Mr. Peterson explained there are many bridges that need to be fixed due to all the storms over the last 10 years. Mr. Peterson explained that the County raised all of their bridges above the 100-year storm event. Eric Fang asked if there were any other items that come to mind when Mr. Peterson says "lifeblood" and Mr. Peterson told us it's not just casinos and the boardwalk but the rental properties and the small businesses that are a key part of the economy that support the people that live here year-round. The rental properties provide income for residents and produce rateables for communities and Statewide. You can't just move rental properties. The rental properties and small businesses are the lifeblood of many of these communities.
- 18. American Red Cross Mr. Rodric Bowman-ARC, stated that the American Red Cross is keyed into State Emergency Management Plans, County Emergency Management Plans, and has various MOUs that fit into Emergency Management Plans with many of the municipalities in this Region. He explained that that NJ is now one Region for ARC. He explained that anecdotally he noticed that

challenges existed surrounding mass care. He noticed that material resource sharing has been an issue in the past, especially with some of the southern counties in New Jersey. Being in charge of logistics, he noticed that debris removal has been an issue, trying to get trucks into some places for sheltering was difficult due to debris clearing logistics not being able to facilitate access for trucks. ARC had to work with State OEM and State Police to maneuver the roadways. Power outages were an issue, since service stations did not have power and there was not fuel. Housing displacement was an issue. Trying to identify housing for displaced people was a challenge. Fast forward to today, and the focus of the American Red Cross is really surrounding mass care, trying to support the Counties and the Municipalities with their sheltering and mass care missions. To make sure they have adequate personnel and volunteers to support those shelters long term. Housing stock was an issue post Sandy, people were displaced and where were these people going to go was a huge challenge. The Red Cross is currently written into the state ESF6 Mass Care Planning and ESF8 Health Care planning. The American Red Cross is fully staffed to serve all 21 counties in NJ. They have MOUs with those Counties. They are able to assist to support shelters, and reception centers, and to support mental health and spiritual care and some of the other resources people need post disaster. Just to note, here in NJ now, the American Red Cross does have a seat at the table at many EOCs which has been a huge benefit to the Red Cross and to ARC partners since Sandy. Mr. Bryan Kiel, WSP, asked if the Red Cross had any lessons learned? Dr. Bowman answered that the Red Cross previously has been very stretched and that being realistic about capabilities and not over promising versus what one can deliver is important. It is better to under promise and over deliver. It is also important to leverage partners like other volunteer organizations. Ms. Jaclyn Flor, ENGenuity Infrastructure, asked if organizing volunteers including spontaneous volunteers had been a challenge in the past when a disaster happens? Dr. Bowman explained that he hopes it is somewhat clear that emergency management leaders at county level know who their representative is and that there is a program in place and there are standing MOU's at County level that states what the American Red Cross can and cannot do. Dr. Bowman explained that during Sandy there was a lot of spontaneous volunteers and that can be hard to manage and overwhelming for towns. The American Red Cross does not manage spontaneous volunteers, they do however accept and manage event-based volunteers that are background checked. There is a process for event-based volunteers for onboarding and training to work in a shelter or special projects. However, managing spontaneous volunteers can be a nightmare and requires background checks and training. Mr. Bruce Funk, Longport belongs to a faith-based emergency management response team that has background checks in place for volunteers and expressed that when a storm hits, they work directly with churches to find out how and where to help with disaster response. The American Red Cross also stated that since they are a national organization, they have the ability to pull volunteers from other states and regions, but timing is often an issue with the response time.

19. **Brigantine** - Ed Stinson, City of Brigantine discussed that reluctancy to evacuate has been an issue in the past. The County and local OEM have a very good process in place to put out the advanced warnings to the public but there has been in major disasters a reluctance to evacuate. Brigantine has a unique system, they maintain a list of people who need assistance if there is ever an evacuation that is used to call people ahead of an evacuation to help. There is partnership with the fire and OEM and local jitney drivers that assist in evacuations. There is also a call-in number for assistance for those that need it for evacuations. We need to somehow convince the public of the importance of evacuations. Flooding in Brigantine was a huge issue during Sandy, there were approximately 400 homes in Brigantine post Sandy that were substantially damaged. They lost infrastructure and sewer pump stations, however wells were ok as most have backup generator-

they are replacing ones that do not have backup generator now. Brigantine managed okay on water infrastructure but regarding sewer infrastructure during Sandy they were facing some trouble. The main challenge is to convince people to leave during emergency situation. An existing emergency contract was in place with an emergency contractor for pump station repairs and that was beneficial as Brigantine was able to get a contractor in right after Sandy hit. Going back to what John Peterson mentioned regarding raising roads, Brigantine did do a study on raising Brigantine Boulevard and the result of the study is that it would be very difficult to raise that road due to the existing residential developments on both sides of the roadway. So, it goes back to the evacuation and convincing the public that they have to leave. You can't always raise the streets; you can certainly raise the homes. Let the tide go in and let the tide go out. Have the infrastructure in place so you do not see the wash out of roads where you have roads washing out and water and sewer mains breaking. However, in Brigantine infrastructure is in fairly good shape. It is important for towns to have some emergency contracts in place so that you can get equipment in to clear debris from roadways. Debris cleanup was an issue and clearing roadways to get clean up equipment on to the island was a challenge. In past events like Sandy, Brigantine was fortunate that they did not lose critical infrastructure like water and sewer, however, it was the loss of power that was an issue. Therefore, clearing the roadways was critical to get infrastructure in to restore power. At the time of Sandy Brigantine had recently build community center with the help of County Open Space money and State Open Space money and offered a shelter to people who did not evacuate as a shelter of last resort. Getting food in was an issue, local restaurant was able to feed people in a shelter during Sandy but it's still an issue to be able to get food into the island during a disaster. Regarding socioeconomic many of the homes that were flooded were bay front homes. The Brigantine Golf Course and homes along the bay saw the most of flooding and repetitive loss. Lots of people or volunteers were wanting to help but that means some Contractors who are there to take advantage of homeowners that also come in and take advantage of people. It was hard to vet all the Contractors, and particularly the elderly were taken advantage of. It would slow down efforts to have every Contractor and every faith-based volunteer register with Brigantines construction department and be vetted prior to working. Therefore, although it was considered in the beginning it ultimately could not happen as it would have slowed down the recovery effort too significantly. However, the unfortunate result is instances of people being taken advantage of financially and repairs not being made to the level they should be. This is a concern moving forward. Mr. Fang asked if the golf course area was fee simple and Ed Stinson said it was. Ed Stinson explained that the golf course is a Brigantine Course and was there first, and the developers came in and built single family around that. The golf course is struggling economically, it was developed as part of the island in the early 1900s. Mr. Fang asked about the Golf course's current condition and Mr. Ed Stinson answered that it is in struggling stage and the main reason for struggling is economy. There is no erosion during flooding. Golf course will be open in April-May.

20. Atlantic City – Mrs. Barbara Wooley-Dillion, Atlantic City, answered that boardwalk was hit hard, streets upheaved, no traffic signals for 3 weeks, schools and casinos shut down. Heavy senior population, and economically disadvantaged population. Diverse population- language barriers are an issue. Listening to what Ed Stinson just said about scrupulous contractors coming in, Atlantic City still has homes sitting on foundations that were improperly raised and need to be redone. Barbara Wooley-Dillon agrees with John Peterson that people have left or sold. Atlantic City has an inverse population of rental versus owner populations where they are 70% rental, and only 30% homeowner occupied. Maybe even slightly less. The biggest problem was that people just walked away from their homes and couldn't afford to fix them. Flood insurance isn't affordable. Seniors just could not afford it. Short term responses- OEM has really stepped up, in the process of

activating a public broadcast system, pump stations were developed, microgrids, code red phone system for automatic redial to employees and residents. COVID plan so most of staff can work remotely when next pandemic hits. Engaged with ACOE to work on Route 30 (coming into Absecon Island) possibly elevating the roadway and two other bridges one is Penrose canal and one other canal bridge will be redone. What AC learned is that when they dug down into roads they have a 10" slab of concrete and in order to put utilities beneath it you have to go deep and its costly, so what they discovered is that as a result the fiber optic wire system is imbedded within 2 inches of asphalt on a lot of streets. It's a real challenge that they are working to fix. Interconnected camera system for public safety is put in place. Yes, they have had many repetitive loss properties. AC is in discussions with NJDEP and their Blue Acres program to see if Blue Acres is a possibility for the City. As Ed Stinson recognized this was a bay event with Superstorm Sandy. The Bay area is where repetitive losses happened. The repetitive loss area was in the vicinity of Albany Ave bridge into Route 40 near Chelsea Heights on both sides of the bridge on our back bay area of the City. AC is redoing master plan as they are incorporating blue economy, sustainability and resiliency. Recognize there is a long way to go. The City has the Baltic Avenue Canal System that runs under the City, it is ancient. It will need to be upgraded and reviewed. For future improvements, in process of new pump stations. Have raised a lot of homes but many are side by side and it's very expensive and labor intensive. Where the cost is typically \$30k to raise a home, with these homes they are well upwards of \$100k to raise. So, they are inverted on costs with the raising of homes and the elevations of roads are a challenge. There are a lot of low points by Massachusetts Avenue and Gardener's basin area. Elevating road is real challenge. Bulk heads are critical to the bay areastandards are important. Minimum bulk head established height is 8.2 feet above sea level. Also have established BFE plus 3 feet. Barbara Wooley- Dillon also provided her written notes which included:

- Impacts: Boardwalk, Streets, No functioning traffic signals for 3 weeks, Casinos, Schools, Sand, Debris (in general due to storm surge)
- Vulnerable Populations: Senior population, Low income population (highest percentage), Diverse population – language barriers with unscrupulous contractors. Elevations or raises never done, incomplete, or done improperly.
- ➤ Major Areas of Concern See impacts above and comments below:
  - Low income population (highest percentage) disadvantaged in that they may not be able to afford flood insurance
  - Reverse of homeownership to rental population. Homeowners sold for rental property and exacerbating challenge. Also had homeowners that simply walked away.
- Short Term Responses:
  - Code Red System for notifications to City residents and City Hall employees
  - Public announcement system at Boardwalk and throughout City being reactivated and expanded.
  - OEM City offices really improved and became even more proactive.
  - Re-built Boardwalk and other infrastructure.
- Long Term Responses:
  - Pump stations planned and now being built.
  - Development of Microgrids (near hospital for Casinos, etc.)
  - Establishment of a minimum height for a bulkhead at 8.2'. (Did not have a standard before.)
  - Incorporation of FEMA standards with BFE minimum
  - Participated in study of Rt. 40 area Army Corps of Engineer's Study
  - Route 30 NJDOT will be replacing a drawbridge on Route 30

- Working with NJDEP relating to repetitive losses
- Working to install emergency generators in additional municipal facilities
- OEM began regular training of all personnel deemed to be "Emergency" (even within Administration) to increase awareness and improve efficiency and response times.
- Forced us to review infrastructure replacing 2 local bridges. By performing this
  assessment able to determine where improvements are needed, prioritize the
  improvements, assess a value to improvements needed and take a more comprehensive
  approach to our challenges.
- As a result of COVID-19 established and created process to allow most employees to work remotely. Simply a matter of time before this would be needed in the next major event
- Discovered that the fiber optic cables were embedded into the top 2" of asphalt when major streets were replaced.
- Developed a comprehensive system for cameras which have resulted in increased safety to the general public.
- Repetitive Losses:
  - Have occurred. Primarily along bay in areas near Chelsea/ Chelsea Heights and other areas moving north.
- 21. Ventnor Mr. Ed Stinson, City of Ventnor, said that similar to Brigantine there is an opportunity to come up with some emergency contracts that can be put into place so they are ready for when a disaster occurs, such as debris removal. Ventnor probably has a longer road ahead to address the back bay with bulkheads and erosion. They know they are going to flood so get homes elevated and protect water and sewer, and clear roadways for emergency vehicles. They have the same concerns about the evacuation and people not wanting to leave. Also, similar issues with clearing debris to restore electric and flooding were also challenges for Ventnor. Possibly elevating Wellington Avenue and West End Avenue but need to address flooding on other streets that impact this (like Dorset and Albany Avenue) however it's a very large project that would involve many entities State County, etc. State and County would need to be involved. Wellington is an evacuation route and is a critical point between two evacuation routes. Debris management in combination with adjacent communities, and Wellington would be his focus. Mr. Cesanek asked whether there was a long-term plan to protect water, infrastructure, sewer and power. Mr. Ed Stinson explained that Ventnor has a longer road to get there than Brigantine does. Ventnor has been applying for funding to help raise that equipment above the flood elevations even to the 500 year storm and generators. They have several small wells, but putting a plan together to upgrades all wells. So, Ventnor is vulnerable with water and sewer infrastructure.
- 22. Margate- Mr. Roger McLarnon, explained that during Sandy Margate was the tale of two cities, where the beachfront had no dunes so the sand washed onto the streets and it required a bid effort to remove the sand; and the back Bay was majority of flooding especially in the vicinity of Amhurst Avenue which if you look at the map it is where the Blue Water Marina is. That is a high-density area and there is a lot of homes there, including multifamily homes that were damaged from Sandy. Going back to what John Peterson said, there were the people that could not afford to replace what they had and just took up and left. But the housing stock is being replaced at a quicker pace than one could imagine due to the economics of the situation in regard to second home ownership and businesses. To tag onto what Ed Stinson was saying regarding infrastructure in Ventnor, Margate experienced the same thing where after Sandy they had issues with their sanitary system and their storm sewer system that they did not realize it was an issue right away. Sand had entered and

damaged the system and separated pipes. As for raising roads, he is a big proponent but understands there are limitations. Here in Margate and in Ventnor they are advocating a four (4) ft freeboard requirement. So, if and when they have to raise the roads it may help if homes are higher and you do have to impact the properties as much. He also added not to forget Winter Storm Jonas. Winter Storm Jonas really echoed the problems that Sandy had. Fortunately, Sandy and Jonas were not during the peak summer system. Eric asked if there were any specific businesses that were impacted. Mr. McLarnon explained that Mini Creek was significantly impacted as the outlet to let water out gets bottlenecked. They also are mitigating their fire house at Station 1, at Washington Avenue by putting flood doors on the fire department, however the fire equipment has to be out or you cannot open the doors. They are installing emergency sirens this fall to warn people to leave during the storm. Jenna Scott, CDM, asked if Margate was still working with ACOE on flood mitigation program. Mr. Rutala answered that they determined cost was greater than 10 million so it became part of the back bay study that will be released in July. Which is a larger scope project that will affect all of the barrier islands. Bryan Keil asked if the smaller storms flood the same areas. Rodger said yes, the lower areas in the back bays are still the issue.

- 23. Longport -Mr. Bruce Funk, Longport, explained that Longport is unique in that the population increases to about 10,000 in summer and 800 or less in off season. Fortunately, when Sandy hit it was in the off season. They have a very good evacuation system through emergency management. They have a siren with voice override. Within 72 hours of the actual storm hitting there was a verbal announcement to evacuate every 30 minutes. Had about 40 people left after evacuation, that they had to make some emergency rescues after the storm and move them to a shelter of last resort in Margate. There was a ton of sand from Ventnor Avenue to the beach after the storm. There was conflicting information coming from the State and NJDEP on whether that sand, since it had some debris in it, could be moved back to the beach. Once sand was moved and streets were safe the issue was people wanting to come back on the island. Their main access route is Longport/Somers Point Boulevard and it still had wires down and was a one lane highway after storm. Waves went right over seawall and bulkheads and took out almost 35 homes on the beach front. Back bay flooding was similar to Margate and homes flooding on back bay. In Longport there is a lot of rebuilding, people do not renovate a 50-year-old home there, they tear it down and build new. Therefore, there are higher regulatory standards for building new homes, so there was less damage to homes due to homes being built to higher standards and at higher elevations. At City Hall and Firehouse all heating and electrical and generators have been raised. Where they do have vulnerability is the sewer vent at the street since that just has a grate over it. So, storm and sewer are still vulnerable. Three wells in town- one was compromised, took about 60 days to clean that out. In process of elevating well and building a new one. Dunes are built and could withstand probably a Category 1, maybe a Category 2 or 3, they would be okay but if a Sandy type storm all of Longport will be covered in sand again. So, sand removal will be key. Repetitive losses occur mostly at the Point. Homes at the Point will be damaged with a major storm.
- 24. Pleasantville Ms. Shurlana Stewart, City of Pleasantville, answered that there are eight (8) water ways that run through Pleasantville between creeks and back bays. During Sandy they experienced a lot of flooding in eastern area. Any sea level rise of up to 1 foot will cause flooding. With the Lakes Bay area and Absecon Bay Area they suffered a lot of damage to Marina-exceeded almost 1 million dollars in damage. There was damage to bulkheads in Lakes Bay Area. Electric, water, pump services all affected. Not too much roadway damage but lots of debris that made roads impassable. Homes that were substantially damaged almost 2 million dollars, with most occurring in that Lakes Bay neighborhood. There was also debris in Lakes Bay. So, the debris mitigation caused physical

damages to many of the structures. City water service was completely lost to the eastern end of Oakland avenue so residents had to install their own wells or expensive water filters. There were economic impacts. Residents were not able to work because most residents work in Atlantic City, and Atlantic City was closed for a week to 10 days. Atlantic City gaming industry lost an estimated \$5M per day in revenue due to the closures and this impacted Pleasantville's residents who could not work. Power outages and flooding forced other businesses in Atlantic City to close for several days as well. This also resulted in residual losses in wages to Pleasantville's residents. The second biggest employment sector for residents is the service industry, such as food preparation and maintenance occupations which is also located in the City of Atlantic City. Fortunately, businesses in Pleasantville did not experience any serious damage due to flooding, however power losses forced businesses to close. Pleasantville suffered a lot of municipal equipment losses. Similar to other municipalities, they had citizens that did not evacuate. Citizens who waited to evacuate had to go to in town evacuation sites. Several refused to leave and this became a serious issue. Police officers had to be stationed in area for safety concerns, one specific example was with the safety of a senior citizen that refused to leave their home. Shelters were utilized for Pleasantville and Atlantic City residents, they partnered with Atlantic City to provide shelter for their residents as well. Area schools were closed and resources were slow. Residents felt overwhelmed in recovery process and wound-up leaving properties. Insurance ratings went down and the result was the insurance costs went up; making it unaffordable for many residents. After Sandy, Atlantic County saw an increase in the homeless population, and Pleasantville was a contributor to that. Their strengths were their established relationships in community and the trust between community leaders that were able to funnel resources to residents, especially undocumented immigrants. The undocumented residents feared to ask for help from authorities, so these community relationships were critical to get help to the undocumented residents. Pleasantville worked with Blue Acres to assist residents in getting homes purchased and relocating residents. They are working on educating residents on the CRS system. They worked with Egg Harbor Township to relocate their emergency response system and have it moved further in-land and reduced loss. They are working to have Lakes Bay and Tunis basin dredged. Received funding for bulkheads, for adding and repairing bulkheads on shoreline. Working to replace old, over worked sewer system. City had reevaluated ordinance which allows large developers to have to repair sewer system on new projects.

25. Northfield – Mr. Tim Joo, Northfield explained that there were no water hazards and no flooding issues after Sandy nor for other events in Northfield. Their biggest issue is power outages. The biggest storm challenge was the derecho, where they had no power for almost two (2) weeks. During that event, making contact with vulnerable populations was an issue. As Atlantic City pointed out they are using Code Red now, Northfield does not have anything like that. They are looking into it for emergencies and non-emergencies for critical information. The one thing that has helped is after Sandy, the Register Ready program identifies special needs population and helped after Sandy as everyone received a phone call/communication and a follow-up to see if were fine or in need of anything. People were very appreciative of that and it opened up a line of communication with certain vulnerable populations that was never there before. In addition to Register Read, which is a State wide program, Nothfield's Fire Department maintains a communication line with senior citizens to check on them as well. They just call them every day to make sure everyone is alright. After Sandy, they applied for an energy resiliency grant and have 2 trailer mounted generators that can be transported to sewer stations to pump. Bill Cesanek asked if two were enough, and Tim Joo explained that they use a round robin to move them around and it works. Need to improve on having an available shelter with proper management. There was a winter storm five years ago, where they had to use the court room as a shelter. It provided a warm

location but caused other issues, like needing someone to watch over that individual 24 hours a day, feed that individual, and Nothfield could not use the courtroom. As a result, they are in the process of working with Somers Point and Linwood Community Church to have a regional shelter. They have one remaining signature to get which is Somers Point, and once that is complete then they can move on to the next process and it will be able to shelter up to 250 people. Staffing the EOC is difficult, it is only 2 people. The police and fire departments are small so they cannot take people from there, so they are looking to increase EOC staffing levels. Evacuations were not a big issue for Northfield, but re-entry was difficult because site seeing visitors wanted to come into Margate as well as residents. Some people with secondary homes only had ID from primary home state. So that became a choke point and backed traffic up. Tim Joo is not sure if that has ever been resolved. COVID- lack of PPE was a big issue. Not much specialized training, therefore, everything was reactive and limited. Lack of engineering controls such as plexiglass barriers and trying to incorporate social distancing. Northfield is looking to modify their emergency operation center so that instead of it being an open environment, its going to have the partition walls. The other challenge was working with the businesses to try to help them with the guidelines that changed often, and setting up outdoor seating without blocking access needed for fire response.

26. At that point the meeting was turned back to Alyssa Curran. She thanked everyone and said the Consultant Team would be reaching out regarding the Community Advisory Committee meetings. Alyssa thanked everyone for all the great feedback and closed the meeting at 12:00PM.

### **Action Items:**

- 1. Johnathan to follow-up with NJDEP on if S2607 legislation would require Atlantic City's current draft Master Plan that they just recently completed working on to be updated. Also, since AC has a whole separate Resiliency and Sustainability Element, could AC make a reference to S2607 there as AC has a whole element on sustainability. Jonathan to check on both items with NJDEP.
- 2. The Consultant Team to set up CAC meetings.













# Resilient NJ - March 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** April 27, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – March 2021 – Steering Committee Meeting #3

A meeting was held March 24, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss Assets. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Rodric Bowman	American Red Cross	Rodric.bowman@redcross.org
Barbara Woolley-Dillon	City of Atlantic City	BWoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Frances Brown	Atlantic County	Brown_Frances@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Bruce Funk	City of Longport	zoning@longport-nj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Allyson Powers	WSP	Allyson.powers@wsp.com
Bryan Kiel	WSP	Bryan.kiel@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Jenna Scott	CDM Smith	ScottJ@cdmsmith.com
Ayesha Dolasa	CDM Smith	dolasaar@cdmsmith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Bill Dixon	NJDEP	William.Dixon@dep.nj.gov
Chris Constantino	NJDEP	Christopher.Constantino@dep.nj.gov
Robert VonBriel	NJDEP	Robert.VonBriel@dep.nj.gov

Steve Rochette	USACOE	Stephen.Rochette@usace.army.mil
Jay Bailey Smith	USACOE	Jay.Smith@usace.army.mil
Adrian Leary	USACOE	Adrian.Leary@usace.army.mil

The following was discussed at the meeting:

#### I. MEETING OBJECTIVES:

1. Alyssa Curran, WSP, started the meeting at 10:00. She took the Steering Committee through the meeting objectives which included discussing the USACE projects in the region as well as progress updates and next steps.

### II. ROLL CALL:

2. Alyssa Curran asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves.

### III. USACE DISTRICT RESILIENCE EFFORTS:

- 3. Alyssa Curran then turned the meeting over to Jay Smith, ACOE, who presented an overview of the USACE resiliency efforts in NJ.
- 4. Jay Bailey Smith also identified discussion topics of interest for the meeting.
- 5. Jay Bailey Smith then turned the discussion over to Bill Dixon from the NJDEP, and Bill explained that NJDEP is the non-federal sponsor for the USACE.
- 6. Bill Dixon described how the NJDEP administers the NJ shore protection program and prioritizes partnership with USACE. This is because NJDEP does not have the funding for large scale projects so it is beneficial to be partnered with the federal government. It also eases burden on municipalities. The shore protection program receives \$25 million in funds annually from the Realty Transfer Tax. The NJ shore protection programs has projects throughout the state.
- 7. Bill Dixon explained that the USACE doesn't work without a sponsor. NJDEP is the non-federal sponsor. They handle agreements with local municipalities for projects that directly affect the USACE. Sponsorship means money, real estate, and coordination between USACE and local municipalities.
- 8. Jay Bailey Smith explained that the beach nourishment program replenishes beach sediment. USACE and NJDEP beach nourishment projects include Brigantine Island since 2006 and the latest in Brigantine was 2018; and Absecon Island since 2004. One of the concerns is that the future periodic nourishments are dependent upon receiving an adequate amount of funding. Funding will allow the program to continue. Funding is dependent on appropriations/Congressional cycles.
- 9. Jim Rutala, Regional Coordinator, asked if there are ongoing studies underway on the north end of Absecon island. Bill Dixon responded that NJDEP is partnered with USACE on the Absecon Island

project. The north end of Atlantic City is an erosional hotspot area. NJDEP is partnering with USACE to come up with solutions to the problem and looking at the effects of Absecon inlet navigation project. The goal is to have a solution identified and implemented before the next renourishment cycle.

- 10. Jenna Scott, CDM Smith, & Alyssa Curran asked when the next renourishment will occur. Bill Dixon responded that the last renourishment occurred using FY 2020 funds so the next renourishment will use FY 2023 funds since it is a three-year cycle.
- 11. Bruce Funk, Longport, asked Bill Dixon if rock groins can be extended out to contain sand that is usually lost in storms. After a recent renourishment project in Longport, a few storms wiped away the newly laid sediment. Bill Dixon responded that it is not included in federal project but it can be something that is considered. Most of the sand that has been replenished has been contained to the beach profile. Beaches are recovering as a result. Longport would have to contact NJDEP about their proposed solution then NJDEP can coordinate with USACE.
- 12. Jay Bailey Smith then explained that the NJ Back Bays CSRM Feasibility Study focuses on coastal flooding and sea level rise. It includes looking at causes of flooding and solutions to manage risk. USACE has been working on study since 2016. Back bay has bulkheads that are not adaptable to sea level rise. During storm/flooding events, flooding comes over back side of island. Management measures for consideration include, structural, non-structural, and nature/nature-based.
- 13. Jay Bailey Smith said the current tentatively selected plan for the NJ Back Bays study is being optimized for release of a draft report in the summer of 2021. This plan includes the entire study area, storm surge barriers, cross-bay barriers and non-structural areas. In Atlantic County, Absecon inlet and Little Egg inlet did not receive barriers due to environmental concerns. The tentatively selected plan will be open to public comment once released this summer. Feedback is important in order to further optimize the plan.
- 14. Jim Rutala asked Jay to explain further the Absecon Blvd project. Jay responded that the road is at a low elevation. Elevating the roadways in vulnerable areas and putting gates underneath existing bridges that can open and close in certain events to mitigate flooding are possible solutions.
- 15. John Peterson, Atlantic County, asks what kind of environmental analysis has been done for the storm surge barriers and bay closures that are proposed in the tentative plan. Jay responded that NEPA law requires environmental impacts to be taken into consideration. Engineering lab performed hydraulic analysis and is still ongoing. The open condition of the barriers has been studied in detail but not yet the closed condition. The EIA is still ongoing.
- 16. John Peterson followed up by asking if there have been any wildlife impact studies performed for the storm surge barriers. Jay responded that it hasn't been done yet but it is in the plan. The models may indicate that the storm barriers are not the best option in certain areas. The USACE study in coastal Texas can be used as a blueprint for a study performed in NJ.
- 17. Jim Rutala asks what the non-structural improvements in Brigantine consists of. He explains that Brigantine has the most aggressive home elevation program in South Jersey. Jay responded that so far there are no specifics. Generally, the project would consist of taking vulnerable houses and raising them to a safe elevation. Implementation plan is being developed in association with NJDEP

by looking at participation rates and marrying the federal non-structural program with the State's goals.

- 18. Eric Fang, Perkins Eastman, asked Jay Bailey Smith to elaborate on problems along the Bay side. Is it just storm surge being considered? Jay responded that storm surge is the main problem and focus of the plan. USACE has identified the following problems:
  - high frequency flooding (a lot of interaction with municipalities on stormwater and sunny day flooding)
  - > sea level rise
  - > storm surge
- 19. Jay Bailey Smith added that sunny day flooding is also a concern and is a result of sea level rise. Multiple solutions are available. If storm surge barriers don't address the rising sea level problem, a new solution will have to be sought. Frequent interaction between the parties involved will be required to come up with solutions. There will be additional plans to address high frequency flooding and sea level rise. Nature-based solutions are a potential solution for reducing flood damage, as well as walls, and pump stations. In solution evaluation USACE is looking at national/regional economic benefits as well as social impacts through National Economic Program (NEP).
- 20. Ed Stinson, Brigantine and Ventnor, asked Jay if there's been any consideration for raising Wellington Ave and West End. Jay responded that he was not sure if that is a part of the study. The plan was to raise bulkhead rather than raise Wellington Ave. Ed replied that there is no bulkhead along Wellington Ave and that someone should study that area because its similar to the Absecon Blvd. and South Ocean City Bay closures. Jay replied by saying that it is something that will be looked into and considered in a future plan.
- 21. Bill Dixon clarifies the areas that will have structural solutions on the tentative plan.
- 22. Bruce Funk asked if storm surge barrier will increase tidal surge in the surrounding areas. Jay replied that models have shown the barriers don't affect the back bays very much. A bay closure at Absecon Blvd. is more effective than one at the inlet.
- 23. Eric Fang asked if there are alternate solutions other than a flood gate to address storm surge. Jay responded by presenting a map graphic showing the alternate management measures. There is no perimeter plan in the current tentative plan.
- 24. Jay Bailey Smith presented the preliminary Great Egg Harbor Inlet storm barrier design. Alyssa asked if the barrier will open and close automatically during storm conditions. Jay replied that it is monitored and mechanically operated.
- 25. Jay Bailey Smith explained that the inlet storm barrier is expensive. (\$10-15 billion; see note). It pays for itself since it reduces flood damage during storm events. O&M is covered by state and is 1% of the construction cost annually. Eric Fang asked what is the geographical area covered by the \$100 million O&M cost? Jay responded that it includes the area included in the tentative selected plan. Note: NJDEP clarified the \$10-\$15B after the meeting; the \$10-15B is for the entire study area,

inclusive of all 5 counties from Monmouth to Cape May. The estimated costs for NJBB structural solutions (as of March 2019) identified in the ACCR are as follows:

- Great Egg Harbor Inlet Storm Surge Barrier: Initial Construction = \$3.9B, O&M costs = \$60M/yr
- Absecon Blvd Cross Bay Barrier: Initial Construction = \$986M, O&M costs = \$14M/yr
- Southern Ocean City 52nd St Cross Bay Barrier: Initial Construction = \$421M, O&M costs = \$6.2M/yr
- 26. Jacques Howard, Atlantic City, asked if there have been any calculations of the force of water going through the storm barrier gate? Jay Bailey Smith explained that is all being considered in the next phase of the design process. If the study is completed in 2023, construction will be on track to begin in 2030. Before that happens, the possible hydraulic forces on the gate will be studied. There are also questions that must be analyzed/coordinated on how to close surge barriers for sunny day flooding and how to establish other criteria for closing them and at what frequency.
- 27. Alyssa Curran confirms with Jay Bailey Smith that the slide presentation can be shared with the meeting participants.
- 28. Bill Cesanek, CDM, asked, during storm events will the navigable area of the inlet barrier be closed and not just the vertical gates? Jay Bailey Smith clarified that the gate will be fully opened or fully closed depending on the current conditions.
- 29. Jim Rutala asked if there is any other community outreach regarding the storm barriers? Jay Bailey Smith responded that outreach is very important. No outreach has been done since two years ago due to COVID. The report will be released this summer and webinars and meetings will soon follow. Website with all information is available. Alyssa Curran added that the steering committee has identified community leaders and advisors to bolster the outreach effort. Also, the engagement plan has been helpful. Jay Bailey Smith responded that USACE can help with the study report deliverable due in May 2022.
- 30. Jay Bailey Smith presented a slide showing natural and nature-based features. The next slide featured sea level change projections. Working with NJDEP to compare different data sets. Jay Bailey Smith continued by talking about high-frequency flooding which require investments from municipalities/state. Have to work together to get high-frequency flooding in the national program. Need to find ways to address this type of flooding.
- 31. Jay Bailey Smith presented the study milestones which are tentative. The next step is to release the report this summer since the tentatively selected plan was created. Final recommendation to congress should occur in 2023.

#### IV. DISCUSSION:

32. Jay Bailey Smith thanks the meeting participants as he wraps up his presentation. Alyssa opens the discussion for questions. Alyssa asks how to address the different problems within the different towns in the region (beach areas vs. back bay areas). Jay Bailey Smith replied that Nature Based Feature work will address large scale features. There is an opportunity that the cost of real estate is less on barrier islands and will allow marshes to expand and adapt to sea level rise. Jim Rutala added that Pleasantville will purchase a large share of flood plain area that is not suitable for

development. Since property values are low this purchase is possible. Places where land value is high want to continue coastal development. Jaclyn Flor, Engenuity, added that the blue acres project in Atlantic City is it something that can built upon in future TAC meetings. Barbara Woolley-Dillon, Atlantic City, responds that Atlantic City has been having conversations with NJDEP and part of the challenge is some homeowners considered selling but they would like to be relocated within the City. The process is ongoing.

- 33. Jim Rutala added one of the challenges presented in the meeting shows the difficulty of having local funding of different measures being discussed. NJDEP said the federal government and state won't be able to cover the costs. We have to reexamine the policy being formed and implemented because the size of the budget is out of reach for municipalities. Roger McLarnon added that we should look at lower cost solutions at a local scale rather than a regional scale to make it more feasible for municipalities. Going for "low-hanging fruit" first is recommended. Jay Bailey Smith responded that storm surge barriers are expensive so scaled implementation plan like raising roads is being considered. Adaptability will also play a role as storms get worse over time. For example, you can keep raising a road to adapt to the conditions.
- 34. Bill Dixon added that the back bay study came from Hurricane Sandy and the study consists of a large area so it is difficult to get to local solutions. The studies done with USACE have to satisfy cost-benefit requirements meaning there are certain parameters that need to be met. What will the public want to implement? Sandy was a catalyst for many renourishment projects to occur. Once the study is complete, we can see what the USACE can implement. Implementation could be decades away or one bad storm away. USACE won't be able to solve every problem in the region due to inadequate funding. It is difficult to implement management measures with small municipalities. Immediate problem vs. long term problem. Implementation of the studies are based on cost-benefit analysis. There are really three (3) options or combination thereof: 1) keep water out; 2) adapt to let water in; 3) retreat.
- 35. Alyssa Curran explained that Resilient NJ scenarios are dependent on stakeholder input and if they're feasible. Bill Dixon added that NJ is working on a climate plan which will be released this year and will discuss bigger issues and solutions. All levels of government will be required.

### V. PROGRESS UPDATE:

- 36. Alyssa Curran gave a status that the project is in the community advisory committee meetings phase. Planning context chapter is coming up soon. Visioning is coming up soon. Asset collection/risk assessment is coming up as well.
- 37. Jaclyn Flor said that the recruiting for focus groups has commenced. She explained that social media posts were provided to SC members. SC can post on social media, or send link to business etc. to join focus groups. The visioning will be a part of the focus group meetings and that data will be brought back to the SC. There have been three (3) CAC meetings so far. After CAC meetings occur, then the TAC meetings will include all levels of government leaders to obtain input. She asked whether the SC wanted to attend the CAC and TAC meetings to hear data first hand? If not, how to best disseminate that info. Bruce Funk asks how long do the CAC meetings last. Jaclyn responded one (1) hour. Bruce Funk said he wants to arrange meeting before commission meeting in Longport. He will need talking points/info to give to committee.

- 38. Jaclyn asked if SC should be in TAC meetings. Shurlana Stewart, Pleasantville, replied that if the meeting will bring forth information like today's meeting then it could be beneficial. Jaclyn Flor said that the agenda will be sent to SC members so that they can decide if that want to be in the meeting.
- 39. Jaclyn Flor explained that in addition to focus groups there will be a public event. Ideally there would be one meeting for every milestone to get different input. In terms of scheduling, is there a recommendation to maximize attendance? Jim Rutala suggested doing something through chamber of commerce. Using a platform that exists will be better.

### VI. NEXT STEPS:

40. Alyssa Curran said that in terms of Environmental justice/racial equity, NJDEP was contacted and sent around info focused on this topic. It is a priority for this project. Alyssa said that NJDEP is working on pulling together resources for municipalities.

## VII. ADJOURN MEETING

41. The meeting ended at 12:02 PM.

### **Action Items:**

- 1. The Consultant team will share the meeting presentation slides.
- 2. The Consultant Team to send one-page Resilient NJ ACCR Sheet to all Steering Committee Members.
- 3. Schedule of upcoming TAC meetings to be circulated with SC so they can decide if they would like to attend meetings.













# Resilient NJ - April 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** May 4, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – March 2021 – Steering Committee Meeting #4

A meeting was held April 28, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss Assets. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	BWoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Frances Brown	Atlantic County	Brown_Frances@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Bruce Funk	City of Longport	zoning@longport-nj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Bryan Kiel	WSP	Bryan.kiel@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com

The following was discussed at the meeting:

#### I. MEETING OBJECTIVES:

1. Alyssa Curran, WSP, started the meeting at 10:00 AM. She took the Steering Committee through the meeting objectives which included discussing the updates at the state level, Planning Context update, Engagement update, Risk Assessment update, Project Visioning and next steps.

### II. ROLL CALL AND UPDATES:

- 2. Alyssa Curran asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves.
- 3. Alyssa Curran reviewed some of the update regarding the Resilient NJ Project including NJ Climate Change Resilience Strategy, NJPACT, Cross-Regional Stakeholder Meeting, Enterprise Community Partners self-assessment tool and upcoming public events. Alyssa said the NJ Resiliency strategy came out on Earth Day and is a result of Executive Order 89. She said there has been an interagency council to develop the climate change resiliency strategy and an outline of how to promote the long-term mitigation, adaptation, resilience of New Jersey's economy, communities and infrastructure. Alyssa said there will be a couple virtual information sessions on May 4<sup>th</sup> and May 5<sup>th</sup> and that the link was not yet available but as soon as it was that she would send it out. Alyssa said there is also a survey to provide feedback on the strategy and there can be a discussion to see if there is interest. Alyssa said that Jessica Jahre is the Project Manager for Resilient NJ on DEP's side and she has been very responsive. Alyssa asked Barbara Woolley-Dillon, Atlantic City, if reaching the NJDEP has been helpful and Barbara said it had.
- 4. Alyssa Curran asked who on the Steering Committee had asked about the NJPACT and Jacki Flor said it was Ed Stinson. Ed Stinson, Brigantine and Ventnor, asked if the team could arrange some conversation/communication with the DEP to discuss their proposed rules, the study and validation of the study, and the decisions the NJPACT is making. Ed Stinson said the feeling he is getting from Mayor's and Public Officials is that the DEP is fast-tracking this and that it will become legislation before there is even an opportunity to sit down and discuss the overall impacts. Ed Stinson said as part of the PACT there are changes to DEP's authority in the stormwater regulations and fresh water regulations and that it is important that everyone learn what those changes will be as well. Ed Stinson said there is a lot on the local side that they need to be prepared for from the changes.
- 5. Jim Rutala, Regional Coordinator, said that most of the governing bodies are opposed to the NJPACT changes. Jim Rutala said another concern is the transitional areas and how they'll impact our coastal areas and that it is important that the next meeting be in person and that is what the mayors are requesting.
- 6. John Peterson, Atlantic County, agreed with both Ed and Jim and said that there is little to no discussion on resilience towards the economy and there needs to be a real discussion on the balance, and a positive opportunity for creating the best management practices that look at the overall length of the projection.
- 7. Alyssa Curran said they did reach out to DEP and spoke with Jessica Jahre and they had closed the stakeholder piece on rules so far but that once the rules come out they will be having listening sessions and it'll be a year before they're adopted so there is still time to make changes.

- 8. Alyssa Curran said there is going to be a cross-regional stakeholder meeting on May 17<sup>th</sup> from 2-3:30. She said it is open to the Steering Committee and that the Steering Committee should be receiving invitations to the meeting shortly.
- 9. Alyssa Curran explained that they have been working with Enterprise Community Partners to develop a self-assessment tool.
- 10. Alyssa Curran then showed an image of the "My Coast" app which allows people to submit photos of flooding and track flooding conditions.
- 11. Jim Rutala said there are three (3) additional events on the horizon- the county will be kicking off hazard mitigation plan on May 20<sup>th</sup>. The Core meeting with Atlantic and Cape May County officials on May 19<sup>th</sup>, and there is a flood insurance and FEMA Home workshop on May 18<sup>th</sup>. Alyssa said she would follow up with Jim to get details on the three events in case any Steering Committee members were interested.
- 12. Alyssa went through an update from USACE on the Back Bay Study. She said there was an update with the costs. She asked if there was any discussion on the feasibility of the Back Bay Study.
- 13. John Peterson, Atlantic County, said he still believes the Back Bay closures and discussions are non-starters from an environmental perspective. He said the numbers may be more manageable from what he saw a month ago but that they're still extremely high. John said municipalities will not be able to help fund their portion of the bill.

### **III. TASK I PLANNING CONTEXT UPDATE:**

- 14. Alyssa Curran then turned the meeting over to Bryan Kiel, WSP, who reviewed where the Consultant Team is on Task I.
- 15. Bryan Kiel said that the Planning Context Chapter is just about done and is quite long. Bryan reminded everyone that the Planning Context Chapter was focused on the history of the region from an environmental, social and economic standpoint and to look at what the plan for the region is.
- 16. Bryan Kiel said the Planning Context is over 130 pages. He said they are working on finishing an executive summary for the Steering Committee to review and give feedback on. He said they are hoping for a two-week review period and there will be some guiding questions within the report. He said he will be looking forward to feedback.
- 17. Bryan Kiel gave an overview of the Planning Context Task and showed a high-view of some of the Challenges and Plans, Policies, and Programs Reviewed. Bryan explained that they are looking at some existing local and regional visions and that they will try to build off them as they build the regional plan.
- 18. Bill Cesanek, CDM Smith, asked what kind of review process the Consultant Team is looking for from the Steering Committee.

- 19. Eric Fang, Perkins Eastman, brought up the possibility of Bryan giving a short summary presentation of the Planning Context to the Steering Committee in order to highlight all of the important information and text.
- 20. Bryan said he thought that made sense and would be willing to give the presentation.
- 21. Jacques Howard, Atlantic City, asked if there should be a statement that would encapsulate the expectations of the resiliency study. Jacques said pointing out the elements that need to be addressed for the future of the region should guide the document. Jacques said we need to look at the region within the context of New Jersey as a whole.

#### IV. TASK 2: ENGAGEMENT UPDATE:

- 22. Alyssa Curran then turned the meeting over to Jacki Flor, ENGenuity, to review the Engagement update.
- 23. Jacki Flor said that all of the CAC meetings except Pleasantville were done and that Pleasantville is being scheduled shortly. Jacki said Jim helped to organize the meetings with the adjacent towns. She said that what they found during the CAC Meetings were a lot of similarities among the communities. She gave the example of the price of home ownership going up in several communities and second home ownership was increasing in several of the communities.
- 24. Jacki Flor said during the CAC Meetings they also heard a lot about short-term and long-term resilience.
- 25. Eric Fang brought up that it seemed that some of the communities seemed to not have the relationships of work and "bedroom-communities" like they had in the past. Eric asked how they saw themselves all as one community.
- 26. Jacki Flor reiterated that what they heard during CAC Meetings was that a lot of the communities used to rely on Atlantic City for work and that doesn't seem to be the case as much anymore.
- 27. Jacques Howard said there was a report done several years ago by the Atlantic County Economic Development Authority and they looked at the County as a Region. He said it might be worthwhile to take a look at that report.
- 28. John Peterson said that he has not seen additional fragmentation but has seen the historic and traditional separation. John said he has seen less central impact from Atlantic City due to the deterioration of the Casino Industry. He said he sees less dependency on Atlantic City from the neighboring communities but at the same time sees more interdependence and cooperation between the municipalities trying to generate new diversification of the economy from the tourism industry, FAA and new medical opportunities in the region.
- 29. Jacki Flor discussed the socially vulnerable populations and thanked the Steering Committee for their help with filling up focus groups. She said DEP is still looking at using incentives for Focus Groups.

- 30. Jacki Flor asked if the Engagement Team should be translating fliers and social media into languages other than English and Spanish.
- 31. Jacques Howard suggested Bangladesh, Hindu and Vietnamese. Jacki said the next step is outreach to the TAC. Jacki showed the press release and some of the website posts.

## V. TASK 3: RISK ASSESSMENT UPDATE

- 32. Alyssa Curran then turned the meeting over to Bill Cesanek to review the Risk Assessment Update.
- 33. Bill Cesanek said they are setting up the area for an analysis of impacts under the different scenarios that are provided by DEP. Bill said as far as the overall process he wants to communicate a three-step process and that process is visioning, prioritization, and risk assessment. He explained the visioning informs the prioritization that tells a subset of assets that are needed to move into the risk assessment phase.
- 34. Jacques said he thought this was an excellent approach and asked if once the visioning is done and drilled down to the impact, will there be an opportunity for the communities to discuss what preventative measures need to take place first to avoid a catastrophe.
- 35. Bill said once they see the impacts then they will develop strategies.
- 36. Bruce Funk, Longport, asked if the Steering Committee would be getting a form to fill out for their assets.
- 37. Bill said that they were planning to take care of the assets but will bounce information off the Steering Committee members to make sure it is correct.

### VI. TASK 4: PROJECT VISIONING

- 38. Alyssa Curran then turned the meeting over to Eric Fang to discuss the status of the Project Visioning.
- 39. Eric then brought up some of the questions that they are asking such as: How can the unique identities within the region come together to create a common whole? Why do people choose to live here? What aspects of the region are you most proud of? Are there any distinct and unique identities within the region? Why do employers choose to locate here?
- 40. Ed Stinson said for Brigantine and Ventnor that the pier, beach and bay front is the image for Brigantine. Ed said they used to be considered the "bedroom community" of Atlantic city. Ed agreed it would be safe to say it is about the water and that seems to be a theme throughout the region. Ed added that Brigantine's golf course is also a great opportunity for outdoor entertainment.
- 41. Tim Joo agreed that the shore was the aspect that is most appealing.
- 42. Eric asked if the communities if they could see themselves as a joint region.

- 43. Jacques brought up that the region gives off a different mindset that is more relaxed.
- 44. Eric asked what is different between Long Beach Island and Atlantic County.
- 45. Ed said there isn't much difference aside from the fact that Atlantic County has mobile access points and LBI is strictly an island. He said they are very similar other than the accessibility.
- 46. Bill Cesanek said he sees Atlantic City as the big difference between LBI and Atlantic County.
- 47. Ed agreed and said that some of the restaurants and activities are also more of a draw.
- 48. Bruce Funk said part of the draw of Longport is that if you want adult only entertainment you could go to Atlantic City but if you want family friendly activities you could bring your family to the beach and boardwalk.
- 49. Barbara Woolley-Dillon, Atlantic City, said that another thing that separates them from LBI is the year-round population.
- 50. Jacki asked what impact conventions have on Atlantic City. Barbara said there are several governmental agencies that use Atlantic City for their conventions and it is known state-wide as a place to come together which is unique to Atlantic City.
- 51. Barbara also said Atlantic City is a 24/7 community which is unique. She also said they are the only community with a homeless shelter right in the center of town.
- 52. Barbara said that there is at least one person from every county in New Jersey who works at the casinos.
- 53. Eric asked if the region as a whole reinvented itself as Atlantic City seems to also do.
- 54. Barbara said that in her experience some of the neighboring communities do try to adapt and reinvent themselves. She said the community seems to be very open to finding the trend that is going to help them get the best result.
- 55. Tim said it is evident in the area that the Home Rule applies and it has been difficult to share resources because of this. He said if you look back at how many ambulances were available 10 years ago vs. now it would be more than half and if there is a major disaster they would be in trouble. Tim voiced his concern about something happening and not having enough resources and Home Rule is not going to be the solution to the future.

### VI. NEXT STEPS:

56. Alyssa Curran said that they will be sending the Planning Context Chapter for review, more engagement with Focus Groups and outreach with TAC, and project visioning will be coming up as well.

#### VII. ADJOURN MEETING

57. The meeting ended at 12:02 PM.

# **Action Items:**

- 1. The Consultant Team to send links for upcoming events
- 2. The Consultant Team to send Planning Context
- 3. The Consultant Team to reach out to NJDEP regarding NJPACT













## Resilient NJ - May 2021 - Steering Committee Meeting

## **MEETING MINUTES**

**DATE:** June 22, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – May 2021 – Steering Committee Meeting #5

A meeting was held May 26, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss Public Meetings and Engagement. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	BWoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Lisa McGee	American Red Cross	Lisa.McGee@redcross.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Bruce Funk	City of Longport	zoning@longport-nj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com

The following was discussed at the meeting:

### **I. MEETING OBJECTIVES:**

1. Alyssa Curran, WSP, started the meeting at 10:00 AM. She took the Steering Committee through the meeting objectives which included discussing the updates at the state level, Planning Context update, Engagement update, Risk Assessment update, Project Visioning and next steps.

### **II. ROLL CALL AND UPDATES:**

- 2. Alyssa Curran took roll call of all Steering Committee members.
- 3. Jonathan Carey, WSP, then introduced Kristin Shaw, WSP, who went over the PollEv.com tool. She went through the various questions and slides and showed how the different slides can be used and customized.
- 4. Jonathan Carey said that the poll is one of the tools that will be used within the Open House that will be opened up to the public.
- 5. Jonathan Carey said the goal is to tell the public what we have heard and then provide an opportunity for the public to give feedback on their experiences as well. He said they are targeting having the meeting in June. He asked if the Steering Committee had any suggestions for timing and a place for the Open House.
- 6. Jim Rutala, Regional Coordinator, said regarding timing, that later into the summer season, there will be less people available. He suggested targeting June.
- 7. Alyssa Curran, WSP, asked if there were any suggestions for public events outside of the open house public meeting.
- 8. Bruce Funk, Longport, said that in Longport they have a race on July 6<sup>th</sup> that will have 1,000 runners.
- 9. Shurlana Stewart, Pleasantville, suggested the National Night Out that takes place later in the summer.
- 10. Jaclyn Flor, ENGenuity, said the National Night Out was brought up in the Focus Group Meetings as a suggestion as well.
- 11. Jaclyn Flor brought up timing of meetings for the public and said that yesterday in focus groups she heard that some people prefer the daytime and some prefer the nighttime.
- 12. John Peterson, Atlantic County, suggested having both daytime and nighttime meetings.
- 13. Jim Rutala said they had an Atlantic County Chamber Housing Meeting last night and that 60 people signed up and only 30 attended.
- 14. Jonathan Carey brought up that offering an incentive to show up at meetings might be an option.
- 15. Lisa McGee, American Red Cross, added that the ARC is looking at the Red Cross coming up with incentives before the holiday weekend. Alyssa Curran asked Lisa McGee if she had any recommendations on AM vs PM meetings.
- 16. Lisa McGee said the Red Cross often gives two (2) options for meetings and that it seems that they are both heavily attended. Lisa McGee also said that recording the meetings and sharing a Teams Link afterwards is a good option.

- 17. Jaclyn Flor noted that it sounded like earlier in the summer was the best time to do the meetings.
- 18. Jim Rutala asked what dates they had in mind and Alyssa Curran said they were looking at June 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> and noted that the dates they are considering are in the chat. She mentioned that they would probably be doing a dry-run prior to the virtual meetings.
- 19. Alyssa Curran then thanked Kristen Shaw for her time and Kristen signed off from the meeting.
- 20. Alyssa Curran shared the NJ PACT Meeting questions that will be shared with DEP. These included base flood elevation concerns, regulations that were already set whether or not there is a need for new regulations.
- 21. Jim Rutala said that, in general, the transitional buffer areas are confusing and asked if anyone had a clear explanation on it. He said that is seems that there is not a clear understanding on the transitional buffer areas. NOTE: After the meeting Jessica Cobb at Asst. Commissioner Mazzei's office noted "An IRZ map is not available at this time however, AC Mazzei recommends utilizing NJ Flood Mapper and adding 5' to the sea level rise tool".
- 22. Bill Cesanek, CDM Smith, said there seemed to be a certain amount of frustration within the questions and asked if anyone had met with DEP previously. Jim Rutala said that he didn't think anyone within the counties had been involved in any of the stakeholder meetings and that DEP is saying the questions are well vetted.
- 23. John Peterson said that number five (5) is critical and that DEP is not seeing that. He said there is a one-sided analysis that has been done. John Peterson said that the state is mandating what needs to be done and telling the County that you better have the money to cover it without checking with the County first. John Peterson said there is not enough money within municipalities to cover what needs to be done so the message from DEP needs to change.
- 24. Jim Rutala said the public officials are very sophisticated and have dealt with Sandy, FEMA, and flooding issues and know exactly what the impacts will be and that a lot of them are not being heard and that DEP is saying the Stakeholder process is over without these people being heard.
- 25. Jim Rutala said the Army Corps is coming out with their plan in Mid-July and that, unlike DEP, they have met with all the Mayors in Cape May County and it would have been better if DEP had done that as well.
- 26. Alyssa Curran said she would send around the draft of the Resilient NJ-ACCR NJ PACT Meeting Questions after the meeting for any final comments.
- 27. Bill Cesanek asked how the items will be written up and Alyssa Curran said that it will be presented as recommendations compiled by the Steering Committee.
- 28. Alyssa Curran turned the meeting over to Bill Cesanek and Jaclyn Flor to discuss the Visioning questions that will be used to create discussions during the future Open Houses. Bill Cesanek said to keep it simplified a bit they used some of the sustainability principles which included social, economic and environmental.

- 29. Bill Cesanek said when thinking about resilience we kept in mind what DEP had been talking about including accelerating community resilience, project objectives and scenario-based strategy.
- 30. Jaclyn Flor reviewed feedback from the CAC and SC Meetings. She said that during the CAC meetings a key theme was community cohesion. When we consider community cohesion, we are really thinking about people, residents and visitors, and the social aspects. This is an area where people throughout the state and beyond come together for conferences and to reconnect, there are residents and visitors, there is second home ownership, and year round residents. She said preserving diversity and multi-generations being able to stay in the area as the area changes were all key points that we heard. Jaclyn Flor said that some of the communities were not bothered by second-home ownership and other communities saw it as a potential problem.
- 31. Jalyn Flor reviewed the information gathered from the SC and CAC regarding Economic Opportunities. She said that some of the beach front communities no longer depend on Atlantic City and many have residents commuting to Philly to work. She reported that we heard a lot about the Blue Economy and second-home rentals providing income for residents. Jaclyn Flor reported that the downtown areas of the communities with small businesses are key.
- 32. Jaclyn Flor recapped the importance of environmental resilience in communities from the CAC and SC Meetings. Many of the communities spoke on how they were prepared to live with the water as the coastal areas adapt to climate change. Jaclyn Flor said that there were varied solutions to back bay flooding and that the conservation of the marshlands was stated as key to the health of the back bays. She mentioned that sediment transport impacts both Brigantine and Longport and that a jetty or USACE study is needed on the north end of Brigantine; and a jetty on the south end of Longport.
- 33. Jaclyn Flor mentioned autonomous vehicles and the future of transportation on shore towns and how these vehicles will affect the region. Bill Cesanek added the potential importance of evacuation routes for civilians using such advanced (electric) vehicles in areas prone to flooding and power outages.
- 34. John Peterson brought up in the chat that second home ownership is a form of gentrification that prohibits continued family ownership of year-round homes. Roger McLarnon agreed with John in the chat and added that second home ownership/investment market is putting pressure on commercial properties to convert to residential as the year-round population reduces.
- 35. Bill Cesanek raised the question of whether there are trends in some of the down beach communities that are stronger towards second-home ownership or is the concern more that it will spread to other areas where there is a year-round population. John Peterson said there is a question on how the infrastructure of government is maintained with such a decreased year-round population.
- 36. Bill Cesanek asked the group if people see the areas under development as stable populations or projected for future growth. John Peterson stated that the economy would have to diversify outside of the tourism industry while also supporting the tourism industry in Atlantic County in order to foster future growth.

- 37. John Peterson said he does not know if they anticipate huge growth in the barrier islands. Roger McLarnon agreed with John that high rise buildings along the beaches in these regions have been generally frowned upon. Roger McLarnon said the first high-rise in thirty (30) years was just approved.
- 38. Bill Cesanek raised general questions regarding forming a plan for the Resilient NJ areas including social, environmental and economic opportunity.
- 39. John Peterson acknowledged that the study of such activities like the AC Convention Center go beyond the scope of this meeting as far as future projections and business modeling. He believes they do not fully relate to the environmental impact of this study. John Peterson said cannabis is not really farming and should be separate from the farming industry as it is farmed differently.
- 40. Shurlana Stewart, Pleasantville agreed with John and added that the cannabis industry requires massive infrastructure and speculated on the politics in New Jersey that would be allowed from the government.
- 41. Barbara Woolley-Dillon also added that municipalities need to decide for themselves to "opt-in" to the cannabis industry in the state but Atlantic City does not know what "opting-in" fully means for the municipality as a whole in regards to the cannabis industry. She added that the other industries should grow around the region with new opportunities like the FAA and that it would be nice to increase the smaller businesses downtown. Bruce Funk agreed with everything Barbara said.
- 42. Roger McLarnon added that the commercial fishing industry needs to be protected somewhat and that regulations have hindered the industry and that Atlantic County needs to do more to protect the industry.
- 43. Barbara Woolley-Dillon asked for consideration in what can be done to add to the industry, like dredging and aquaculture.
- 44. Roger McLarnon added that dredging at Gardener's Basin will help the fishing industry.
- 45. Bruce Funk asked Barbara Woolley-Dillon about dredging: where would the spoils of dredging be placed and would it raise the elevation of the marshlands? Barbara Woolley-Dillon answered that the board she is on is planning to incorporate these concerns into the Bader-Field Redevelopment Plan of that area affected by proposed dredging.
- 46. Roger McLarnon said Margate is looking into a dredging program using dredge hole 86 that is on an island shared with Ventnor. He said they are looking to fill the previously hollowed dredge hole back up to create resiliency and prevent erosion. He believes that ecotourism and beach tourism and beach eco-friendly development would increase the value of Margate as far as environment would go.
- 47. Roger McLarnon said the dredging project in Atlantic City is way overdue to provide an area for use and official reuse in the future rather than have dredge material go unused. Roger McLarnon said he is a fan of elevating Bader Field and it will provide an area of re-use.

- 48. John Peterson said there is dynamic tension between the environmental side and economic side of reusing dredge materials. He said that many environmental people are against dredging and its applications and therefore do not support it. He also said that existing farms already recycle dredge spoils with desalination. The preservation of the marshlands is critical to the local fishing and commercial fishing industries. The environmental side of dredging in its current format is almost a guaranteed veto in politics.
- 49. Bruce Funk said Avalon did a pilot program a few years ago and asked if anyone knew if they built anything. Roger McLarnon said he was not aware of them doing that anywhere other than Delaware. He said the problem with the dredge regulations is that the areas are automatically assumed to be contaminated.
- 50. Bill Cesanek asked does a Resilience Plan work best as a Timeline, Geographic Plan, Map of Interdependencies, or a set of Regulatory Changes and Local Agreements. He also asked about achieving short-term resilience, long-term resilience and urban design and asked for feedback on these questions to better gauge the stakeholder mindset.
- 51. Roger McLarnon believed that all of the categories Bill mentioned must be used to form a resilience plan and that such a plan by design will have to be a "thick web".
- 52. John Peterson commented that the barrier-island communities are "walkable" and therefore should manage their expectations with developing plans around rural-suburban centers along the barrier islands, which are by nature more attractive for tourism and such industries.
- 53. Jaclyn Flor asked to hear feedback about flooding and the Blue Acres program.
- 54. Shurlana Stewart stated that there was understandable "hesitation" in asking homeowners to leave homes they have held for years and/or generations. She said that there was a lack of effort to educate communities on the climate change and potential for flooding and that education was the key problem for convincing the "buy-in". She also said resources for raising homes in flood zones and low-lying areas were not entirely available, and some residents needed to "sell-out" to the state and find housing further inland. She also asked what would happen in the future with water levels rising and this process would have to repeat.
- 55. Jaclyn Flor asked Barbara Woolley-Dillon about DEP buy-outs and Barbara responded that the patterns where people called in for buy-outs was "shotgun patterned" and was difficult to predict. She said only a handful of homeowners asked for relief from flooding. She believes that there needs to be a compromise between second-home family houses and year-round families: and often second-home buyers tend to list their new properties on Air BnB and other rental sites which lowers the overall value of surrounding homes and tends to run more complaints with the township from existing homeowners.
- 56. Barbara Woolley-Dillon brought up Clean and Sober Living Facilities in regards to resiliency in the communities, especially representing Atlantic City as a thought to think about for each individual township along the shore where such facilities are preferred to be built for the shore's relaxing weather and atmosphere. She raised the question on the feasibility of such facilities in the near future and what they could possibly add or detract from the community economically, socially, and environmentally.

# VI. NEXT STEPS:

- 57. Alyssa Curran said that they will be sending the NJPACT questions and she is looking for any additional feedback
- 58. The Consultant Team will follow up with virtual open house meeting information.

# VII. ADJOURN MEETING

59. The meeting ended at 11:40 AM.

# **Action Items:**

- 1. The Consultant Team to send NJPACT Questions
- 2. The Consultant Team to send information regarding Virtual Open House Meetings.











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

# Resilient NJ - June 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** June 27, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – June 2021 – Steering Committee Meeting #6

A meeting was held June 23, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team to discuss the recent Virtual Open Houses. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	Jhoward@cityofatlanticcity.org
Dr. Rodric Bowman	American Red Cross	rodric.bowman@redcross.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Theresa Chu	WSP	Theresa.Chu@wsp.com
Bryan Kiel	WSP	bryan.kiel@wsp.com
Abhijeet Shrivastava	WSP	ABHI.SHRIVASTAVE@wsp.com

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

1. Jonathan Carey, WSP, started the meeting at 10:00 AM. Jonathan Carey then went through the meeting objectives.

# **II. ROLL CALL AND UPDATES:**

- 2. Jonathan Carey introduced the agenda for the meeting and explained the majority of the meeting would be to cover the feedback of the June 15<sup>th</sup> Virtual Open Houses (morning and evening sessions) and confirm the summer schedule for the Steering Committee.
- 3. Jonathan Carey asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

### III. SURVEY DISCUSSIONS:

- 4. Jonathan Carey explained the format of the June 15<sup>th</sup> meetings and the interactive feature of PollEverywhere, and explained that the polling idea was to get their feedback in real time as well as confirm what we have been hearing from general focus groups.
- 5. Jonathan Carey discussed the findings of the June 15<sup>th</sup> polls. He mentioned that of the 100 or so people who called into the meetings only 46 participated in the questions. Of those who did they received an average of 15 responses for a total average engagement of 20%. Jonathan commented that this 20% was pretty good considering it was a virtual meeting and strictly voluntary.
- 6. Jonathan Carey went through the two different exercises, which included an important vision statement category. He showed the statistics of the vision statement polls and noted specifically that no participants disagreed with the draft vision statements.
- 7. Jonathan Carey mentioned that the evening session had Spanish speakers and that one of the Consultant Team members translated for the audience when needed.
- 8. Jonathan Carey showed the visioning questions asked to the Public Meeting attendees and noted that there were options for the participants to upvote and downvote on entries from other polling members. He mentioned as an example, when asked "if lost, what characteristics would change the identity of the Region?", the audience downvoted the answer casinos.
- 9. Jonathan Carey presented the new and improved vision statements based on the audience's answers and stated that the team was still analyzing the results of the poll asking the participants to choose one of three improved statements, as the audience had not chosen a statement with a clear majority.
- 10. Bill Cesanek, CDM Smith, asked to clarify if the three improved vision statements were a combination of the results of both the morning and evening meeting sessions. He recalled that the statements that did not have "resilience in environment" were less favored than others.
- 11. Jonathan Carey answered Bill's question and reported that the statements were a combination and final results were still pending.
- 12. Alyssa Curran, WSP, noted that a Survey Monkey survey was sent and is currently available with the same questions in English and Spanish until next week so an ultimate vision statement can be crafted from as many opinions as possible.

- 13. Bill Cesanek asked the Steering Committee if they could push the Survey Monkey survey to more folks who might be interested.
- 14. Alyssa Curran asked the Steering Committee members if they personally had received the Survey Monkey email.
- 15. Jonathan Carey confirmed that Jaclyn Flor had sent the survey to everyone last Friday, June 18<sup>th</sup>, 2021.
- 16. Jonathan Carey stated that the overall purpose of the goal setting activity and the vision statements is to guide the development of the planning scenario option for the Region in the future. He shared the results of the goal-category poll and emphasized that the most important goal for participants was to protect critical ecology which coincided with Bill's earlier assessment of the three improved vision statements. Jonathan reviewed the most important goals in each category, with the top goals being protect tourism, energy security/decarbonization, and redundancy in emergency services across regions.
- 17. John Peterson, Atlantic County, raised the point that the above most popular choice for the ecology category, 'redundancy in emergency services', has nothing to do with ecology and asked why that moniker was used for the 'emergency services' option. Bill Cesanek explained each of the different choices under the ecology section. John Peterson explained that he did not understand where the statistics and numbers came from in regards to what categories/answer choices were chosen during the surveys.
- 18. Jonathan Carey thanked all of the members who were on the call for the open house and the consultants who also logged in for the calls. He explained that as the summer will continue less people will be likely to participate, and that the social media outreach greatly helped make the turnout a success from both meetings.
- 19. Jonathan Carey explained the next steps for the open houses which included the Survey Monkey Survey, coordinating a crowdsourced mapping tool and user guide for the tool, and finally completing an updated vision statement once the surveys and mapping tool were completed and reviewed by the committee.
- 20. Alyssa Curran, WSP, asked the Steering Committee members for their personal feedback on the morning and evening meetings. Ed Stinson, Brigantine and Ventnor, who attended the morning session, thought that the meeting was productive and had good participation. The participation was outside of his comfort zone but thought it was helpful for the Steering Committee overall. He agreed with the ecology statement that John Peterson mentioned was a bit confusing and was likely confusing for other participants, but overall, the intent was correct.
- 21. Barbara Woolley-Dillon, Atlantic City, admitted that she was surprised that participants did not consider casinos a valuable part of their region. She said that the feedback from the public was supportive of the process so far and was generally favorable. She commented that the casinos surprised her because of what had happened during the 2007 housing bubble-crisis. In Atlantic City the crisis saw 25% of the casinos close, which created a ripple effect where many members of the surrounding communities were employed by those casinos and lost jobs, which subsequently took

money out of the local economy and effected local businesses. She stated that the City has just started coming back to normal from that crisis. She notes that currently over 40,000 people are employed by the current casinos in Atlantic City and overall was just surprised that people had already probably forgotten the hardships from the ripples of the crisis.

- 22. Bill Cesanek added to Barbara's surprise that perhaps that vote was influenced by personal motives like bad personal experiences at casinos. Barbara also says that perhaps the rise of e-gaming has reduced people's reliance and recollection of how important the casinos are to the local area.
- 23. Eric Fang, Perkins Eastman, agreed that the above responses indicate that the region feels less "casino-centric" to the neighboring communities contrasted with the older generations who remember Atlantic City as a major commuter city the same way the modern generation sees NYC and Philadelphia today. The down-shore communities feel more independent from Atlantic City than ever before.
- 24. John Peterson reaffirmed the importance of the casinos to the present-day local economy and said that the Consultant Team should remember that the survey results are not absolute in shaping the Steering Committee's actions.
- 25. Alyssa Curran found that the majority of survey results were centered on physical projects: like bike racks and clean energy, rather than safe spaces and diversity and inconclusion. She also added that participants responded that they were very concerned with community resilience and enjoyed the interactive nature of the open houses. She suggested they keep the dialogue open with the community whose feedback was very helpful to the process overall.
- 26. Alyssa Curran said that having more of the Steering Committee members presenting at future meetings would be helpful to get the community familiar with the Steering Committee members going forward, especially as we get further into developing the action plan.

#### IV. FUTURE MEETINGS:

- 27. Jonathan Carey outlined July 28<sup>th</sup> and August 25<sup>th</sup> as the next summer session meetings and asked if members could not attend to send a delegate in their place to keep the meetings on the calendar during the most critical phase of the project.
- 28. Jonathan Carey also added that the next public event should be after the summer ends when there are more assets and analyses to present; suggesting September as a possibility, but anytime during the Fall is also an option. He asked for opinions on this timetable.
- 29. Ed Stinson agreed with the two meeting times and said September would be an opportune time for the next public meeting, commenting that everyone else probably agreed by giving their silent consent after the question was asked.
- 30. Barbara Woolley-Dillon also agreed with the dates for the upcoming meetings and stated her plan to attend. John Peterson concurred with Barbara and also confirmed his attendance. Both members said that in the event they could not attend someone representing them surely would be at the next meeting.

- 31. Bill Cesanek asked for a schedule on the official public meeting surveys and when they could distribute the data/summary from the meetings as discussed earlier.
- 32. Jonathan Carey stated that early July would be when the survey data should be finished collecting.
- 33. Alyssa Curran thanked the Red Cross and other agencies for donating their time and resources to the project, especially to Dr. Rodric Bowman for sponsoring the CPR training and announced the winners of the course have already signed up, meaning the community is receiving more certified individuals to contribute to the health of the region.

# V. MEETING ADJOURNMENT:

34. Jonathan Carey concluded the meeting at approximately 11:00 AM.

# **Action Items:**

1. None











# Resilient NJ - July 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** August 24, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – July 2021 – Steering Committee Meeting #7

A meeting was held July 28, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Bruce Funk	City of Longport	zoning@longport-nj.us
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
John Peterson	Atlantic County	Peterson john@aclink.org
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Theresa Chu	WSP	Theresa.Chu@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

1. Alyssa Curran, WSP, started the meeting at 10:00 AM. She then went through the meeting agenda and objectives.

# II. ROLL CALL:

1. Alyssa asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

# III. Engagement Update:

1. Alyssa discussed the PollEV survey and results. Alyssa said that the first two weeks after the survey launched that they saw only six (6) respondents and that the Engagement team went back and identified additional/better points of contact at local community-based organizations

and stakeholders. She said that the Stakeholders worked together to make a social media post and that since then, there have been over forty (40) responses and that the poll is open through July. Alyssa said that they want to make sure this is a community driven plan and that we're providing ways for the public to submit feedback.

- 2. Alyssa also said that once the survey closes, the raffle will take place for the training courses hosted by the American Red Cross and that there is a lot of interest in the raffle.
- Alyssa said according to the survey, protecting critical ecology and resident's ability to stay in the region are the main goals. She said that this includes protecting and supporting small businesses, conserving marshlands, and expanding education and awareness about emergency preparedness.
- 4. Jaclyn Flor, ENGenuity Infrastructure, added that in addition to the survey, the engagement team is equally weighing the responses from the focus groups.
- 5. Bruce Funk, City of Longport, said that regarding the survey, you can't protect resident's ability to stay in the region without protecting the assets and infrastructure. He said he doesn't agree with protecting critical infrastructure being a lower priority in the survey results. Alyssa said this highlights the importance of educating residents about these topics.
- 6. Tim Joo, City of Northfield, added that residents don't recognize what needs to be done in order to be able to stay in the region.
- 7. Alyssa explained that there will be opportunity to review feedback for the visioning report.
- 8. Alyssa moved on to discuss the Hurricane Preparedness meeting on July 22. She stated there was interest in the types of strategies like infrastructure improvements and nature-based solutions.
- 9. Jonathan Carey, WSP, added that it was great to see balance between short term resilience versus long term resilience and that hurricane preparedness is a spectrum and the meeting participants were receptive to that idea.
- 10. Jaclyn Flor added that it was good to be able to connect with stakeholders and identify any additional stakeholders who want to be involved.
- 11. Bruce Funk added that this was the 5<sup>th</sup> year hosting this kind of meeting but the consistent problem is low attendance and that they need to find ways to get more people to the meeting.
- 12. Alyssa moved on to discuss the crowdsource map tool. She explained that this tool will be rolled out in a social media push in the upcoming weeks. She asked the Steering Committee to become familiar with the tool. Alyssa stated that the tool is to collect location-specific data from local community volunteers and wants to make sure all assets that are identified be input into the database. She said the tool is an opportunity to try to capture informal cultural assets that aren't in publicly available resources or data sets and that the photos collected for assets will be used to expand risk assessment and scenarios development.

- 13. Alyssa presented the ACCR website with the crowdsource map tool to the Steering Committee. She said the engagement team has started adding assets to the map. She explained that the map tool allows comments to be added to the assets. She asked the Steering Committee to notify the Engagement Team about any changes that should be considered for the map tool.
- 14. Barbara Woolley-Dillon, Atlantic City, said the map tool is very helpful and user friendly. She said it will be great to add photos and update the tool for the public. She added that she'll send this to the public information officer so they can post the tool on all social media accounts and the City's website.
- 15. Jaclyn moved the meeting forward to discuss the focus group meetings. She said all focus groups were great. Jaclyn added transportation was the most critical asset to the businesses. She said during the utility focus group meeting it seemed like the utilities are eager to participate and understand the long- and short-term problems with resilience and that the utilities also discussed projects that the engagement team wasn't yet aware of so that was helpful. Jaclyn said during the environmental meeting, funding for second-home elevation projects was brought up as it is difficult to secure which is something the engagement team hadn't considered. Jaclyn asked any Steering Committee members who are interested in being in the next round of focus groups to let the engagement team know. She said the next round of focus group meeting will be focused on planned/currently funded projects.
- 16. Alyssa added that the engagement team is looking into having a meeting with the nature conservancy and have them present to the engagement team. She said they have a lot of experience with valuing projects which helps with grant applications.

#### IV. Vision and Goals:

- 1. Jaclyn went on to discuss vision and goals. She said that when drafting the vision statement and goals the team will use all layers of engagement as well as rely on feedback from the Steering Committee to make final decisions. She said the visioning report will be sent to the Steering Committee in the next few weeks.
- Jaclyn then turned the meeting over to Alyssa to discuss the visioning statement. Alyssa asked
  the Steering Committee about their opinion on bullet point format vs. a two-part statement
  format for the visioning statement. The Steering Committee members agreed that bullet points
  make it easier to comprehend the material. Alyssa then asked for comments about the language
  used in the draft statement.

# V. RISK ASSESSMENT:

- 1. Theresa Chu, WSP, then discussed risk assessment. She talked about the present flooding vulnerabilities as well as anticipated flood risk in 2070. She said due to climate change increasing the frequency and intensity of storms, 2% annual chance for 2-hour storm event was chosen for current flood condition modelling and that these models will be used in developing and evaluating future scenarios for planning.
- 2. Theresa moved on to discuss modeling methodology. She said the models presented were created by NJDEP and are a large-scale model for planning and that the intended output from

these models includes mapping potential future conditions to identify flood patterns as well as prioritize assets vulnerable to flooding. Theresa explained comparing the different inundation maps helps assess differences in flooding and selecting which conditions will be used for planning in future scenarios.

- 3. Theresa explained the Hazus methodology which takes flood depths from other models as well as building information in order to create a cost estimate for a proposed building. She said this can be used this to summarize overall loss as well as small scale losses. She said it is most helpful to organize the info by census block groups and that ultimately, the six flooding conditions will be used to develop and evaluate the scenarios. She added that they are in the process of identifying non-Hazus assets which will be evaluated to determine impact and value to the community.
- 4. Alyssa added that the risk assessment findings will be a part of the overall action plan. She said they want to compare preliminary findings with other economic impact data the Steering Committee members might have.
- 5. John Peterson, Atlantic County, added that the most important input to the models are the base assumptions. He said it is important to discuss the assumptions and how it fits in the overall data and that the problem with models is it is difficult to compile findings on data based on assumptions. John added they tend to compound info rather than clarify.
- 6. Alyssa explained that the Rutgers gap report was used to get the sea level rise projection. She said trying to keep within NJDEP's intent when it comes to using the models but also using feedback from the Steering Committee on how to best work with the models and that not all flood conditions have to be used if they don't help the models. Alyssa said all this is part of the effort to make action plan as user friendly as possible which includes making the public aware of flooding issues and exposure to climate hazards.
- 7. Theresa added the team has been reviewing the input data coming in to determine what gets used in the models.

### VI. SCENARIOS DEVELOPMENT:

- 1. Frank Zimmerman, Perkins Eastman, went on to discuss scenarios. Frank explained they have to create three (3) scenarios which consist of a collection of actions (policy, infrastructure, etc.) tied together by a common thread. He said that smaller actions can be repeated across scenarios and the goal is that the scenarios help the public to understand the choices they have to face to address climate change. Frank said that when you bring a choice to the public, they are able to assess what they want which can then be evaluated for cost analysis.
- 2. Frank explained that the scenario development will clarify the regions vulnerabilities and demographic trends with the goal of creating three (3) distinct scenarios to compare against a "no action" scenario.
- 3. Alyssa added that the NJDEP wants to encourage creativity and innovation. She said an award will be issued after the scenarios are completed and that they want to be competitive to win more money for implementation for this Region.

# VII. NEXT STEPS, QUESTIONS:

- 1. Alyssa reviewed the next steps for the project: survey to close on 7/30, crowdsource mapping tool will launch soon, risk assessment, scenarios development, 8/25 SC meeting. She then opened the discussion for any questions.
- 2. Barbara Woolley-Dillon mentioned that AC is working to review master plan elements that have been delayed to see if it is consistent with the new NJ sustainability and resiliency plan. She said they are making progress on that but it is somewhat on hold.
- 3. Alyssa asked John if the planning department has worked with OEM on hazard mitigation planning process.
- 4. John Peterson responded that Atlantic County evaluated the portion they worked on. He said it is still an ongoing project.
- 5. Jaclyn asked if there is anything the Steering Committee should be thinking about before the next meeting so that the team gets projects in advance. Alyssa said the internal workshop can look at those projects and provide Steering Committee with a list.

#### VIII. Quick Survey

- 1. Jonathan discussed the survey. He asked the meeting participants to submit responses to the questions listed on the survey to gauge how the Consultant Team is doing.
- 2. Alyssa ended the meeting.

#### Action Items:

- Steering Committee to check out 'crowdsource mapping tool,' accessible through our resilient.nj.gov/accr website and via direct link: <a href="https://www.resilientnj-accr.com/crowdsource/map.aspx">https://www.resilientnj-accr.com/crowdsource/map.aspx</a>.
- 2. **Consultant Team** to close vision & goals survey on 7/30 and announce raffle prize winners for the six (6) ARC training courses the following week.
- 3. Consultant Team to follow up with the SC with the visioning report for feedback in August.
- 4. **Consultant Team** to follow up with the SC on any questions or prep work requested ahead of the 8/25/21 monthly meeting where we'll focus more on projects as part of scenarios development.











# Resilient NJ - August 2021 - Steering Committee Meeting

# MEETING MINUTES

**DATE:** September 23, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – August 2021 – Steering Committee Meeting #8

A meeting was held on August 25, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Bruce Funk	City of Longport	zoning@longport-nj.us
John Peterson	Atlantic County	Peterson john@aclink.org
Frances Brown	Atlantic County	Brown_Frances@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Shurlana Stewart	City of Pleasantville	sstewart@vpleasantvillenj.us
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Sunghwan Yoon	Perkins Eastman	s.yoon@perkinseastman.com
Theresa Chu	WSP	Theresa.Chu@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Matt Baumgardner	DEP	Matthew.Baumgardner@dep.nj.gov

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

- 1. Jonathan Carey, WSP, started the meeting at 10:00 AM. He then went through the meeting agenda and objectives.
  - The Agenda consisted of Risk Assessment Updates, Scenario Development and Initial Ideas, General Project Updates, Questions, and the Survey.
  - The Meeting Objectives consisted of providing an update on Risk Assessment, hearing the steering committee's feedback on potential ideas for the three scenarios, and discussing the latest updates from Resilient NJ Coordination and the Region

#### II. ROLL CALL:

1. Jonathan asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

# **III. RISK ASSESSMENT:**

- 1. Theresa Chu, WSP, started to discuss the previous Hazus Analysis, focusing on Structure Impacts and Asset Collection. There is the potential for reruns of the flood models, but the Steering Committee will continue with the current models.
- 2. Theresa continued to show the DEP provided Asset Assessment tables used to evaluate flooding issues and prioritize actions.
- 3. Bryan Kiel, WSP, spoke about non-Hazus results and how they are trying to identify and evaluate for impact and value to the community. He then discussed that they needed to determine the community's value on marinas. Bryan then stated that they developed a mathematical equation to determine the risk if marinas get damaged.
- 4. Bryan continued to speak about other items they need to determine, such as the value of wetland conditions and evacuation routes. By comparing scenarios, they can assess the mitigation of risk. Other aspects of value to consider include places of worship and businesses identified by the community.
- 5. Theresa spoke about prioritizing these assets and using the FEMA scale focused on the community value of critical and significant assets. The ASCE 7-10 scale is used as a guide for Risk Categories to define criticality for prioritization.
- 6. Bill Cesanek, CDM Smith, brought up the endless refinement of flood mapping and whether these adequately represent possible 2070 scenarios. Then, the discussion moved to the DEP conditions of 2070 and the salient conditions we should be protecting against. This includes MHHW, SLR, two-hour rainfall, a 10% increase in rainfall, and Sandy's high watermark.
- 7. Ed Stinson, Brigantine and Ventnor, discussed the numbers presented in the 2070 scenarios. The discussion of communicating these conditions to the public came up and how to fix conditions to actual incidents, such as Hurricane Sandy, to display the predicted conditions surrounding SLR, 2-hour rainfall, and 24-hour rainfall. Ed said the data on the Superstorm Sandy slide looked a bit off in terms of elevation and total depth. Ed mentioned that the accumulating effect shown on the second slide does not take into account low tide on a barrier island since over twenty four (24) hours there will be two tide changes.
- 8. Bill discussed that models are focused on 2070 and brought up the topic that there may be steps that the Region can take in 2050 to increase resiliency, such as bulkheads and pumps. However, he stated that 2070 presents longer-term capital investments, which may be challenging to grasp. Therefore, modeling for 2050 may be more effective due to being easier to visualize.

- 9. Barbara Woolley-Dillon, Atlantic City, said that she thought 2050 would be good to be shown considering that 2070 seems so far off and people have an easier time grasping scenarios that could happen within a person's lifetime.
- 10. Bill returned to the topic of asset types and stated that part of the risk assessment is identifying impacts to critical assets. He said they must identify resiliency methods that will protect these key assets most functional to the region.
- 11. Tim Joo, Northfield, said that infrastructure and government services (emergency personnel) were the essential assets to protect during storm events related to climate change.
- 12. Barbara Woolley-Dillon mentioned that Infrastructure is critical to the emergency personnel response.
- 13. Tim agreed that infrastructure and emergency response are both important assets. Tim brought up that alternative transportation is also an important asset that should be considered in a disaster scenario.
- 14. Bruce Funk, Longport, said that during Sandy having the emergency personnel stationed in town was extremtly helpful to make the town safe and roads safe to be able to bring the utility companies in and bring the residents back quickly.

# IV. SCENARIOS DEVELOPMENT:

- 1. Eric Fang, Perkins Eastman, showed a map of four subareas that share common demographics, economic conditions, coastal conditions, and shared geography.
- 2. Eric started with Atlantic City and noted that it is one of the most diverse cities in the country. He also stated that it serves a prominent number of renters, a decline in population, and a population with multiple languages. It presents an opportunity and unique condition for the shore in reference to the land values. He pinpointed vulnerable areas, including Chelsea Heights, Lower Chelsea, Venice Park, Ducktown, and Gardner's Basin. Ed Stinson noted that the areas of West End should be included as a vulnerable area.
- 3. Eric discused economic drivers in Atlantic City and who the major employers are. There has been discussion in partnering with casinos to develop microgrids; however, they have not moved on their own in installing microgrids.
- 4. Barbara Woolley-Dillon said they are working with DCO Microgrid which is right near the hospital. She said the city is the pass through facility for a grant that will serve the hospital, Caesers, and Tropicana. Barbara said there was a micro-grid near Ocean Casino resorts but it no longer exists. Barbara agreed that microgrids are something that should be looked at for sustainability of the city.
- 5. Jaclyn Flor, ENGenuity, stated that during the Business Focus Group the casinos felt that from an energy statnd point, the casinos felt they were set up pretty well.

- 6. Eric brought up the concept of the Blue Economy and identified Gardner's Basin as an area that could be successful.
- 7. Barbara Woolley-Dillon said that Orsted's redevelopment plan is in the area of Baltic Avenue and will be another area that is zoned for commercial redevelopment.
- 8. John Peterson pointed out that Gardner's Basin has many public facing recreational uses and that Delta Basin has always been more industrial and used for fishing enterprises. He said all the Basins and inlets should be included.
- 9. Barbara said part of the issue is that the area is not clearly defined.
- 10. Eric then moved on to discuss Northfield and Pleasantville's demographics, challenges, and vulnerabilities. The main difficulties focused on power issues and inland flood risk along Route 9 and Route 40. Conovers Creek stretching from East to West is an area of vulnerability.
- 11. John Peterson said that in the area of Lake's Bay was a continuous flood during Sandy.
- 12. Eric asked Tim Joo if they could set up a discussion offline to discuss the area of Conover's Creek further.
- 13. Eric said an opportunity zone presented focused on the walkable Main Street Quarter as an area for growth.
- 14. Shurlans Stewart, Pleasantville, said there has not been an update on the transit village grant. She added that the city has been working on growing the Main Street area in Pleasantville.
- 15. Eric went on to discuss Ventnor, Margate, and Longport demographics, focusing on population shifts and the rise in home values. The challenges brought up focused on tidal events and heavy rainfall. Improvements made so far include updated wells and pump stations and a surge in private bulkhead investment. This area serves regional service sharing and coordination opportunities, leveraging new construction and wealth to drive needed community resiliency improvements.
- 16. Eric continued to discuss Brigantine. The challenges they face are surrounding beach renourishment and evacuation flooding. In Brigantine, there has been private home construction leading to bulkhead upgrades and the development of the Northeast Seawall.
- 17. Ed Stinson discussed that the lighthouse in Brigantine as a low elevation and they do receive significant flooding. He said there are a few points heading towards the bridge that are equally low and prone to flooding. Ed said there are plans to address that vulnerability and they have replaced the bulkheads and constructed a pump station with an auxiliary generator. He said the city and the county are engaged in a re-design of the traffic flow around the circle near the lighthouse. Eric asked Ed to send him pictures or any plans in the works for Brigantine.
- 18. Eric spoke about how scenarios will play out based on keystone actions and give an insight into approaching specific scenarios. Eric described a Keystone Action as an action that is critical to the success of and thematically organizes the scenario. These will help clarify major choices,

- establish a thematic framework to organize these approaches, and build consensus toward a preferred direction. These scenarios take on three principles which are adapt, fortify, and avoid.
- 19. Eric talked about shoreline protection and available options such as gray infrastructure and nature-based solutions. These options can be both centralized and decentralize solutions with an approach from top-down or ground up.

#### V. GENERAL PROJECT UPDATES:

- 1. Alyssa Curran, WSP, began to talk about the USACE Back Bays Study press release and the tentative plan released on August 20<sup>th</sup> with a 45-day public comment period. The study will potentially serve as a piece to create a keystone scenario.
- 2. Alyssa spoke about Inter-Regional coordination with LBI on the Back Bay study, The Nature Conservancy, Climate Central, Monmouth University & New Jersey Coastal Coalition. In addition, there will be meetings coming up to discuss how apps will factor into the action development.
- 3. Alyssa mentioned the FEMA BRIC applications as something to discuss in the next meeting, but it is essential to ensure the project is viable and meets requirements for federal funding.
- 4. The Visioning Report will be sent for review with a target date of 9/3 that will hold information from engagement meetings along with executive summaries.

## VI. NEXT STEPS, QUESTIONS:

1. The next steps were reviewed which included, review/approval of Visioning Report, refinement of asset list for profiles/analysis in report chapter, social media push for the crowdsourcing mapping tool, scenario's development – next internal workshop on projects, development of scenario themes, and "no action" assumptions.

#### VII. QUICK SURVEY

1. The meeting ended with a quick survey.

# Action Items:

- 1. Eric Fang, Perkins Eastman, an Tim Joo, Northfield, to set up a discussion offline to discuss the area of Conover's Creek further.
- 2. Eric Fang, Perkins Eastman, asked Ed Stinson, Brigantine, to send him pictures or any plans in the works for Brigantine.
- 3. Steering Committee to provide comments on Visioning Report.











Resilient NJ - September 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** September 22, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – September 2021 – Steering Committee Meeting #9

A meeting was held on September 22, 2021 at 10:00 AM with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	City of Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Bruce Funk	City of Longport	zoning@longport-nj.us
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Ed Stinson	City of Brigantine and Ventnor	estinson@ventnorcity.org
Matt Baumgardner	NJDEP	Matthew.Baumgardner@dep.nj.gov
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Sunghwan Yoon	Perkins Eastman	s.yoon@perkinseastman.com
Theresa Chu	WSP	Theresa.Chu@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Bryan Kiel	WSP	Bryan.kiel@wsp.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Kyle Wire	CHPlanning	kyle.wire@chplanning.com

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

1. Alyssa Curran, WSP, started the meeting at 10:00 AM. She then went through the meeting agenda and objectives.

- Discuss latest updates from Resilient NJ Coordination and the Region.
- Review Project Vision to put on the website.
- Chart course through the end of the year: key milestones.
- Discuss preliminary ideas from scenarios development brainstorming sessions.

#### II. ROLL CALL:

Alyssa Curran, WSP, asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

## III. ONGOING COODINATION WITH STAKEHOLDER AGENCIES:

Alyssa Curran, WSP, noted how we can bring stakeholders into future steering committee meetings as follows:

#### 1. NJ COASTAL RESILIENCE COLLABORATIVE:

- a. Alyssa Curran discussed involvement in the NJ Coastal Resilience Collaborative (NJCRC) or any interests in getting more involved with this collaborative.
- b. Steering Committee did not have direct knowledge of the group, but suggested that Jim may have knowledge of the group.
- c. If this group is an avenue through which municipalities can be part of early discussions regarding regulations, then municipalities would like to leverage this group.
- d. NJCRC can join one of the future meetings and report-out on their work. Their participation could be an asset for implementation of Resilient NJ.

#### 2. THE NATURE CONSERVANCY MARSH EXPLORER:

- a. Alyssa Curran discussed the relationship with the Conservancy and the methodology set by the DEP for addressing different types of hazards.
- b. A different entity (a separate consultant to DEP) is rerunning the flood risk models. Alyssa stated how we have a parallel task happening to refine the risk assessment.
- c. The Marsh Explorer shows where future dredging or marsh restoration can occur and how certain areas can be transformed to perform specific functions. In addition, the explorer shows sedimentation and the future cycles that can be put in place for dredging.
- Jacques Howard indicated that Ocean Township prepared a comprehensive plan that addressed sediments, dredging material and locations to dispose dredged material.
   Jacques said he'd get more information on it.

# 3. <u>USACE BACK BAYS STUDY:</u>

- Alyssa noted the USACE Back Bays Study, which focused on creating Storm Surge
   Barriers at the Great Egg Harbor Inlet and Bay Closures at South Ocean City and Absecon
   Blvd
- b. Although only Bruce Funk from the Steering Committee joined the presentation of the study the prior day, a video of the online meeting is available. WSP provided a link to the website in the meeting chat.

- c. The draft feasibility report and environmental impact report have been distributed for public comment.
- d. This is based on using intermediate projections of sea-level rise to 2080.
- e. The project would include
  - i. Vertical Lift Gates, Navigable Sector Gates, and Impermeable Barriers south of Longport.
  - ii. A levee along the Back Bay and floodwall along Atlantic City's bayside
- f. John Peterson, Atlantic County, asked about the NEPA document for the project. John indicated that the environmental regulations would restrict this project from occurring, and he's interested to see how the project could occur given those regulations. Jonathan Carey, WSP, clarified that the project website includes the Draft Environmental Impact Statement. Matt Baumgardner, NJ DEP, said that he believes finalizing the EIS is the next step in the process.
- g. Alyssa Curran indicated that the vertical lift gates for the project would be designed to a 20-foot height, but the design height for the entire system wasn't clear. Bruce Funk indicated that it would be 19 feet.
- h. Bruce Funk noted that homes in Longport are being elevated to 12 feet, which is less than the 19 feet of the proposed infrastructure.
- i. Alyssa Curran continued to discuss the Back Bay Study and how it would be funded.
  - i. Municipalities responsible for 25% of the 35% State cost share. The government would pay for 65% of the cost.
  - i. John Peterson noted that there's currently a 2% cap on taxes, and that limit would have to be removed to pay for a project like this. These costs would make it hard to retain a year-round population. Even if the taxes or bonds would be at the county level, the local taxpayer would pay for it.
  - ii. Jacques Howard said that possibly a Value Added Tax could be explored, although he's not advocating that.
- j. Alyssa Curran then moved on to discuss the Design and Construction Process timeline. Comments on the tentatively selected plan are due by mid-October. The target is to have the report completed by 2023 for Congressional approval.
- k. In the long term, construction would commence in 2030. So, the consultant team is considering if/how to include this in the Resilient NJ scenarios.
- I. Alyssa briefly covered all of the analyses undertaken by USACE to inform the tentatively selected plan.
- m. Tim Joo asked whether the seawalls would result in redirection of floodwaters elsewhere, such as inland or uplands. Bruce Funk noted that there would be between a 6" and 1' tidal surge along oceanside flood walls, but that doesn't apply to inland areas.
- n. Eric Fang asked whether there are pieces of the overall Bay Bays Plan—what specific pieces could be supported?
  - i. John Peterson noted that
    - 1. the USACE study addresses storm surge, but not rainwater
    - 2. the Bay barriers would be detrimental to species and wetlands
    - 3. the barriers proposed by USACE would be much taller than the infrastructure being built by municipalities, leaving a gap in protection
- o. Eric said that the scenarios exercise allows for exploration of an alternative approach
- p. Bruce said that the Netherlands provides some examples
  - i. Eric said that a short case study of the Netherlands could be presented in the next study

q. Ed Stinson said that there was a presentation from the Netherlands at the NJAFM conference on year. Their approach including multiple prongs: one of the prongs was to accommodate flooding—acknowledge that it will flood and how to live with it. It appears that the USACE study/instructions to them may have been to eliminate storm surge flooding. It results in one end of the spectrum in approach, and so many concerns.

### IV. VISIONING REPORT:

- 1. Alyssa Curran, WSP, moved on to discuss the visioning report
  - a. Feedback from Atlantic City: Justice, equity, diversity, & inclusion (JECI) principles were lacking in the report. Alyssa defined each of these considerations.
  - b. Jacques Howard, Atlantic City, indicated
    - i. How historical actions are difficult to correct in urban communities, where there are already a concentration of disadvantaged groups.
    - ii. That going forward, planners must consider how decisions affect the whole municipality.
    - iii. Industries and employment can increase awareness of environmental issues (e.g., blue economy) through programs and training initiatives. This can be a broader approach toward the "inclusion" factor.
    - iv. That when we talk about floodgates and bulkhead elevations, planners must consider that disadvantaged communities will be affected first
  - c. Alyssa Curran asked whether there is any concern in bringing these principles into the Vision Statement for ACCR. Jacques said that one can't have the ACCR without this commitment.
  - d. SC members generally supported the goals/values listed.
  - e. Alyssa said that the consultant team will revise the statement slightly, circulate it, and post it on the website.

## VII. MILESTONES THROUGH 2021:

- 1. Alyssa Curran, WSP, presented the timing of milestones.
  - a. Ed supported combining the November/December meeting into a single, early December meeting.
  - b. While the risk assessment and scenarios development continue, the team will await the new hydrologic & hydraulic models. By October, there are hopes to provide feedback on proposed actions, so a discussion about what is missing could be held. By end of the year, targeting refinements to the preferred scenario.
- 2. Alyssa Curran brought up the BRIC Applications from the '20 Cycle
  - a. Are any of these ideas/projects worth folding into Resilient NJ?
  - b. 40% of funds are supposed to go to disadvantages communities, including such communities in the ACCR. Jacki Flor noted that the small/disadvantaged definition may present challenges and asked whether it's changed this year.
  - c. Bruce Funk indicated that Longport did get a letter that the Winchester Avenue project was selected for further review.
- 3. Eric Fang, Perkins Eastman, explained conceptual approaches to the key areas and how the scenario's frameworks differ.

- a. He first reiterated the spectrum of approaches (e.g., centralized vs. decentralized, region vs block, node vs. network, fortify vs living with water)
- b. Eric presented three different categories to address:
  - i. Bay & Ocean (Bay, Ocean)
  - ii. Inland (Interior Drainage, Power/Utilities, Access/Roadway/Transit)
  - iii. Social & Economic (Equity, Healthcare & Wellness, Economic Development)
- c. In each scenario, there will be different approaches to these three categories. The team is working right now on how the projects would fit within these categories.

For example, on the bayside:

- a hard infrastructure approach is the USACE approach
- a street could function as a levee and let properties on the bayside improve incrementally
  - Jacques indicated that the street elevation could result in an "amphibious community" on the water side of the street.
  - Jacques said that the concept could work in conjunction with additional infrastructure (e.g., depressions for water storage if it does breach)
  - Jacques noted that this approach is cost-effective, given the landowner is the municipality
- a third option is to incentivize increased density to fund the improvements
  - Some of it may seem radical, but it's a thought experiment to engender discussion
  - Jacques said it's a great idea to leverage private investment, and he and Barbara had discussed the idea of islands doing the same thing
  - John said that this could be piecemeal, and it would not serve EJ communities; he's not sure that you could get enough positive impact, but he does like the concept
  - Eric agreed that it's piecemeal, and currently it's piecemeal at a granular level
  - But this approach would aggregate it at 200 feet at a time, instead of 50 feet at a time
- d. Conservation Trust Easements or Transfer of Development Rights
  - i. For example, Gardner's Basin neighborhood is populated by vulnerable populations.
    - 1. Should these populations be protected in the vulnerable area?
    - 2. Can they be encouraged to move to high ground in the same municipality?
    - 3. Can there be encouragement to move to other locations in the region?
  - ii. Jacques said that
    - 1. Rate-ables are a shortfall in Atlantic City, so any relocation and real estate forfeiture must be considered from that revenue perspective
    - 2. the cost-effectiveness of protecting vulnerable areas should be considered. Are the tax revenues from them worth it?
    - 3. Eric agreed and clarified that the concept is that if people choose to live in a vulnerable location, then their protection costs should be on them.
  - iii. Jacques noted that

- 1. relocations would affect existing networks/neighborhoods that have been in place for decades
- 2. Resilient NJ should look at creating new communities and relocating within the region
  - a. Eric said that there are no big pieces of land in the region, except perhaps if Bader Field were raised. The moves would be generational and not forced/buyouts/etc.
  - b. Shurlana and Tim indicated that neither Pleasantville nor Northfield are looking to increase density and they don't have available land to develop/redevelop. Shurlana noted that several properties have been turned over to the Blue Acres program.
- 3. Jacki Flor said that there may be opportunities in Atlantic City at vacant/abandoned properties. Eric said those properties may be in vulnerable areas. Shurlana clarified that Pleasantville does have vacant/abandoned properties that my present an opportunity.
- e. Potential physical improvements for the ocean side
  - i. Boardwalk as a levee
  - ii. Groins and Jetties
  - iii. Sand Engines
    - 1. Dumping sand and letting it drift with the current, over time, as a method of protection

#### VIII. EVALUATION SURVEY:

- 1. Alyssa asked whether the Steering Committee has any comments on what can improve productivity, and/or other general feedback
  - a. Ed Stinson indicated that he feels his comments are taken to heart
  - b. Jacques Howard agreed. He said that the consultant team has brought together a lot of resources. Politics and economics are trying to fight nature. He and Barbara are appreciative.
  - c. Bruce Funk agreed, in particular that he appreciates the Steering Committee participation.
  - d. Roger agreed. He said it will be interesting to see how this will interplay with freeboard requirements from DEP, and how it's all so fluid.
  - e. Tim said the meetings are informative, but the applicability to Northfield is lower because it's not an island. He finds the meetings informative and necessary (a necessary evil).

# IX. NEXT STEPS, QUESTIONS:

- 1. The Steering Committee will work to collaborate with NJCRC.
- 2. Matt Baumgardner, NJDEP, will follow up with Nick Angarone, NJDEP, to better understand the steps of Environmental Impact Statements and the USACE process.
- 3. The consultant team will make the updates to the Vision Statement.

- 4. The consultant team will work to provide more technical expertise to join future meetings in 2022.
- 5. The consultant team will see about combining the November/December meetings.

# X. CHAT ITEMS:

From Jonathan Carey, WSP to Everyone: 10:19 AM

See the links for the 9/20 and 9/21 meeting recordings on this web page: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/

From Alyssa Curran to Everyone: 11:23 AM

Jacques and all, additional links for case studies on Netherlands gates: <a href="https://storymaps.arcgis.com/stories/3ecaaf6326ad49c9824f173c57a4e7e9">https://storymaps.arcgis.com/stories/3ecaaf6326ad49c9824f173c57a4e7e9</a>

(Old-from 2009, but still may provide insight) https://www.mvn.usace.army.mil/Portals/56/docs/environmental/LaCPR/DutchPerspective.pdf

Case study on Dike Ring South Holland: Dike Ring South Holland

https://d1rkab7tlqy5f1.cloudfront.net/CiTG/Over%20faculteit/Afdelingen/Hydraulic%20Engineering/Hydraulic%20Structures%20and%20Flood%20Risk/staff/Jonkman SN/Jonkmanetal flood\_risk\_south\_holland.pdf

Regarding the NJ Coastal Resilience Collaborative, we'll send the membership PDF around that Tom and Laura shared with us after the meeting. In the meantime, the NJCRC comments on the NJ Climate Change Resilience Strategy can be viewed/downloaded here:

https://public.3.basecamp.com/p/yYkRFX3ynf3Bc8ozb8SsSUam

"Amphibious Suburb" study for Atlantic City - we'll look into this, thank you Jacques! http://structuresofcoastalresilience.org/locations/atlantic-city-nj/











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

Resilient NJ - October 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** October 27, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – October 2021 – Steering Committee Meeting #10

A meeting was held on October 27, 2021 at 10:00 am with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Shurlana Stewart	Cit of Pleasantville	sstewart@pleasantvillenj.us
Frances Brown	Atlantic County	Peterson_john@aclink.org
Theresa Chu	WSP	Theresa.Chu@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Matt Baumgardner	NJDEP	
Sunghwan Yoon		
Kyle Wire	CHPlanning	kyle.wire@chplanning.com
Leila Behrami	CHPlanning	Leila.behrami@chplanning.com

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

- 1. Alyssa Curran, WSP, started the meeting at 10:00 am. She then went through the meeting agenda and objectives.
  - Provide progress updates on technical tasks
  - Confirm Nov/Dec Steering committee meeting
  - Greenlight upload of the revised vision statement to the website
  - Discuss update on peer exchange: Lessons from the Netherlands

#### II. ROLL CALL:

Alyssa Curran, WSP, asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

#### III. Updates:

- 1. Alyssa discussed the next meeting for December on 12/6 from 12 pm-2 pm. Frances and Shurlana both said that this date works for them.
- 2. ACCR comments and questions on the USACE Back Bays Study have been submitted, and the steering committee is expecting to hear back from them soon.
- 3. Allyssa discussed Resilient NJ Municipal Assistance to hear if anyone has been contacted for funding. Matt Baumgardner discussed how the funding is provided and that the DEP (Municipal Assistance Office) sent out a notice to eligible towns (Coastal towns). It is the contractor's responsibility to submit requests, but municipalities can request information.
- 4. Jaclyn Flor, ENGenuity, mentioned that the social media push will be going out this week and that the steering committee members will see this push.
- 5. Alyssa mentioned that the steering committee is still waiting for updated flood maps and additional flood simulations for 2030/2050.
- 6. Alyssa Curran mentioned that they have connected with Henk Ovink, leading Rebuild by Design, and Henk connected with ambassadors from DC to come to a meeting to discuss measures they are taking in the Netherlands.

#### IV. Vision Statement:

- 1. The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where protections from natural disasters, flooding, and sea level will enable the region to thrive; residents' sense of belonging and pride in their communities is enhanced by advancing quality of life through economic housing transportation and infrastructure developments, and visitors are offered an inviting recreational and cultural experience that honors the ocean and optimizes the waterfront, public spaces, and regional assets that make the region a national destination.
  - a. Alyssa then started to discuss the goals that stem from the vision statement that will help the communities prepare for the changing climate through innovation in design, efficiency and equity, agility and balance, conscientious investment, education and collaboration, hyperlocal workforce, diversified Economy, and neighborhood character and features. Following were the values that stemmed from the vision statement.
  - b. Bill Cesanek, CDM Smith, discussed that there needs to be some language change in "Efficiency and Equity." He explained that the literature has changed and there is need for adding adaptation keyword: hazard recovery cycle in past regarded as one-time sequence of events in response to particular storm and then shift the model more with

SLR of recovery and adaptation to the hazards by extreme climate. (Adaptation can be a tricky word and need something else in term of mitigation and adaptation and we need to find the right word). Jaclyn Flor, ENGenuity, also mentioned that language should be switched in "Diversity Economy."

### VII. Risk Assessment Update:

- 1. Theresa Chu, WSP, began to discuss that the flood modeling updates are being changed. The flood modeling software used is HEC-RAS which will increase the accuracy with added break lines for high ridges. Theresa also stated that they removed the double counting of the tide for the Superstorm Sandy in the 2070 event. This will remove the MHHW Value.
  - a. How HEC-RAS works: There is a model mesh net incorporate the training data and one of the updates is adding break lines for high ridges that reduces pounding between cells that will not representing the water flow.
- 2. Theresa continued to discuss additional simulations that show an increase in precipitation as climate change gets worse. This modeling is based on standard charts of current precipitation levels and predicted increases as climate change intensifies.
- 3. Theresa moved on to talk about water level analysis and modeling what will flood under specific conditions. This was able to represent how many structures would be impacted and how much damages in terms of cost would occur with particular water levels. Again, this allows us to analyze trends, but this is based on bathtub models, which don't include precipitation.
- 4. Bill Cesanek, CDM Smith, spoke about Risk Assessment prioritization and the Value of zooming out to see the vulnerability of flooding in a town. He continued to discuss how they have highlighted essential assets supporting emergency response and Assets to help recover community function. For this project, it is impossible to analyze every critical asset individually, but viewing these holistically, they have created a priority list. They hope to identify 100 assets that are critical to the region.
  - a. Critical for life safety
  - b. Critical for daily functions of resident population
  - c. Integral to community cohesiveness
- 5. Bill spoke about the Prioritization Scale, which focuses on the high probability of loss given storm and climate events and high consequences of loss. These evaluations along with the steering committee will help to use the resources efficiently.
- 6. Jacques Howard, City of Atlantic City, had said that Atlantic City has invested and received high amounts of money in resiliency projects as bulkheads; are we taking into consideration the breaching of first line of defense mechanisms when the storm surge goes above the bulkhead? What is the real impact in the neighborhood? How does the municipality, that has made this investment for resilience, survive? Bill Cesanek answered these questions telling Jacques that they are looking at categories in resilience and sustainability projects, such as living shorelines, seawalls, shoreline stabilization activities, dunes and other that provide protection.

# X. Action Items:

- 1. Follow up with Matt Baumgardner, NJDEP, for more information regarding the Resilient NJ Municipal Assistance program.
- 2. Alyssa mentioned that a next step is to update the ACCR Resilient NJ Vision Statement on the website, which will include the goals and values.

# XI. Chat Items:

# **Alyssa Curran:**

https://www.resilientnj-accr.com/crowdsource/map.aspx

# **Bill Cesanek:**

On replacing Recovery phase with an Adapt phase: <a href="https://www.structuremag.org/?p=18812">https://www.structuremag.org/?p=18812</a>

# Alyssa Curran:

Here's a link for a little more detail on how precipitation is measured:

https://www.youtube.com/watch?v=yBpW2F\_fOXA











# Resilient NJ - December 2021 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** 1/24/2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – December 2021 – Steering Committee Meeting #11

A meeting was held on December 6, 2021 at 12:00 pm with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Shurlana Stewart	Cit of Pleasantville	sstewart@pleasantvillenj.us
Frances Brown	Atlantic County	Peterson_john@aclink.org
Lisa McGee	American Red Cross	Lisa.McGee@redcross.org
Roger McLarnon	City of Margate	roger.mclarnon@gmail.com
Bruce Funk	City of Longport	zoning@longport-nj.us
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Laura Kerr	NJCRC	Lkerr@stevens.edu
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Matt Baumgardner	NJDEP	resilientnj@dep.nj.gov
Kyle Wire	CHPlanning	kyle.wire@chplanning.com
Leila Behrami	CHPlanning	Leila.behrami@chplanning.com
Tom Herrington	NJCRC	therring@monmouth.edu
Laura Kerr	Stevens University	lkerr@stevens.edu
Bram de Groot	WSP	bram.degroot@wsp.com

The following was discussed at the meeting:

# **I. MEETING OBJECTIVES:**

1. Alyssa Curran, WSP, started the meeting at 12:00 pm. She then went through the meeting agenda and objectives which included a presentation by the NJ Coastal Resilience Collaborative, Lessons from the Netherlands, and the latest project updates and plan for 2022.

#### II. ROLL CALL:

- 2. Alyssa Curran, WSP, asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.
- 3. The American Red Cross explained that Dr. Bowman is no longer with the American Red Cross Organization

### III. New Jersey Coastal Resilience Collaborative:

- 4. Tom Herrington, NJCRC, began to introduce NJ Coastal Resilience Collaborative and their mission to foster sustainable and resilient coastal communities and ecosystems by generating informed action. It was established at the conclusion of two NOAA Crest grants in 2016 with cooperation from the NOAA Office of Coastal Management. There are over 50 partners from all sectors to bridge what their state is doing in terms of resilience planning and bring the lessons to other communities.
- 5. Tom Herrington explained that there are multiples levels of partnership that fall under general partners and resource affiliates. General partners formally sign to partner with NJCRC while resource affiliates join to share their expertise.
- 6. NJCRC operates with a collective impact approach to blend actions of planning, outreach, and education of the individual member groups to collectively pursue common goals.
  - To foster cost-beneficial resilient practices focused on communities. This helps to develop tools and resources for communities to use, but also provide information to decision makers to make decisions that are economically and environmentally sound.
  - ii. These work groups focus on science, communications, implementations, municipal essential actions, ecosystem restoration and NJPACT Rulemaking Review. This has led to resilience demonstration projects, along with the publication of ecological solutions for coastal community hazards.
- 7. Tom Herrington mentioned how NJCRC has also created a Technical Assistance Directory to help communities begin their steps in resilience planning.
- 8. Alyssa Curran, WSP, asked how the interaction between the coast and inland areas happen. Tom responded by saying that the organization is focused on coastal areas and engages in any area that is tidally influenced. Tom also stated that there is generally more interest from inland communities as coastal communities are protected by beaches, dunes, and other living infrastructure.
- 9. Bill Cesanek, CDM Smith, asked if NJCRC has ben interacting with the various other regional resilience projects and what were the steps taken to connect with them. Tom responded saying that they connect in two main ways. They work very closely with the planning group and stay updated on what NJ Resilient is doing, along with trying to create connections with the leaders in the region.

- 10. Jaclyn Flor, ENGenuity, asked if any municipalities and other related organizations can join as general partners. Tom answered by saying that anyone can join as a partner. They have few municipalities and county members but would like to have more direct connections.
- 11. Alyssa asked who funds the short-term and long-term strategies for a resilient action plan, and how are the grants funded / implemented. Tom answered some ways consist of creating a collaborative group to go after research funding, and some partners provide money like Sustainable Jersey, NOAA, or the National Fish and Wildlife Foundation.
- 12. Jacques Howard, from Atlantic City, asked a question about how energy from hydrology is something that might be explored and that there needs to be a comprehensive approach to the planning. Where would funding for these types of projects come from?
- 13. Tom Herrington responded by saying that this could come from clean energy funding from the Biden Administration for example.

# IV. Lessons from Netherland:

- 14. Bram de Groot, WSP, began his presentation by discussing Flood Risk in the Netherlands. With a long history of building dikes, they continue to have major flooding issues and flooding events to work with. Bram talked about major flooding events that took place in July of 2021 in the Limburg Province.
- 15. In the Netherlands, they have a Delta Program which focuses on Water safety (Research, Assessments, Renovation). Within the program, there are two organizations that focus on policy making and act as a manager of flood defense. The 21 Waterboards and Rijkswaterstaat act as the National Flood Defense Program and are responsible for progress, planning and budget.
- 16. Bram continued to discuss the flood risk standards in the Netherlands which were established by the national water act. This assesses the individual flood risk and determines the amount of protection.
- 17. Bram began to talk about the levee system that is present in Netherlands and the amount of information that is passed to the communities through meetings. The local government is also heavily involved and it is a standard procedure to understand the ecological effects and hydrological effects. Bram explained that there is extensive research that must be conducted prior to the projects taking place to ensure the effects won't create harsher environments.

# VII. Project Updates:

- 18. Alyssa Curran, WSP, provided updates of the flood models. Alyssa explained that there were changes made to various flood conditions for the simulations.
- 19. Bill Cesanek, CDM Smith, provided an update on the Risk Assessment Prioritization. This focused on the important assets in the region to create an inventory. This creates a ranking system such as assets that support emergency response and assets to help recover community

function. This will help create clusters and designate areas that are the most vulnerable. This will be made available soon

- 20. Alyssa discussed scenario development and the objectives.
- 21. Eric Fang, Perkins Eastman, discussed the challenge with creating results from scenarios and then having to restart, so this has been pushed back, but there is still a hard date in the middle of February which is leading to a compressed timeline.

# X. Action Items:

22. In January, the Steering Committee will be presented the assessment findings and preliminary scenarios.

## XI. Chat Items:

## Laura Kerr:

www.nj-crc.org

https://www.monmouth.edu/uci/wp-content/uploads/sites/58/2021/04/NJCRC-Membership-2021.pdf LKerr@stevens.edu therring@monmouth.edu

#### **Roger McLaron:**

Any discussions on reclaiming dogger bank?

#### **Bruce Funk:**

What is the direct impact on a community when one of these flood gate mitigation projects are being constructed?

#### **Eric Fang:**

Question on the sand motor











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

Resilient NJ - January 2022 - Steering Committee Meeting

# MEETING MINUTES

**DATE:** 1/26/2022

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – January 2022 – Steering Committee Meeting #12

A meeting was held on January 26, 2022 at 10:00 am with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Frances Brown	Atlantic County	
Lisa McGee	American Red Cross	
Roger McLarnon	City of Margate	
Bruce Funk	City of Longport	
Jim Rutala		
John Chow		
Barbara Woolley-Dillon		
Sunghwan Yoon		
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Michelle Bowne	WSP	
Amy DiCarlantonio		
Edward Blanchard	American Red Cross	
Mwanzaa Brown		
Eric Fang	Perkins Eastman	
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Matt Baumgardner	NJDEP	
Kyle Wire	CHPlanning	kyle.wire@chplanning.com
Leila Behrami	CHPlanning	Leila.behrami@chplanning.com
Ben Carlson	CHPlanning	

The following was discussed at the meeting:

#### I. MEETING OBJECTIVES:

- 1. Jonathan Carey, WSP, started the meeting at 10:00 am. He then went through the meeting agenda and objectives.
  - Review Risk Assessment Summary
  - Present Draft Scenarios
  - Obtain preliminary scenario feedback from Steering Committee members

#### II. ROLL CALL:

Jonathan Carey, WSP, asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

1. Amy DiCarlantonio, WSP, introduced herself as WSP's new project manager for this project, and described her background at WSP.

# III. Risk Assessment Summary:

- 1. Bill Cesanek, CDM Smith, discussed asset prioritization factors (Probability of loss and Consequence of loss) and the evaluation of these critical, at-risk assets. These assets have been referenced to past and ongoing resilience projects. He described the risk assessment process which is done by assessing potential flood impacts to the assets using baseline models applied to the project area. He described weighting factors used for characterization of at-risk assets by looking at the likelihood and scale of impacts and value of the assets.
- 2. Michelle Bowen, WSP, described FEMA's HAZUS methodology and how it works with asset prioritization. HAZUS produces loss estimates by overlaying flood depth data along with building/property information. Michelle explained flooding conditions under study, including present day and future flood levels. These levels are based on projected future precipitation, storm surges and sea level rise (SLR) of 2.4 feet. The 1% 24-hour flood event in 2070 is the key event for scenario development. The resulting potential water levels differ from water elevation benchmarks currently listed by FEMA. Michelle presented a simulation of flooded area within the Atlantic City region during an extreme tidal event in 2070 and then visualized resulting building losses across the region. Scenarios do not attempt to counter surges as high as the 7.6 foot surge experienced during hurricane Sandy, but focus instead on lower, more frequent high water events.
- Bill described how the study team designed resilience action scenarios to respond to the greatest
  asset risks as determined through HAZUS methodology. He showed a diagram highlighting
  clusters of critical at-risk assets (excluding some more isolated assets) that may merit priority
  protection efforts.

#### IV. Draft Scenarios:

- 1. Eric Fang, Perkins Eastman, began the presentation of scenarios by highlighting **NJDEP goals for resilience and adaptation scenarios.** 
  - a. Respond to the vision identified by the region
  - b. Reduce anticipated flood impacts in 2070
  - c. Include actions that respond to immediate flooding concerns within the region
  - d. Protect or enhance natural resources and ecosystem function as well as public access
  - e. Address the needs of socially vulnerable populations
- 2. Eric then described Resilience and Adaptation scenarios as "A suite of actions that work collectively to increase resiliency over time." Actions include but are not limited to:
  - a. Flood mitigation projects
  - b. Capital improvement projects
  - c. Future studies/analysis
  - d. Planning and regulatory actions
  - e. Communication or outreach activities
- 3. Eric presented a checklist of **criteria for identifying optimal resilience strategies.** The items below are all factors that must be considered to ensure that these adaptation methods will address the issues at hand:
  - Vision: Support overall community vision.
  - Evaluation of Risk: Reduction of flood impacts and address the identified assets.
  - Cost Efficiency: Overall cost of scenarios compared to identified benefits.
  - Capacity to Implement: Enough capability to implement the scenario.
  - Environmental/Ecological: Nature-based solutions to enhance local/regional ecosystems.
  - Adaptation Over Time: Evolution/phasing of scenario actions over time.
  - Outreach and Partnerships: Responsiveness to community concerns and comments.
  - *Health and Populations:* Strengthen health outcomes and resilience of diverse populations.
  - *Socio-Economic:* Strengthen the social/cultural and economic characteristics of the region.
- 4. Eric presented **themes to guide the region's resilience vision**. The themes are key community-identified qualities of the region that resilience scenarios should protect and enhance:
  - A place to embody all the experiences the shore has to offer
  - A place to gather, share, learn and relax
  - A place of diversity in people, destinations, landscapes
  - A place that reinvents itself
  - A place that meets the challenges of the future.
    - Bruce Funk suggested adding innovation and economic development activities to the list of key themes for the region.

To sustain this vision, resilience action scenarios must address **key challenges** including shoreline protection, stormwater management, access/transportation, continuity of power and other utility services, protecting vulnerable populations, and economic development.

- 5. Eric described the **three resilience action scenarios** proposed for consideration:
  - a. Scenario 1 relies on a mix of actors, but public sector leads on key projects. These are more oriented towards grey infrastructure and fortifications from inundation. This is a more centralized implementation approach and would feature pump stations and microgrids. This plan incorporates the UA Army Corps of Engineers' proposed Back Bay plan to install sheet pile dune core from Jackson to Absecon Inlet. It would also look to elevate evacuation routes, add pump stations for stormwater management, and install new micro-grids with emergency generators.
  - b. Scenario 2 would be implemented by a mix of actors but looks to municipalities to lead on key projects. Principal project types include continuous raised roads along the bay side, nano-grid incentives, and "living streets" that use a deep grave base to help store and drain floodwaters.
  - c. Scenario 3 includes more private sector investments for needed resiliency improvements, particularly along privately-owned shorelines, but other key projects would be led by municipalities. The scenario features more nature-based solutions for stormwater management and more decentralized implementation. Example initiatives include programs encouraging nano-grids and solar power, attracting more intense development along the bay to self-fund shoreline resiliency improvements, and offshore breakwaters.
  - d. It is possible to combine desirable elements of different scenarios into a preferred scenario an "a la carte" approach, not "prix fixe." Think of the scenarios a demonstrating possible combination of features, not limiting their combinations.
- 6. All three scenarios respond to the established *Absecon Bay Living Bay Master Plan*. This plan highlights natural elements that are shared among diverse communities, populations and landscapes and how natural resource change within the Bay Region is affecting its ecosystem. Partners working to protect the bay include The Nature Conservancy, Stockton University, Atlantic County, local communities, power utilities, NJDOT- Office of marine resources, NJDEP-Bureau of coastal engineering, and NJDEP- Department of land resource protection.

## 7. **Scenario 1** resilience initiatives include:

- a. Shoreline protection: relying on steel pile dune core
- b. Access and interior drainage: Elevating all the routes, new pump stations. Amy DiCarlantonio noted the challenge of elevating narrow residential streets three feet where buildings directly abut the street. Elevating wider industrial roads may be more feasible.
- c. Power/Utilities: Installing microgrids powered with additional emergency generators.
   Microgrids can be centered around casinos/hotels, medical centers, or other major sites that can provide emergency services.
- d. Equitable economic growth: Rezoning area around Gardner's Basin and Delta Basin to allow for industrial/blue economy land uses. Atlantic City Housing Authority

- Communities would be adapted with elevated equipment, solar panels on all rooftops and parking lots, and reprogramming of ground level spaces.
- e. *Natural resources along the Bay:* Applying the Army Corps plan in terms of shoreline protection

#### 8. **Scenario 2** resilience initiatives include:

- a. Bayside protection: Elevating streets along the Bay.
- b. Shoreline protection: Elevating streets along the shoreline to act as continuous levee.
- c. Living Streets: Selected streets, whether elevated or not, would be rebuilt as blue/green "living streets" that help manage floodwaters while also sustaining more street trees and other vegetation. Walter Mayer described key features:
  - i. Upgrade existing streets for subsurface conveyance without pipes, by excavating right of way to a depth of 24 to 30 inches and replacing it with a deep base of silt-free gravel below a new porous paved surface. The 30 inch depth avoids disturbing utilities (often 36 inches below grade) but is deep enough to avoid frost impacts. The gravel accommodates tree root growth. Trees help lower stormwater through evapotranspiration.
  - ii. "Blue streets" are streets like these located at elevations up to 6 feet. Their primary role is conveyance of stormwater.
  - iii. "Green streets" are streets like this located at elevations above 6 feet. Their primary role is to retain stormwater to slow its progression to lower areas.
  - iv. Living streets can be graded to maximize gravity flow, reducing need for pumps. However, pumps can be useful to lower groundwater levels prior to storms, providing additional stormwater capacity.
  - v. A diagram showed a suggested network of green and blue streets for Atlantic City, designed to optimize stormwater storage and flow. About 10-20% of streets would be rebuilt as living streets. A living street can help accommodate stormwater from a developed area about ten times the size of the street area.
  - vi. Living streets commonly cost 50% more than a conventional street but last up to four times longer. By bringing groundwater closer to the surface it reduces groundwater pressure issues and reduces winter salting needs by raising pavement temperature.
  - vii. Miami's "Miracle Mile" was rebuilt as a living street and proved very effective at managing stormwater during hurricane Irma. Rockaway Beach in New York also has successful examples of living streets.

#### 9. **Scenario 3** resilience initiatives include:

- a. Modifying zoning regulations to allow and attract new higher-density development to properties along the shoreline on the condition they install more robust shoreline protection. This strategy would aim to expand an established trend of redevelopment properties investing in shoreline protection. Regulatory changes would allow increased height and density, and encourage parcel assemblage
- b. Install green and blue streets as in Scenario 2
- c. Construct off-shore breakwater + incremental dune elevation through three year nourishment cycles.

#### VII. Upcoming Schedule:

Amy DiCarlantonio described planned community engagement events over the coming two months including: February 10 public meetings; innovation competition with other Resilient NJ initiatives; focus group discussions of scenarios; and additional steering committee discussion of scenarios in small groups

This link was provided for access to maps of vulnerable assets: https://resilientnj-accr.com/crowdsource/map.aspx

<u>Bill Cesanek:</u> For the link/map that Jacki distributed, please note that several mapped elements can be switched on and off. Note that if FEMA Category 3 and 4 is switched on, those critical assets are not classified with respect to flood vulnerability, The other map function shows dots for assets that are BOTH critical and vulnerable to serious flooding. Michelle and I are happy to walk folks through this-just email us!











# Resilient NJ - Febuary 2022 - Steering Committee Meeting

#### **MEETING MINUTES**

**DATE:** February 23, 2022

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – January 2022 – Steering Committee Meeting #13

A meeting was held on February 23, 2022, 10:00 am with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Kristin Shaw	WSP	kristin.shaw@wsp.com
Flor Mason	WSP	flor.mason@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Ben Carlson	CHPlanning	Ben.carlson@chplanning.com
Jordan Exantus	CHPlanning	Jordan.exantus@chplanning.com
Lauren Plinka	WSP	lauren.plinka@wsp.com
Barbara Wolley-Dillon	Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Leila Bahrami	CHPlanning	Leila.bahrami@chplanning.com
Kyle Wire	CHPlanning	Kyle.wire@chplanning.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Jenna Scott	CDM Smith	scottjk@cdmsmith.com
Michelle Bowen	WSP	michelle.bowen@wsp.com
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com
Matt Baumgardner	NJDEP	Matt.baumgardner@dep.nj.gov

The following was discussed at the meeting:

#### **MEETING:**

1. Amy DiCarlantonio started the meeting by explaining the overall framework and timeline for the Innovation Competition Award and introduced the consultant team. Then she introduced the agenda for the meeting.

- 2. Jaclyn Flor began to discuss the vision statement for the Resilient New Jersey Atlantic County Coastal Region. This vision statement has highlighted the diversity in the region and has a key focus on protection from natural disasters, flooding, and sea-level rise.
  - Jaclyn reviewed the layered Engagement Strategy including Steering Committee, Technical Advisory Committee, Community Advisory Committee, and Focus Groups on Business & Tourism, Environment, utilities, and residents representing socially vulnerable populations and homeowners' associations.
  - b. The community has highlighted what the region means to them in the past. This region is proud of its diversity, social fabric, diverse economy, large employers, and ecological assets.
  - c. She highlighted the region's unique character as a world-class destination for people to gather and connect with nature. In addition, the area is an economic, social, and ecological asset. Finally, its rich history makes it worth protecting.
- 3. Bill Cesanek began to discuss the two analyses conducted to identify what is going to be protected:
  - a. Asset Inventory: To identify key assets in the region:
    - i. HAZUS Analysis of economic impacts of the flooding in future scenarios
    - ii. Critical assets categories at risk
  - b. Risk Assessment: To identify the vulnerability of the various assets
    - i. He talked about the risk assessment process by assessing potential flood impacts on the assets using baseline models applied to the project area. He talked about weighting factors used to characterize at-risk assets by looking at the impacts and value of the assets.
    - ii. Bill mentioned how they combined asset prioritization and HAZUS data to highlight areas with critical assets that eventually lead to scenario development and what resilience actions are needed to specific assets and locations.

#### Resilience & Adaptation Strategies:

- 1. Eric Fang, Perkins Eastman, began to discuss the scenario goals:
  - a. Respond to the vision identified by the region
  - b. Reducing the anticipating flood impacts in 2070
  - c. Include actions that respond to immediate flooding concerns with the region
  - d. Protect and enhance natural resources and ecosystem function, as well as public access
  - e. Address the needs of socially vulnerable populations
- 2. Eric talks about the assets, vision, risk, and key questions that each scenario responds to:
  - a. Assets: What do we want to protect?
  - b. Vision: How can the region evolve to protect what we value?

- c. Risk? Which vulnerable areas are at risk?
- 3. Eric continued to discuss what actions are going to be taken. These look like flood mitigations projects (Army Corp type projects), capital improvement projects, future studies and planning, regulatory actions, and Communication or outreach activities.
  - a. Eric introduced the resilience checklist and how the scenarios will be ranked. This is based on the vision, risk, cost, capacity, environmental considerations, adaptation, health and population, socio-economic assets. (The greener, the better)
  - b. Some of the challenges are shoreline protection, stormwater management, access & transportation, power & communication, equitable economic opportunity, public facilities, vulnerable populations.
- 4. Eric began to talk about what key assets are going to be protected.
  - a. This list includes natural resources (rivers, marshes, beaches), Infrastructure (evacuation routes, electrical equipment, pump stations, public facilities, commercial corridors), Economic Development (marinas, vulnerable populations such as seniors, nursing homes, public housing authorities).
- 5. Eric then discussed what we are trying to protect the region from. There were a couple of items such as intense rainstorms, which will lead to a 10% increase in precipitation by 2070. Sea level rise will also become a threat as levels increase to 2.4' by 2070.

#### Resiliency Criteria:

- 1. Eric Fang began to discuss the three scenarios
  - a. The first scenario takes a more centralized approach, focuses more on grey infrastructure solutions, relies on federal and local partnerships, and includes raised streets and pump stations. In shoreline protection, it features the US Army Corp Back Bay Plan, which heavily relies on floodwalls and floodgates.
  - b. Scenario two is focused on a mix of blue and green solutions and relies on state and local partnerships. This includes raised bayside and continued beach renourishments as more nature-based solutions and blue streets and pump stations.
  - c. Scenario three is decentralized and relies on non-profit and private sector partnerships. This includes living streets and decentralizes solar and battery power plants.
- 2. Amy talks about the preliminary evaluation of each scenario:
  - a. According to the color wheel, Scenario 1 is greener at Risk
  - b. Higher rating on the risk
  - c. Higher evaluation in environmental adaptation.
- 3. Eric Fang began to discuss region-wide actions for all scenarios. He introduced Absecon Bay Living Bay Master Plan which will provide a framework to establish conditional monitoring. The idea is to establish a new non-profit organization to steward the bay and provide public education. They will act as a steward to promote responsible sustainable development. Along with this, translating all emergency preparedness information for the diverse region. Another

- action for all scenarios includes an adaptation action plan for Atlantic city and Pleasantville Housing Authority Communities and the Regions Senior Centers. Doing this will ensure continuity of service and provide resilience.
- 4. Amy talked about the 2 public meetings during the last month to discuss scenarios and actions for each scenario and the live polling during the meetings.

#### Scenario One:

- 1. Eric started to discuss how this scenario will rely on hard measures and plan proposed in the USACE Back Bay Plan, great Egg Harbor Inlet SSB to protect bayside against storm surges and levees/floodwalls to protect against other surge events but doesn't protect against sea-level rise. This, however, will not protect the Brigantine shoreline, so an extended seawall will be proposed. On the oceanside, the approach would be to install a sheet pile dune core and extend the boardwalk to act as a levee to Margate and Longport. These two in combination would address storm surges.
- 2. Stormwater is also a risk the community is facing and to address this, scenario one proposes raising roads and installing pump stations. Some of the key roads that will be raised would be evacuation routes.
- 3. Power and communications would propose a series of new microgrids/emergency generators at public buildings, installing new generators, hardening all above-ground utility poles, and bury utilities where possible. This will help ensure continuity of power. For instance, in Atlantic City, install a new emergency generator in Atlantic City Hall to operate the city's 911 system.
- 4. Protecting commercial centers such as Margate, Atlantic City, and Brigantine commercial corridor is a key aspect of this scenario and.
  - a. Expand midtown Microgrid to nearby local merchants.
  - b. Coordinate with developers to expand microgrid to local merchants on Atlantic Ave that are critical after emergency events/outages.
- 5. In terms of Equitable Economic Development, the adoption of the proposed university district is a key aspect.
- 6. Amy talked about the feedback result for scenario 1:
  - a. Overall support for the Back Bay study
  - b. Prefer other options for ocean protection (do not extend boardwalk; consider steel bulkhead with floodgates)
  - c. Road Raising Raise some roads where necessary that are below 5' to 6' or 7'.
  - d. Support buying power lines.
  - e. Use AC Midtown Microgrid as a model
  - f. Install emergency generator to all critical facilities, EOCs, shelters, and schools.
  - g. Include recommendations for resiliency improvement for the ACMUA water treatment plant.

#### Scenario Two:

- 1. Eric introduced scenario two, which will weave in some decentralized approaches, including shoreline protection through a continued beach nourishment program with a gradual elevation increase to address surges over time.
- On the bayside, a different approach is being taken due to private ownership in bayside and this
  proposal is as raising sections of streets along the bayside to form continuous flood protection
  through Winchester Ave, Sunset Ave, North Annapolis Ave, Chelsea Court, and North Harrisburg
  Ave.
- 3. This scenario will implement a blue/green way: a network of interconnected kayak/canoe trails (Blue way) connection Atlantic County bays developed in conjunction with the new recreational trail (Green way) along the Blackhorse pike and roads paralleling the shoreline. This will help raise awareness of the sea and beauty of the bay as an educational function, but also increase economic development.
- 4. For stormwater management, there will still be pump stations, but also blue streets to enable to city's ability to lower the stormwater and allow for the ground to increase the storage of water.
- 5. This scenario also relies on microgrids in leveraging existing facilities. Rather than diesel generators, the microgrid would be reliant on solar energy. Microgrids can be centered around casinos/ hotels or other major sites that can provide emergency services and support.
- 6. The microgrids focus on opportunities to use renewable/solar energies on rooftops and surface parking lots.
- 7. Up-zone areas in less vulnerable areas to incentivize affordable housing. Incentivize increased density + affordable housing on high and dry areas with each municipality. With walking distance from transit and jobs.
- 8. Amy talked about the feedback result for scenario 2:
  - a. Support for breakwater
  - b. Stormwater utilities provide a source of funding to maintain flood protection systems.
  - c. Raised bayside streets and relationships to elevate homes. Develop state programs to front the cost to elevate houses and pay the local match for FEMA grants to make it affordable to homeowners who need assistance.
  - d. Build on the fact that ACCR is a model for energy efficiency.

#### Scenario Three:

1. This scenario is more nature-based and decentralized where rather than relying on hard infrastructure, the community relies on up zoning all properties with bayside frontage and

constructing offshore breakwaters and incremental dune elevation through three-year renourishment cycles on the oceanside.

- 2. On the bayside, the Blue Acres program has been applied for homes north of Greenfield Ave, South of Bay Drive, and East of Edgily Ave to transform this area into a natural state to protect the wetland in upland Pleasantville.
- 3. In Living streets much like scenario two for stormwater management, there will be upgrades to existing streets with networks of green infrastructure for groundwater management. This will allow for natural infiltration to mitigate downstream flash flood risks. This includes open swale along pedestrians to allow stormwater to penetrate and filter through natural planting and also permeable pavement that is porous and allows water to go through.
- 4. It also looks at adapting existing parks and the golf course serves as stormwater management, it links pump stations effluent to new wetland parks (rather than discharge to the bay). Along with existing parks, they will also create new stormwater management parks on city-controlled land.
- 5. For continuity of power, they are looking to encourage the development of renewable energies throughout neighborhoods and businesses. This includes supporting weatherization of homes that can retain heat or cooling during a power outage, supporting nano grids, and encouraging bi-directional electrical currents.
- 6. For economic development, there would be an incentive for creating these adaptable corridors. This can be done through rezoning areas to support the blue economy.
- 7. Rezone areas around Gardeners Basin and Delta Basin to allow for industrial/ Blue Economy related land uses.
- 8. Amy talked about the feedback result for scenario 31:
  - a. Support for offshore breakwater
  - b. Municipalities should be encouraged to adopt stormwater management regulations (cisterns, blue roofs, and rain gardens)
  - c. Living streets select locations potential pilot in AC.
  - d. Encourage community solar, wind power, rooftop solar, tree and landscaped areas, open space.
  - e. Gardener's/Delta basin maritime/Blue Economy mixed-use.
  - f. Encourage the development of a Resiliency and wind institute in Atlantic City to bolster the economy and to continue R&D efforts.
  - g. Additional Barren sites for Blue Economy.
- 9. Amy discussed the final results of polling for all scenarios as follows:
  - a. Overall preferences:
    - i. Blue Streets
    - ii. Living Bay Master Plan
    - iii. Living Streets
    - iv. Up zone Bayside Frontage

- v. Raised Bayside Street
- vi. Offshore breakwater

# Comments:











# Resilient NJ - March 2022 - Steering Committee Meeting

# **MEETING MINUTES**

**DATE:** 3/23/2022

**TO:** All Meeting Attendees

**FROM:** Consultant Team

**SUBJECT:** Resilient NJ – March 2022 – Steering Committee Meeting #14

A meeting was held on March 23, 2022 at 10:00 am with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Jaclyn Flor	ENGenuity	jflor@engenuitynj.com
Jim Rutala	Atlantic City	jmrutala@comcast.net
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
John Peterson	Atlantic County	Peterson_john@aclink.org
Frances Brown	Atlantic County	brown_frances@aclink.org
Roger Mclarnon	City of Margate	Mclarnon_roger@margate-nj.com
Kyle Wire	CHPlanning	kyle.wire@chplanning.com
Ben Carlson	CHPlanning	Ben.carlson@chplanning.com
Leila Bahrami	CHPlanning	Leila.behrami@chplanning.com
Jordan Exantus	CHPlanning	Jordan.exantus@chplanning.com
Matt Baumgardner	NJDEP	Matt.baumgardner@dep.nj.gov
Jaqcue Howard	Atlantic City	JHoward@cityofatlanticcity.org
Edward Blanchard	American Red Cross	edward.blanchard@redcross.org
Barabara Woolley-Dillon	Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org

The following was discussed at the meeting:

#### **I. MEETING OBJECTIVES:**

- 1. Amy DiCarlantonio, WSP, started the meeting at 10:00 am. She then went through the meeting agenda and objectives.
  - Preferred scenario discussion

#### II. ROLL CALL:

Amy DiCarlantonio, WSP, asked the Steering Committee and Consultant Team to introduce themselves. All Participants introduced themselves during roll call.

#### III. Innovation Competition Award:

- 1. Amy spoke about the award being \$250,000 to be put towards the implementation step of the project. There is some flexibility, but the funds are planning focused. The timeline is built into the grant to allow for administrative activities. The handoff date will be sometime in November. Matt Baumgardner, NJDEP, had mentioned late November.
  - a. There are guidelines in the scope of what the funds can be used for in the "implementation phase." It cannot include on the ground construction due to HUD restrictions.

#### IV. Preferred Scenario Discussion:

- 1. The deadline for the preferred scenario at the end of July, which will allow for NJDEP to review the scenario and provide any comments.
- 2. Eric Fang, Perkins Eastman, began to discuss the preferred scenario and the feedback that they had received from multiple meetings.
  - a. The key challenges identified to address were Shoreline Protection, Stormwater Management, Access & Transportation, Power & Communications, Equitable Economic Development, Public Facilities and Vulnerable Populations.
  - b. Eric mentioned how when developing the preferred scenario, it can be a mixture of the three scenarios that could include a range of gray infrastructure and green infrastructure projects.
- 3. Eric continued by discussing the Living Bay Master Plan, The Absecon Bay Keepers, the effort to translate all emergency materials. This led to Jaclyn Flor, ENGenuity, to discuss the feedback for the preferred scenarios. This included having home elevation program/policy changes, exploring partnerships with non-profits, wetland restoration and incorporating short-term actions, incorporation a multi-jurisdictional natural hazard mitigation plan, and overall emergency preparedness.
  - a. Emergency Preparedness would utilize existing Red Cross models for preparedness actions, ensure emergency materials represent the community and messaging is understood.
  - b. Edward Blanchard, Red Cross, mentioned that it can be case by case for shelters on barrier islands. There may not be a solution for the area, but there may be recommendations they can make.

- 4. Eric began to discuss actions for Power & Communications. This included the installation of solar panels and microgrids by creating an incentive program. Alternatively, it could be to write up a code for the installation of solar panels for all renovation and new construction projects.
  - a. The feedback was focused on community solar more than the individual aspect of solar incentive programs.
- 5. Eric then moved on to Shoreline Protection methods. These included the Egg Harbor Storm Surge Barrier, Reinforced Dunes, USACE Levee/Flood Wall, a New Bulkhead to protect the north end of Brigantine, and the installation of a sheet pile dune core. While the USCAE is working on their studies, Eric suggested that municipalities can study a combination of raising sections of streets along the bayside and incentivizing development of key properties with bayside frontage. The nature of this would be to figure out how the stitchwork of this project would work.
  - a. Along with the bayside elevation study, a study of the blueway and greenway opportunities can be done as well.
  - b. Regarding shoreline protection, beach nourishment is a program that would continue, and an offshore breakwaters study would be implemented as well, however there was question of this study would be in coordination with the USCAE, who is already leading a study for the north end of Atlantic City.
- 6. Eric also discussed how living streets will be potentially incorporated into the scenario along with stormwater management parks and their preferred locations to work. Conover's Creek would be a system to link these parks.
  - a. Jacques had mentioned there is no discussion of US Coast Guard decommission, so this idea will be removed. Eric had mentioned how this is to take advantage of the unique locations and to improve rather than just focus on defense and protection.
  - b. The overall feedback surrounded the need to understand the longer-term feasibility and how these projects will consider critical infrastructure. Municipalities should also be encouraged, not required, to adopt stormwater management regulations.
- 7. He then began to discuss equitable economic development. This would look to rezone all parcels adjacent to the basin and marina for blue economy, decommission U.S Coast Guard Station Atlantic City and redevelop for Blue Economy land use, Waterfront Development Corridor, and leverage Black Horse Pike Road raising project to create a new boulevard.
  - a. There was also a discussion focused on a dredging management plan to assist in the restoration of wetlands and elevation of development sites such as Bader Field, Shelter Island and Gateway Site in Pleasantville.

#### VII. Upcoming Meetings:

1. What is the preference for how the meetings are hosted and what are specific dates these meetings should avoid?

- a. Previously, these meetings had multiple times and early times. The earlier meeting at 9:00 am was the more successful regarding participation
- b. There were no specific dates that should be avoided.
- 2. In April, the team will move forward with refinements to the preferred scenario and work on implementation strategies. These will be discussed in April

# APPENDIX D- MEETING MINUTES WITH TECHNICAL ADVISORY COMMITTEE (TAC) MEMBERS











Resilient NJ - June 30, 2021 - ACCR CRDA Meeting

#### **MEETING MINUTES**

**DATE:** July 21, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – June 30, 2021 – ACCR CRDA Meeting

A meeting was held June 30, 2021 at 11:30 AM until 12:30 PM with the Resilient NJ Consultant Team and Lance Landgraf representing the Casino Reinvestment Development Authority (CRDA). The virtual meeting was held via Microsoft Teams.

Name	Organization	Email
Lance Landgraf	CRDA	llandgraf@ventnorcity.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Bryan Kiel	WSP	Bryan.kiel@wsp.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Justin Parker	ENGenuity Infrastructure	jparker@engenuitynj.com

The following was discussed at the meeting:

- 1. Jaclyn Flor, ENGenuity, started the Zoom meeting at 11:30 AM. Jaclyn Flor then went over introductions and the Consultant Team and Lance Landgraf (CRDA) introduced themselves.
- 2. Director Lance Landgraf, CRDA, introduced himself as the Director of Planning and Development for CRDA and gave a brief summary of his experience in the Region. He went on to explain his role with the CRDA and what the organization is involved with. In 2011, the CRDA was granted land use jurisdiction over the tourism district in AC after the state passed new legislation. Up to early 2018 the CRDA relied on the City's land use regulations which were outdated. This caused significant problems because the regulation prohibited residential development in the Casino District; therefore, the existing residential dwellings were deemed non-conforming. In 2018, new land use regulations were created to allow multifamily dwellings and may be revised further to allow for single family dwellings. Lance Landgraf is the hearing officer during land use hearings that occur twice per month. Administrative approvals, in lieu of public hearings, have helped small businesses/developments.
- 3. As the Director of Planning and Real-estate Development, Lance Landgraf explained that he manages the land CRDA owns. CRDA is one of the top land owners in the City; however, they are trying to sell some of the land. They are hoping for residential development in the Southeast Inlet (single and multifamily), and will prohibit casinos in this area.

- 4. Lance Landgraf went on to explain that CRDA provides grant funding for economic developments varying from small businesses to large scale developments. Jaclyn Flor, ENGenuity, asked how the CRDA funds the projects.
- 5. Lance Landgraf explained it is through direct grants. Casinos have IAT's (Incremental Assessment Tax) which funds the CRDA. Since 2016 however, that money has been used to pay the City's debt. This happened after the Casinos appealed their real estate tax assessment and left the City with \$550 million in bond debt. The Atlantic City Recovery Act allowed for the taxes paid by the Casinos to be used to pay down debt (~\$40 million). Unfortunately, CRDA can't use this money until at least 2026. Currently, CRDA is funded by luxury tax, parking fees, and loan repayments. When the City or Developers have funding gaps, the CRDA helps to fill them.
- 6. Lance Landgraf also explained that CRDA is currently focused on rooming houses that are poorly run and are involved with illegal activity. The plan is to demolish them due in part to their non-compliance with flood regulations. Once demolished the lot will be put up for sale for Developers.
- 7. Jaclyn Flor asked about the buyout program for CRDA owned vacant lots. Lance Landgraf explained that in 2017 there was an auction where a lot of properties were sold to adjoining property owners. Other parcels have been converted into parking lots.
- 8. Eric Fang, Perkins Eastman, asked Lance Landgraf to identify the location of the surface lots. Lance Landgraf says the locations vary but include places like the AC convention center.
- 9. Eric Fang asked for a map of projects occurring in the area that Lance Landgraf's organization is a part of.
- 10. Lance Landgraf gave a link to the NJCRDA website which has a GIS database containing additional info about CRDA's projects. Lance Landgraf went on to describe different data points that can be observed using the database.
- 11. Bill Cesanek, CDM Smith, asked if CRDA's investments are limited to the locations within CRDA's jurisdiction.
- 12. Lance Landgraf explained that it can be anywhere in Atlantic City; and, with special permission from the State Governor's office, they were able to fund a project in Egg Harbor Township near AC's border.
- 13. Eric Fang asked what Lance Landgraf thinks the economic identity of the City will be in the future.
- 14. Lance Landgraf says they are trying to expand the job market. The job market was hurt by the 2012 mortgage crisis which closed four (4) Casinos down and put 15,000 employees out of work. This led to Atlantic County leading the nation in mortgage foreclosures. This emphasizes the need for a more diverse job market. High paying engineering-technical jobs with good benefits are a main focus. NASA, Boeing, etc. are moving or have already moved to AC.
- 15. Bill Cesanek asked about Lance Landgraf's thought on the blue economy.

- 16. Lance Landgraf explained that CRDA has been supportive of the blue economy ideas (off shore wind farms) since the state supports it. CRDA has funded some of these projects (Orsted).
- 17. Eric Fang asked about other entities that have purchased CRDA land.
- 18. Lance explained that CRDA is always working with Developers on land purchases. Although in the last 18 months, no entity has purchased CRDA land.
- 19. Eric Fang asked if Orsted has a substantial footprint on land. Lance Landgraf explained they do but they won't be able to do a lot of the manufacturing in the area due to the inaccessibility for large ships. AC is hoping to have the maintenance facility moved to AC since it will be close to the offshore wind farms. Ocean city doesn't want offshore wind farms.
- 20. Alyssa Curran, WSP, asks if the Coastal Institute Study in 2019 has evolved since then.
- 21. Lance Landgraf says it hasn't. There are plans the City is negotiating about Bader Field, however they are not settled yet.
- 22. Frank Zimmerman asked if Bader Field is under CRDA jurisdiction. Lance Landgraf says it is land-use wise but the city owns it.
- 23. Jaclyn Flor asked if there were studies done to keep dredging industry local for job purposes.
- 24. Lance Landgraf explained that Bader Field was a potential location for that but water access is a problem. The waterways can't accommodate large ships.
- 25. Jaclyn Flor followed up by asking if bridges will need to be raised to alleviate the problem. Lance Landgraf explained that the AC expressway bridge will need to be raised. But you can't raise the train tracks so it would be very difficult.
- 26. Jaclyn Flor asked if Bader Field is the only location where an operation like this can be feasible. Lance Landgraf says there are other potential areas but a lot of it is privately owned, and you wouldn't want manufacturing next to casinos and residential areas.
- 27. Eric Fang asked how Lance Landgraf thinks the economic development and diversification will be impacted by climate change and how it will alter CRDA's plans.
- 28. Lance Landgraf explained that NJDEP's regulations are causing some problems since there regulations call for a higher flood elevation. For the homeowners that just recently raised their house, they would have to raise them again to comply with NJDEP's regulations. This isn't particularly feasible. Commercial buildings can just flood proof the first floor. Lance Landgraf agreed with the flood elevation requirements but the NJDEP's regulation may be too much. Not sure if NJDEP's regulations are based in science as much as the current regulations.
- 29. Frank Zimmerman asked what the use will be for the new development in the Gardner's basin district.
- 30. Lance Landgraf explained that the district is focused on restaurants and entertainment/recreation and doesn't permit residential, although they are open to the discussion of allowing residential development. In early 2000s, CRDA removed old housing and redeveloped it with residential buildings.

- 31. Jaclyn Flor asked if climate resilience can be built into CRDA redevelopment plans. Alyssa added on by asking if climate resiliency can be built into the Master Plan as well.
- 32. Lance Landgraf explained that they didn't include a lot of climate resiliency in the Master Plan in 2010. There was no basis for the regulations in that document as it was mostly visionary. In 2017 they added the land use and housing element to write the regulations from that. CRDA is waiting on guidance on certain topics to be added to the regulations. The City is creating their Master Plan now.
- 33. Bill Cesanek asked if the CRDA and Atlantic City have overlapping jurisdictions.
- 34. Lance Landgraf explained that the jurisdictions don't overlap and that CRDA has development approval over their jurisdictions. Atlantic City and CRDA work together to work through the jurisdictional challenges.
- 35. Jaclyn Flor asked if climate resiliency is required to be in CRDA's Master Plan. Lance Landgraf said that yes, that is the case. Before 2027 the Master Plan will be updated.
- 36. Eric Fang asked what is the most valuable asset. Lance Landgraf responded that Baltic Ave and West End Ave and neighboring roads flood considerably on a regular basis, and you can't elevate row homes on these roads. The solution is to rebuild the whole block at the correct elevations by relocating people temporarily. You can't raise the road without raising buildings. Bulkheads will need to be added as well.
- 37. Bill Cesanek stated he hasn't heard any plans to redevelop City blocks to green space. Lance Landgraf said this was discussed but there's a lot of push back from residents who don't want to relocate.
- 38. Bill Cesanek added there seems to be enough interest among residents to keep the area as a tourist destination but so far, he hasn't heard discussion for creating green spaces from flooded areas.
- 39. Lance Landgraf said he is hopeful for the southeast inlet area to become a second home destination. Eric Fang asked if the market is mostly second homes.
- 40. Lance Landgraf explained that they are increasingly becoming primary homes due to COVID. Water usage increased substantially during 2020 indicating residents moved in and didn't leave. However, violent crime is still a problem and discourages home buying.
- 41. At that point it was 12:30PM and the scheduled meeting was over, and the Consultant Team ended the meeting thanking thanked Lance Landgraf, CRDA for all the great input.

#### **Action Items:**

1. None









#### Resilient NJ - July 2021 - Engagement Team Meeting

## **MEETING MINUTES**

**DATE:** July, 8, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

**SUBJECT:** ACCR Consultant Team Call

A meeting was held July 8, 2021 at 4:30 PM with the Engagement Team and The Nature Conservancy. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Patti Doerr	TNC	pdoerr@TNC.ORG
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1) General discussion
  - a) Bringing on additional staff, potentially could bring into these RNJ projects
  - b) Trying to get beneficial re-use of dredge material as familiar as beach nourishment
    - i) Keeping channels open that is going to be a recurring issue
  - c) Natural Climate Solutions Accelerator Grant Program (not involved)
- 2) Dredge Material Management
  - a) Big priority for TNC is to get beneficial use of DM as restoration to be "typical" and business-asusual
  - b) There are marshes that need routine restoration and those that need substantial restoration
    - i) Good to pair with channel management at municipal level
  - c) TNC Coastal Resilience Tool (<a href="https://maps.coastalresilience.org/newjersey/">https://maps.coastalresilience.org/newjersey/</a>)
    - i) Three apps
      - (1) Marsh Explorer
        - (a) Ranks marshes based on potential for restoration using sediment (across NJ)

- (b) Boxes are mile square
- (c) Click on square to see detailed info (e.g., edge erosion in acres in 1977)
- (d) Can also see supporting layers (e.g., dredged lagoons, federal navigation channels, sediment distribution)
- (2) Living Shoreline Map
  - (a) Type of living shorelines that could be most appropriate in a particular area (e.g., marsh sill, breakwater, ecologically enhanced revetment)
  - (b) Down to 10-meter increments
- (3) Risk Explorer
  - (a) Shows what coastal habitats are providing in risk reduction value
  - (b) Ranks marshes based on their potential for restoration using sediment
  - (c) Can toggle to show where habitats are likely reducing risk now (priority conservation areas)
- ii) Tool was presented years ago to municipalities
  - (1) Pleasantville and Ventnor more recent
- iii) Primarily used by other conservation organizations
- iv) Talking with Stockton for them to do study on marsh restoration potential adjacent to channels to come up with plans for near- and long-term solutions
  - (1) Dredgers want the information as a starting point for a menu of options for when dredging needs come up
    - (a) It could be tied to Resilient NJ projects
- d) Conservation Blueprint—good resource already known by ACCR consultant team
- 3) Existing partnerships
  - a) TNC has worked with Coastal Coalition, not intensively as of late
  - b) Work with Jim Rutala
  - c) NJ DOT Scott Douglas is TNC's partner for DMM in the region
  - d) Could Scott and Patricia be together at SC meeting, to get folks thinking and brainstorming
  - e) Have worked with Avalon and Stone Harbor
  - f) As part of TNC's conversations with DOT
    - i) Coastal Projects Coordinator at TNC is looking at the AC area to do a first cut of potential projects; can start the dialogue with this info
    - ii) DOT & USACE knows the channels that have to be dredged based on upcoming projects

- iii) RRAAP will be regional, and multiple jurisdictions can proceed together on individual projects as it proceeds beyond Spring 2022
- 4) Opportunity to educate SC and other regional stakeholders
  - a) Brief TNC presentation / Q&A on:
    - i) How to do this right (from the start) to maximize the benefit: beneficial use of dredge material to restore coastal salt marshes to SC or broader TAC/CAC meeting
    - ii) Applying for grant \$\$
    - iii) Barriers/challenges with implementation
  - b) Ultimately "Action Plan" will be comprised of short/med/long term actions selected/prioritized by region as a whole, carried forward collectively for most part though some municipalities may move forward on certain actions independently

#### Next steps:

- Consultant team to review tools
- Consultant team to send TNC meeting dates for potential presentation
- TNC present at focus group or SC meeting; consultant team to discuss; possible DOT attendance, as well

# APPENDIX E- COMMUNITY ADVISORY COMMITTEE (CAC) MEETING MINUTES













#### ACCR - Resilient NJ

#### **MEETING MINUTES**

**DATE:** March 22, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ-ACCR- Absecon, Linwood, Somers Point, and Egg Harbor Township

Community Advisory Committee (CAC) Meeting

A meeting was held February 23, 2021 at 2:30 PM with Consultant Team and Somers Point, Absecon, and Linwood to discuss the Engagement Plan for the NJ Resiliency Planning Project. Egg Harbor Township was unable to attend this first meeting. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Leigh Ann Napoli	City Clerk -Linwood	Inapoli@linwoodcity.org
Jason Frost	Business Administrator -	jfrost@spgov.org
	Somers Point	
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Jessica Thompson	City Administrator -	jthompson@Abseconnj.org
	Absecon	
Greg Schneider	City Engineer-Somers	greg@ksecivil.com
	Point	
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Sunghwan Yoon	Perkins Eastman	s.yoon@perkinseastman.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

The following was discussed at the meeting:

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions. Jim Rutala, Regional Coordinator, gave a review of the Resilient NJ Project and the history.
- 2. Jaclyn Flor then shared a presentation about Resilient NJ that showed what has been done so far and the goals moving forward. She walked through the Agenda and what the meeting objectives were including the key questions, and then reviewed the geographical areas involved in the ACCR. She reviewed the key milestones for Project Engagement.
- 3. Alyssa Curran, WSP, explained that we are one of four (4) regions involved in Resilient NJ and explained the Innovations Award Presentation.

- 4. Jaclyn Flor provided an overview of the Steering Committee, TAC, CAC and Focus Groups and what their roles were and explained that as surrounding communities this group was part of the CAC. Then walked through the timeline of the project.
- 5. Jonathan Carey, WSP, explained the timeline is an aggressive, eighteen (18) month schedule that is moving fast. We will build upon what has already been done in the past and drive towards each milestone.
- 6. Bill Cesanek, CDM Smith, explained Asset Collection and the process. He provided asset examples including government services, infrastructure, economic, natural, health, social and cultural and housing assets.
- 7. Bill Cesanek explained Regional Transportation Systems including evacuation routes, highways, rail, etc. and showed a map of the study area. Bill asked if there are specific areas of transportation that are at risk?
- 8. Jim Rutala, Regional Coordinator answered that Route 30 and Route 40 are at high risk and close often. Longport Blvd closes during major storms and Route 9.
- 9. Greg Schneider, Somers Point City Engineer explained that Somers Point floods frequently.
- 10. Alyssa Curran asked if other forms of transportation were important in the area- rail, bus, bike, etc. and asked what residents rely on mostly.
- 11. Jim Rutala, Regional Coordinator explained that Absecon has a rail stop that is a major access point. It is used as a reverse commute as well to get to Philadelphia.
- 12. Bill Cesanek explained Regional Asset Collection and asked if there was any infrastructure throughout the Region that was in need of improvement or expansion. Bill also asked if there are any systems that are vulnerable to flooding in towns?
- 13. Greg Schneider explained that Somers Point has a log of sanitary pump stations in the floodplain that frequently have damage in storms. He said there are also some stormwater pump stations that would be impacted by any type of storm event. He explained that waste water is treated by the ACUA.
- 14. Bill Cesanek then moved the discussion to Regional Economic and Social Assets including tourism, shopping and restaurants; and asked about their timing coming back after a storm even.
- 15. Jason Frost, Somers Point Business Administrator explained Somers Point is home to many restaurants and bars that are prone to flooding.
- 16. Greg Schneider also added that there is a Marina in Somers Point that is prone to flooding.
- 17. Bill Cesanek then moved the discussion to Regional Natural and Environmental Assets and showed the map of environmental resources.

- 18. Greg Schneider explained Somers Point has a large wetlands area along Bay Avenue area north of Maryland Avenue with a marsh that protects homes against wave action and flooding.
- 19. Jim Rutala said that Linwood has done a good job of purchasing land along the creek and the bayfront which has done a good job in protecting from flooding. He said Leigh-Ann Napoli of Linwood is the lead the charge on this.
- 20. Bill Cesanek then moved the discussion to Regional Shoreline Types and Protection and showed the mapping of shorelines. Bill explained that the Consultant Team is examining shoreline flooding issues and that there are a lot of vulnerabilities on the bay side.
- 21. Greg Schneider explained the historic district in Somers Point is all bulkhead and needs to be upgraded and raised. Greg said that JFK park is a national coastal bluff that is prone to erosion and damaged during Sandy and the city installed gabions to protect this from any future storm events.
- 22. Alyssa Curran asked how Past Events have been handled and what have been the social and structural effects during and after past disasters (Sandy, Nor-easter, COVID-19 pandemic)? What were the major challenges?
- 23. Jason Frost- Somers point explained that structural and asset-based capital projects such as storm water management projects are critical and the most heavily weighted challenge is funding.
- 24. Greg Schneider added that there are a couple stormwater pump stations that they are still waiting for funding from FEMA on.
- 25. Jim Rutala also stated that they are waiting on funding for bulkheads for Bay Avenue and several projects associated with it are in pipeline.
- 26. Leigh Ann Napoli, City Clerk of Linwood, agreed with Jason Frost and explained there are major funding issues. She also mentioned that the city itself provided funding for damaged sewer station repair and definitely needs more funding for other repairs too.
- 27. Jim Rutala mentioned that for Little Egg Harbor that the Township is in process of purchasing hotels along Black Horse Pike where flooding is frequent and also other properties using FEMA funds near frequently flooded areas. He also said there needs to be improved infrastructure in the area between the main land and the major island.
- 28. Alyssa Curran asked where in your region are the major areas of concern? What is most disrupted? Who is most impacted?
- 29. Leigh Ann Napoli said specific neighborhoods are constantly flooded in storms. Alyssa Curran asked if this is mapped or registered to identify the area and asked reason for flooding i.e., high tied or storm?

- 30. Leigh Ann said yes, it is generally the same areas and always a funding issue and main reason for flooding is lower capacity of pipes.
- 31. Jaclyn Flor asked if the people who work in the other coastal communities (ACCR) and live in these towns are affected by flooding, meaning does this flooding effect your local economy?
- 32. Jim Rutala said a good share of jobs are in Atlantic City and after Sandy, Atlantic City was shut down for eight (8) days followed by layoffs which effected neighboring communities similar to what we are dealing with now due to the pandemic.
- 33. Alyssa Curran asked what does short term response and recovery look like and how long does response take? Alyssa asked if there was one command center for the region?
- 34. Jim Rutala said it is really a team effort. Each municipality has a public safety director and engineers. County has Emergency Management office but they don't' dominate the recovery efforts.
- 35. Alyssa asked if there had been any additional grant funding through the County for municipalities? Jim said yes, there is good cooperation through everyone.
- 36. Alyssa Curran asked what were strengths that allowed you to bounce back?
- 37. Greg Schneider, Somers Point, explained it was mostly the public works after Sandy that handled most of the effort of Sandy and cleaning the debris. Greg added that there was a lot of flood damage and an entire fishing pier came apart after Sandy.
- 38. Leigh Ann Napoli, Linwood, added that Public Works was out in full force cleaning up after Sandy and other storms and greatly helped with the clean-up.
- 39. Jessica Thompson, City Administrator of Absecon, agreed that public works did a lot of clean up.
- 40. Alyssa Curran asked what did you try that didn't work?
- 41. Leigh Ann Napoli, Linwood explained that the derecho storm hit worse than Sandy in some ways. Communication was a big issue and they worked on that and overcame that gap. Internal departments, communication with county and within neighborhoods were all important. Also, some improved technologies for communication like reverse 911 etc.
- 42. Jim Rutala said one of the biggest gaps is engineering resiliency projects that work and that it is not as simple as putting in a pump station and funding is always a big issue.
- 43. Alyssa Curran asked if Stockton or Rowan college are involved in resiliency.
- 44. Jim Rutala said Stockton put together most of watershed emergency programs. He said that Jacques Cousteau institute was very involved after Sandy. He also added that Atlantic Cape College's goal has been recovery, workforce training and food distribution for people out of work.

45. The meeting then ended at 3:30PM and the Consultant Team thanked everyone for all the great feedback.

#### **Action Items:**

- 1. The Consultant Team will issue minutes.
- 2. The Communities will be invited to future CAC meetings.













# CAC Meeting - Resilient NJ- ARC and Tri-County COAD

## **MEETING MINUTES**

**DATE:** March 25, 2021

TO: All Meeting Attendees

FROM: The Consultant Team

**SUBJECT:** Resilient NJ - Atlantic County Coastal Communities (ACCR)

A meeting was held March 4, 2021 at 1:00 PM with members of the Community Advisory Committee as selected by the American Red Cross. These CAC Members included the ARC Team, Tri-County COAD, and VOAD. VOAD was unable to attend this first meeting. The purpose was to discuss the NJ Resiliency Planning Project, Assets, Preparedness and Readiness, what has occurred in past disasters and why, and upcoming Focus Group and Resident Advisory Group recruitment. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Jaime Phillips	CH Planning	Jaime.phillips@chplanning.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Sunghwan Yoon	Perkins Eastman	s.yoon@perkinseastman.com
Vicki Phillips	Tri-County COAD	vphillips@mhanj.org
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Nieves Pimienta	Rutgers	Nieves.pimienta@rutgers.edu
Sarah Tomasello	Rutgers	sarahtom@ejb.rutgers.edu
Miriam Salerno	Rutgers	Miriam.salerno@rutgers.edu
Madhuri Rodriguez	American Red Cross	madhuri.rodriguez@redcross.org
Jim Eden	American Red Cross	jim.eden@redcross.org
Paul Gass	American Red Cross	Paul.Gass@redcross.org
Lauri Gill	American Red Cross	lauri.gill@redcross.org
Rodric Bowman	American Red Cross	rodric.bowman@redcross.org
Lisa McGee	American Red Cross	Lisa.McGee@redcross.org
Bryan Kiel	WSP	bryan.kiel@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Justin Parker	ENGenuity Infrastructure	jparker@engenuitynj.com

The following was discussed at the meeting:

#### Meeting Objectives/Overview:

- Jaclyn Flor, ENGenuity, started the meeting by explaining the purpose of this meeting is to determine which assets are most important to the region based on work with socially vulnerable populations. Also, what happened and why during and after natural disaster events in the region. She explained that the American Red Cross will discuss their readiness and preparedness programs, and then lastly Rutgers and CH Planning will discuss the Focus Group and Resident Advisory Group recruitment.
- 2. Jaclyn Flor noted that we are currently in the Visioning portion of the plan development phase. All the work we are doing is driving towards milestones in the plan in order to identify projects that can be potentially funded then eventually moved forward to implementation phase.
- 3. Bill Cesanek, CDM Smith, explained that the Consultant Team has already begun developing a database of important resources in the project area. This will allow the Consultant Team to determine which assets are the most vulnerable in the region by using models and analysis. Then, the Consultant Team will look at future scenarios and alternatives while looking for input for solutions that will increase resiliency in the region.
- 4. Jaclyn Flor then explained the role of the CAC is to provide local perspective and guidance on community challenges; to provide feedback to determine which assets are most important; the CAC represents diverse representatives to ensure we are obtained feedback and perspectives from all populations; the CAC will guide the Steering Committee through different strategies to reach the implementation phase. The goal is to meet once per quarter. It is very important that the voices of the socially vulnerable populations are heard.

#### Progress Update and Next Steps:

5. Jaclyn Flor then moved on to explain the current phase on the project and what is coming in the future: Website launched last month; currently meeting with CAC; moving to visioning phase soon; identifying assets (what's happened and why); Launching mapping tool on website; just finished plan in context and will be discussed with CAC in the future.

#### **Preparedness and Readiness:**

6. Paul Gass, American Red Cross, described how the ARC is trying to promote and improve community resiliency through preparedness programs/initiatives. "Prepare NJ" is an umbrella initiative that is aimed at individuals, families, business, and community organizations with a goal to increase community education and preparedness. ARC has a lot of programs that can be used to reach different demographics. There is a need to protect vulnerable communities from being exposed to recurring disasters. Bringing communities together through effective preparedness programs will increase the resiliency in the long term. The initiative is a multi-year commitment involving collaboration with local communities/municipalities and ARC is committed to the long-term effort and drafted "Prepare NJ" with these long-term goals in mind. ARC already has done work in the region and has engaged with most municipalities in the region. The next step is to coordinate efforts so that more people in the community can be reached. ARC is focused on all areas of preparedness, from individual to the entire community.

"Prepare NJ" is good way to show how this model of community preparedness can be used throughout the state.

#### Asset Collection:

- 7. Bryan Kiel, WSP, began by describing asset examples. Bryan explained that the Consultant Team is using a wide net approach to identifying assets. The Consultant Team wants to include both public and private assets that serve the community. The goal is to highlight what is really important by identifying assets that are used every day and assets used during emergency situations that are critical to the community.
- 8. The ARC and Tri-County COAD then began discussing what assets are critical to the region.
- 9. Madhuri Rodriguez, ARC, explained that the nonprofit organizations in the community that serve socially vulnerable populations are very important and we need to incorporate them into the dialogue to understand how these organizations can be further supported to have continuity with the services they provide.
- 10. Bryan Kiel, WSP, asked how much the ARC coordinates with community groups on the ground, particularly during emergency response?
- 11. Madhuri Rodriguez responded by saying ARC works closely with these community groups to coordinate different programs such as blood drives.
- 12. Jim Eden, ARC, added that there isn't as much of a need to coordinate with community groups during normal times/small scale events; much of what they do is during large-scale disaster events.
- 13. Vicki Phillips, Tri-County COAD, continued the discussion by adding her organization went door to door in socially vulnerable communities for 3-4 years after Superstorm Sandy in order to identify people who could use the RWJ grant to rebuild their home. At the time, they had a lot of difficulty in certain towns (Atlantic City and Ventnor in particular) getting to people with disabilities to provide services.
- 14. Jaclyn Flor added that Atlantic City had mentioned that they were working on compiling a list of individuals with disabilities to make sure future emergency evacuations go smoother. Jaclyn Flor then asked Vicki Phillips if she's heard of any similar programs that have started in the region. Vicki said that the program "NJ Register Ready" already has a database consisting of people with disabilities and senior citizens. This database, which individuals can register to, is sent to local OEMs to further assist them during emergencies. The problem is that in some cases, OEM officials are not using the database as intended so more coordination is needed. Since OEM duties are typically part-time and sometimes handled by one person. It is important that the database be easily used/accessed so that the person handling OEM will want to use the database. In Atlantic County, the prosecutor's office has a database that registers people with mental health disabilities for safety concerns. Monmouth County uses a similar database. There is an upwards of 2,000 people in Atlantic County's database.

15. Paul Gass added to Vicki's point by explaining how his organization, using a long-term recovery team, worked closely with community groups for two (2) years after Superstorm Sandy. Strong ties were formed and relationships with the different community groups strengthened. After the crisis was over, some of the connectivity was unfortunately lost. He would like to see the relationships grow again since it was very helpful in terms of the recovery of the region. Community preparedness is a way to further collaborate with the different community groups/organizations and strengthen relationships.

#### Past Events:

- 16. Jaclyn Flor then moved the discussion to what happened in past disasters, why, and how outcomes can be improved in the future.
- 17. Bill Cesanek, CDM, explained he was interested in social and structural effects and major challenges faced. Would like to hear feedback on the following questions: Where were the major areas of concern? What was most disrupted/ impacted? What does short/long-term response interaction involve. What kind of systems need to be in place to ensure a robust disaster response system? What ways has region coordinated response/recovery efforts? What were the strengths that allowed different agencies to respond quickly? What were the weaknesses? The goal is to create a plan that strengthens short-term response and recovery and build capacity in the region for the long-term.
- 18. Jim Eden, ARC, explained that the back bay area and low-lying areas saw a lot of damage. This includes some hotels that provide housing for Section 8 individuals. Since then, most houses have been raised to reduce flood risk (REM program). There are still a lot of people living in moderate to high-risk flood areas.
- 19. Bill Cesanek asked if Jim Eden suggests an approach or plan that the region should focus on in the future.
- 20. Jim Eden explained how an improved infrastructure would help people who are vulnerable to disasters (i.e., seawalls, raising houses and streets). Jim Eden added that the ARC avoids sheltering people on the island municipalities.
- 21. Vicki Phillips explained that one of the challenges they face when it comes to evacuation is identifying seasonal vs. all year residents. Some municipalities have a list while others like Ventnor do not. This slowed the door-to-door effort.
- 22. Vicki Phillips described that since everyone's mental health was affected by the storm, it resulted in new partnerships with different groups in the community.
- 23. Vicki Phillips further explained that a lot of money came in quickly after Sandy and it needed to be spent quickly. This resulted in money being wasted (i.e., newly renovated homes were demolished in order to raise them).
- 24. Jaclyn Flor asked if it was a policy issue regarding how quickly the money needed to be spent.

- 25. Vicki Phillips explained that organizations that were funding the recovery (i.e., Salvation Army, ARC, and Robinhood Foundation) set short timelines of about 12 months to use the funds. Didn't want to sit on the money for a long time. It took at least 2 years to get answers about the home raising/elevation issue after the funds were used.
- 26. Adding to Vicki's point about funding, Rodric Bowman described his time with the Office of Recovery and Rebuilding for the governor's office where he observed that the funding organizations don't have the structure to manage the funds. There was a learning curve to understand how to accept, manage, and distribute the funds. Rodric Bowman suggests using workshops to increase education on how to structure and deal with the influx of funding after a disaster at a community level.
- 27. Vicki Phillips added that vetting the individuals/groups that offer services after a disaster is very important. She recalled when a rebuild/recovery group, using a construction company, took on a lot of clients and deposit money only to end up failing. Vetting in the future can prevent this.
- 28. Paul Gass added that having repeatable and sustainable preparedness education and sharing info will likely help residents make better informed decisions as to whether they evacuate or shelter in place in the run-up to and in the face of a disaster.
- 29. Frank Zimmerman, Perkins Eastman, following up to Jim's earlier comments, asked what specific bay side neighborhoods/areas needed homes raised after Sandy? Jim Eden responded by saying the areas affected include the back bay areas of Atlantic County, between Absecon island and the 5 jurisdictions, Pleasantville, and Northfield. Egg Harbor Township is flooded regularly. These areas were affected by the recent winter weather. Many areas east of the parkway are flooded during substantial weather events.
- 30. Frank Zimmerman, Perkins Eastman, then asked why the coastal side buildings were being relocated/raised more often with federal dollars than the residential areas in the back bay areas. Jim responded that some residential areas on the island were lifted using federal money. Others were done at the expense of the homeowner. The program is no longer active. Houses in well off areas are currently being demolished and lifted.
- 31. Vicki added that some homeowners in low-income areas didn't have the insurance/money to renovate their homes. As the area improves its housing, people in low-income areas will be priced out of their homes.

#### Focus Groups/Resident Advisory Groups:

- 32. The meeting was then turned to Miriam Salerno, Rutgers. She explained that the Consultant Team is working to establish resident advisory groups and a series of meetings will be set up in the future. Looking for individuals who meet the criteria for different social groups. A screening questionnaire was set up to help populate the different resident advisory groups (i.e., lowincome, seniors, LEP, etc.). Some people may meet the criteria for more than one group.
- 33. Miriam Salerno further explained that we need help finding individuals for the advisory groups. Want it to be shared widely with the community. Would like to find people who will commit to going to meetings. These groups are different from focus groups because they'll consist of

people who want to participate and have their voice heard rather than just being selected for a group. Finding the right people for these groups is important to the success of this project.

34. The meeting then ended and the Consultant Team thanked everyone for all of their great feedback.

#### Action Items:

- 1. ENGenuity to send ARC brochure, that explains the preparedness programs, to all CAC members. **Complete**
- 2. The Consultant team to share information so ARC and Tri-County COAD can share with individuals on how to sign up for Focus Groups. **Complete see below:**

The website where people can go to sign up for the Focus Groups:

www.Resilient.NJ.gov/accr

A direct link to the Focus Group Sign up can also be found here:

https://bit.ly/rnjaccr-advisorygroup











#### Atlantic County CAC Meeting - Resilient NJ

#### **MEETING MINUTES**

**DATE:** April 13, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Atlantic County

A meeting was held March 15, 2021 at 10:00 AM with members of the Atlantic County CAC Team to discuss the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Jenna Scott	CDM Smith	scottjk@cdmsmith.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Bill Reinert	Atlantic County	wcreinert@comcast.net
John Peterson	Atlantic County	peterson_john@aclink.org
Frances Brown	Atlantic County	Brown_Frances@aclink.org
Marc Romantino	Atlantic County	Romantino_Marc@aclink.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Bryan Kiel	WSP	bryan.kiel@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Justin Parker	ENGenuity Infrastructure	jparker@engenuitynj.com

The following was discussed at the meeting:

- Alyssa Curran, WSP, started the meeting by going over the agenda, including the key questions, project process and the discussion section of the agenda. Alyssa then went over introductions and the Consultant Team and Atlantic County CAC (Community Advisory Committee) Team Members introduced themselves.
- Alyssa then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coast Region Project overall. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resiliency-NJ Project. Jonathan Carey explained where the Consultant Team is in the process and how the CAC will influence the Resiliency Plan.

- 3. Jaclyn Flor, ENGenuity, then discussed the Engagement Plan to date. Jaclyn Flor explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Atlantic County CAC members were specifically chosen by John Peterson and Frances Brown from the Steering Committee and represent a mix of experts.
- 4. John Peterson, Atlantic County, went through the feedback that Atlantic County had provided to date. He mentioned the Rail Line reinvigoration, the loss of a bridge during Irene on a secondary evacuation route, the structural issues on the Longport Bridge from Somers Point to Egg Harbor, and the flooding issues on Brigantine Boulevard. Eric Fang, Perkins Eastman, asked John to elaborate on the rail line challenges. John explained that the rail line was shut down for a year for safety improvements that didn't take place in the time-frame it was supposed to. He explained the rail line is used by many residents as a reverse commute to Philadelphia. Eric suggested following up with a meeting with NJ Transit. Alyssa Curran pointed out that NJ Transit is in the TAC. Eric asked if there were issues in past storms with the rail station. John Peterson said there have been issues in the past with flooding covering the rail lines.
- 5. Jaclyn Flor then mentioned some additional feedback from the Steering Committee such as the loss of power specifically during the derecho in 2012, the impact of full-time residents leaving Atlantic County because they could not afford to lift/repair their homes after Sandy, and the lifeblood being small businesses and second home ownerships. John Peterson explained the major industry is tourism and it is tied to small business and home rentals.
- 6. Jaclyn Flor reviewed the feedback provided to date from the rest of the communities on the Steering Committee. She mentioned preparedness, realistic funding, attainable actions, infrastructure, communication (communities being able to work together) as key feedback.
- 7. Alyssa Curran shared some questions for the CAC and showed some corresponding maps. Eric Fang shared a map of Atlantic County and the relationship between the region, the County and the shore. Eric Fang said in his opinion the big takeaway was that the ACCR region drives the economy of the County and Atlantic City drives the economy of the region. In Eric's opinion, this makes transportation vital in the area.
- 8. Eric Fang asked what the role of the ACCR region was within the County? John Peterson explained that this portion of the County has had an oversized impact on the County economically. He explained that as Casinos re-open and fill to capacity there will be an economic impact on the County. John Peterson said they are looking at the airport area for diversification as a job center and hub for commercial activity and also looking at health care and health related industries to expand as well. Eric Fang asked if the main pattern is everyone in and everyone out during the work week? John said the casinos operate 24/7 and there are generally (3) three shifts. He explained that there are also support industries for the casinos that are off-peak hours.
- 9. Bill Cesanek, CDM Smith, asked about the future of casinos and casino economy. John Peterson said they have seen a major decline and closures. The casinos that remain seem to have stabilized and their profitability has increased and that online gaming and sports betting have helped maintain the gambling economy during the pandemic. The County understands the importance of the gaming industry but they are also looking to diversify. Eric Fang asked if

- the diversification is expected to be county wide or specific to Atlantic City. John Peterson explained that it is County wide. John Peterson mentioned the Atlantic County Economic Alliance website as a resource to see what kind of activity is happening.
- 10. Jaclyn Flor asked what challenges there were for the socially vulnerable in an emergency management and environmental perspective? Bill Reinert, Atlantic County, explained that the County Parks and Environment Advisement Board has been talking and pushing environmental and eco-tourism. He further explained that Atlantic County has bike trails that they'd like to see expand. He explained that the Forsythe National Wildlife Refuge in Eastern Galloway Township is vulnerable to flooding during storms. Bill Reinert said that the idea of eco-tourism could also be expanded further than the County.
- 11. Eric Fang asked if there are any other county assets in the area that would be of importance. John Peterson said it is important to recognize that Atlantic City is no longer the demographic center of the County and that Egg Harbor Township is now the demographic center. He anticipates the population to continue to move west based on the census. John Peterson stated that an important asset is the Regional Waste Water Treatment Plant on Clam island was very close to being destroyed by Sandy and that is an important area to look at because it impacts the entire area along Route 9 and the island.
- 12. John Peterson asked Bill Reinert what kind of impact there was from storm waste that accumulated, in terms of tidal inundation and its impact on different facilities? Bill Reinert explained that there was a lot in Galloway from several marinas. He mentioned the State spent a lot of money on debris removal and that there are still some issues with floating debris during storm tides.
- 13. Jaclyn Flor asked Bill Reinert in terms of environmental and the Blue Economy, is there anything else we should be looking at? Bill Reinert explained that of course, the beach is very important in the area and back bay fishing is important and there is a small, growing oyster/shell fish farming industry that is coming back after Sandy. There is an Oyster Farm on the Egg Harbor River. Bill Reinert said fishing is a big activity in back bays and along the beaches. Bill Reinert would like to see more access points for kayaking and canoeing. Eric Fang asked if there are any established centers that are at risk? Bill Reinert mentioned the Forsythe Wildlife Center and the active fishing on the jetties on the north area of Atlantic City which is a local spot for residents to fish. Bill Reinert said there are several growing facilities on the back side of Atlantic City, this includes the Atlantic City Rowing Club. He said there is also recreational fishing off Margate Blvd., which is a big recreational fishing spot in the area.
- 14. John Peterson noted that an important aspect of the economic vitality going forward will be the Delta Basin which will include the wind power industry which is a growing, diversified industry in the area.
- 15. Jaclyn Flor asked Mark Romantino, Atlantic County, the question regarding the socially vulnerable challenges from an emergency management perspective. Mark Romantino explained that the transit system is not bad in the area on the island itself but when you get on the mainland there are challenges. He said the NJ Transit buses do not go on to a lot of the side streets and secondary roads. He said transportation getting to and from the main island can be an issue. He said the waste water facility is phenomenal and a great addition to the

community and the economy. Mark Romantino recommended putting into the plan more electrical lines going out to the mainland to supply some of the businesses from the wind turbines. Mark Romantino said this would be an opportunity to bring more electricity to the mainland.

- 16. Eric Fang asked for a more specific details regarding the Blue Economy and its impact. John Peterson said the Blue Economy is huge to any tourist who does not come to gamble. He mentioned that fishing has been in decline in the back bay due to the economy and poorer yields on fish in the last several years.
- 17. Eric Fang showed a map that is in development of some of the sub-areas and where they were starting to see the region moving forward. John Peterson commented there are two separate areas on Absceson Island and Brigantine that are impacted there is the beach zone and the back bay areas. John said it seems like there is a much more intense impact in the back bay areas than the Atlantic Side. Houses in the back bay are not at the elevation that the houses along Atlantic and Ventnor Avenue are.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.











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# Margate CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** April 14, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Margate

A meeting was held March 15, 2021 at 3:00 PM with members of the Margate CAC Team to discuss the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Jenna Scott	CDM Smith	scottjk@cdmsmith.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Edward Dennis	RVE	Edward.dennis@rve.com
Matt Hankinson	Margate	hankinson_matt@margate-nj.com
Roger McLarnon	Margate	Mclarnon_roger@margate-nj.com
Daniel Adams	Margate	adams_dan@margate-nj.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Bryan Kiel	WSP	bryan.kiel@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Justin Parker	ENGenuity Infrastructure	jparker@engenuitynj.com

- I. <u>Introductions/Resilient NJ Project & Process:</u>
  - Alyssa Curran, WSP, started the meeting by going over the agenda, including the key
    questions, project process and the discussion section of the agenda. Alyssa Curran then
    went over introductions and the Consultant Team and the Margate CAC (Community
    Advisory Committee) Team Members introduced themselves.
  - 2. Alyssa then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coast Region Project overall. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resiliency-NJ Project. Jonathan Carey explained where the Consultant Team is in the process and how the CAC will influence

the Resiliency Plan. He explained that after these meetings the project is moving into visioning phase. The Consultant Team is focusing on asset collection and risk assessment, and a web-based mapping tool will be launched soon.

#### II. Feedback:

- 3. Roger McLarnon, Margate then spoke about some of the feedback to date for Margate. He explained that debris management, after superstorm Sandy, was an issue. He explained that in past meetings he referred to it as the tale of two cities, on the beachfront sand washed into the streets, and along the back bay it was heavily flooded especially in the vicinity of Amherst Avenue where the Blue Water Marina is.
- 4. He explained that there will need to be more coordination for debris management in the future. Sand washed into the streets and into the sanitary and storm sewer system which damaged the system and separated pipes. A regional Debris Management Program would be helpful towards building resiliency.
- 5. He further explained that after Sandy there were the people that could not afford to replace what they had and just took up and left.
- 6. He said that Margate also had challenges with sanitary and storm sewer as sand had entered and damaged the system and separated pipes.
- 7. Roger McLarnon spoke a little about raising roads, he is but understands there are limitations.
- 8. He said in past storms there were impacts to businesses, mini creek was significantly impacted as the outlet to let water out gets bottlenecked. Stockton university is doing research to find mitigation solutions for the mini creek outlet which is bottlenecked. Lagoon drive 600 block of Douglas becomes impassible as the creek collects stormwater.
- 9. Fire Chief Dan Adams explained that Margate is mitigating their fire house at Station 1, at Washington Avenue, by putting flood doors on the fire department. He said they had about 32" of water in fire station 1 after Sandy.
- 10. Police Chief Matthew Hankinson said that he reviewed what Northfield mentioned regarding the challenges with the lack of registries for second home owners in Margate trying to get back on the island without Margate ID (their license had their home state) and said he does not think it will be a future issue. However, he will reach out to Northfield.
- 11. Roger McLarnon explained that even during small storms, the Back Bay area floods.
- 12. Lastly Roger added that Margate, Longport, Ventnor and Atlantic City all have something to gain by improving infrastructure. It's important to keep things simple in order for actions to be attainable and to give communities the chance to start working together routinely.

#### III. Understanding Place-Based Problems & Priorities:

- 13. Edward Dennis, R&V, City Engineer, spoke about some of the challenges on the back bay and mini creek.
- 14. Frank Zimmerman asked about storage or recharge opportunities for stormwater, and Roger McLarnon explained the high-water table. He explained there is no percolation except along beachfront and it travels underground to back bay.
- 15. Edward Dennis spoke about the redevelopment near Sunset Canal and Orient Canal where newer homes have bulkheads higher than what previously existed.
- 16. He added that Margate is also seeking a dredging program which Edward Dennis's firm, RVE, is involved with.
- 17. Edward Dennis explained that RVE had applied for a FEMA BRIC Grant. Stormwater pumps are being studied traffic analysis was performed last year, and they are looking at a new storm pump station on Amherst Ave. The pumps can significantly reduce flooding and duration of flooding. They performed a preliminary cost estimate for the work.
- 18. The team asked if there were any other stormwater pump stations, and Roger mentioned that Ventnor operates Winchester Avenue pump station. The County is looking into it as well, perhaps to enlarge the pump station.
- 19. He explained that in the case of Winchester Ave. it floods when it rains, it's not tidal flooding.
- 20. The added that there is also Gardens Plaza pump station by the waterbody.
- 21. Roger McLarnon explained that in terms of bulkheads and home raisings, Margate has a 4 ft freeboard required and bulkheads are required to be raised to elevation 8 ft NAVD 88 (formerly 9 FT NAVD 88). He explained that the old 5-6ft bulkheads are being raised due to redevelopment.
- 22. The Consultant Team asked if there were any public incentive programs, and Roger McLarnon explained that there are no incentive programs.
- 23. He added one more item regarding pump stations, he explained that Longport and the County have an application in for a new station in Longport.
- 24. Roger McLarnon said the publicly owned waterfront by blue water marina was replaced by the City, and Indian Ave development by the bay is being raised in elevation.
- 25. The Consultant Team asked what dictated the height of the bulkheads, and Roger explained that ADA challenges often restrict bulkhead height as ramps need to be too long if bulkhead is too high.
- 26. The conversation then moved to local transportation infrastructure. Roger McLarnon explained that Rt 152 was built to FEMA standards.
- 27. He and the Chief further explained that Margate Blvd. floods, and there is no room to elevate the road. They also explained that there are private bridges that are privately maintained.
- 28. During a State of Emergency Margate Blvd. has restricted access, and it's often not safe due to debris.

- 29. There is a new promenade by Amherst Ave where construction has begun right up against bulkhead.
- 30. Regarding home ownership and rentals in Margate, it was explained that 70% are second homes and there is not much rental. The market has gone up and prices are rising significantly.
- 31. It was noted by Roger that the buying primary address is in Florida for tax reasons. There is also a pre-retirement shift to homes as seniors are selling older homes which are being redeveloped. Roger McLarnon feels it is better to have more full-time residents.
- 32. The Chief explained that the Jewish Community Center on Jerome was a shelter of last resort after Sandy, but that should not be considered as a future shelter asset as it might not be used again. They were able to house 75 folks there, however, in the future would use someplace else as a temporary shelter.
- 33. He further explained they needed a temporary generator. The municipal building has generator 9001 Winchester City Hall.
- 34. Chief Adams also added that Margate is installing emergency sirens this fall to warn people to leave during the storm.

#### IV. Questions & Next Steps:

35. CAC being created to provide local perspective and guidance on community challenges to planned scenarios and advice on how to position actions to align with respective funding sources, priorities, and plans.

#### V. Action Items:

- 1. The next CAC meeting will be Q2 2021
- 2. Reaching out for soft introductions to see who should be put in Focus Groups.











# Ventnor CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** April 27, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

**SUBJECT:** Resilient NJ - Atlantic County Coastal Communities (ACCR)- Ventnor

A meeting was held April 15, 2021 at 12:00 PM with members of the Ventnor CAC Team to discuss the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Ed Stinson	City of Ventnor	estinson@ventnorcity.org
Doug Biagi	City of Ventnor	dbiagi@police.ventnorcity.org
Donna Peterson	City of Ventnor	oem@police.ventnorcity.org
Lance Landgraf	City of Ventnor	llandgraf@ventnorcity.org
Jim Rutala	Regional Coordinator	jmrutala@comcast.net
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

- Jaclyn Flor, ENGenuity, started the meeting by going over the agenda, including the key
  questions, project process and the discussion section of the agenda. Jaclyn then went over
  introductions and the Consultant Team and Ventnor City CAC (Community Advisory
  Committee) Team Members introduced themselves.
- 2. Jaclyn then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coast Region Project overall. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resiliency-NJ Project. Jonathan Carey explained where the consultant Team is in the process and how the CAC will influence the Resiliency Plan.
- 3. Jaclyn Flor discussed the Engagement Plan to date. Jaclyn Flor explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Ventnor CAC members

were specifically chosen by Ed Stinson and Jim Rutala from the Steering Committee and represent a mix of experts. Jaclyn said if the CAC has any suggestions for Focus Group Members to follow up separately.

- 4. Ed Stinson, Ventnor, went through the feedback that Ventnor had provided to date. He mentioned that his focus is mainly infrastructure and that Ventnor is vulnerable with several water supply systems including wells, sewer systems and lift stations. He also said there are flooding issues and evacuation issues. Ed said the Fire Chief is concerned with the Fire House on Winchester Avenue because it is in a low-lying area and prone to flooding. He said the Fire Chief was talking about flood gates. Ed said Ventnor needs sewer lift stations, emergency generators and that there are several wells at the main plant that are at significant risk. Eric Fang, Perkins Eastman, asked if we could mark on the map where the water supply system is. Ed said it is at 101 Cornwall Avenue. These are the high-risk wells.
- 5. Jaclyn Flor then asked Jim Rutala, Regional Coordinator, to speak about the additional feedback from the Steering Committee. Jim mentioned some additional feedback from the Steering Committee such as the city receiving grants for the past six (6) years for elevating homes and the preservation and resiliency improvements in Ventnor West. Jim explained that being part of the Resilient NJ effort will allow the region to have access to funding and prioritize projects so they can move forward quickly.
- 6. Jaclyn Flor asked the members of the CAC to keep socially vulnerable populations in mind when thinking about assets.
- 7. Jaclyn Flor then turned the meeting to Eric Fang to review the maps of Ventnor with the CAC. Eric asked the CAC to talk about the past storms over the last few years and to discuss what happened and why. Chief Doug Biagi, City of Ventnor, said the recovery from Sandy has been slow and arduous and that they are still getting tidal floods at least twice a month. He also said at least one third of the population are senior citizens. Chief Biagi said things are getting worse, not better and that there is a lot of tidal flooding still. He also said the back bay is a weakness and it is important to get bulkheads up to date on the back bay. Chief Biagi said Ventnor Heights is prone to frequent flooding and they deal with it by blocking off areas that are at high risk when the tide is high.
- 8. Commissioner Lance Landgraf, City of Ventnor, said for the most part during Sandy the beaches were secured thanks to the dune projects from the early 2000's. He said there was a challenge from Richard's Avenue down to Margate and that Margate had refused dunes so the homes in that area took water from Sandy, over the bulkhead and into their homes. He said the rest of the City had minimal damage along the eastern coast from the storm. Commissioner Landgraf explained the heights had at least four (4) feet of water. He said the bulkheads along the back bay breach with high tides. He said Dorsett and Edgewater Avenue are undergoing a study right now to see how they can reduce the flooding in the area by providing as much protection in the area that they can. He explained the pump station near Ventnor Gardens was put in post Sandy and works great after the storm has passed.
- 9. Ed Stinson said there are two additional pump stations that are in the heights that all pump water quickly once the storm has passed.

- 10. Eric Fang asked how the properties adjacent to the roads that flood are affected by flooding. Commissioner Landgraf said there is really only one property that gets flooding in typical events when the roads flood. Commissioner Landgraf explained they block off streets when the floods come and there is an issue with residents driving through flooded streets and creating a wake. Eric then asked if rain events effect the City. Lance said it all depends on the amount of rain and how quickly it falls. He said on Ventnor Avenue water runs down to a catch basin and then bubbles up. He also said that there is flooding mainly at intersections and it can affect commercial and retail areas. Chief Biagi said Derby Avenue, Newport and Ventnor drains fill up when it rains but they go back down quickly after.
- 11. Eric Fang asked where the main retail stores were located and if they were affected by flooding. Chief Biagi said that the ACME is the main grocery store in the area and the entire lot is lower and fills with water if the tide is high.
- 12. Ed Stinson explained it is a county system. Ed said the Ventnor Plaza is the main shopping center in the area and is prone to flooding.
- 13. Donna Peterson mentioned that the shopping area that is prone to flooding is also part of the main Evacuation Route, this includes Monmouth and Dorsett Avenue.
- 14. Ed Stinson said part of the study they have been funded to do is to try to reduce flooding in that area but it won't be effective unless they can also stop the flooding in the surrounding towns that are affecting flooding in Ventnor.
- 15. Commissioner Landgraf noted that areas that are marsh cannot be bulkheaded and that residents in areas with the marsh said they did not want bulkheads because the marsh absorbed some of the flooding and helped with the flooding.
- 16. Jim Rutala explained that they had gotten FEMA funds for private bulkheads and that what they found is that people are so well educated about flooding and property values that they are more than willing to provide easements. Jaclyn Flor asked if Jim would be able to provide us with the plan so we could see what areas it covered. Jim said he would be happy to get a copy of the plan to the Consultant Team. (Jim sent the plan shortly after the call).
- 17. Ed Stinson said that homes by Ventnor Heights have been built on top of bulkheads and that these bulkheads are low and in complete disrepair so it's a challenge to be able to fix the bulkheads without moving the houses.
- 18. Eric Fang asked how the property values have been. Commissioner Landgraf said the average day on the market for a home in the area is less than 30 days and the values are all starting to go up. He said in the past twelve (12) months the real estate market as exploded and it is mainly second home owners who are buying houses in the area. Commissioner Landgraf said most of these buyers are staying in Ventnor and working from home during the pandemic. He explained this has also helped the restaurants in the area.
- 19. Eric Fang asked how the population was changing and what types of people were moving out of the area. Commissioner Landgraf said there has not been a large number leaving, even though more people are buying. He said they have not seen an up tic in student enrollment.

- 20. Jaclyn Flor then turned the meeting over to Bill Cesanek, CDM Smith, to go over visioning. Bill asked the CAC members where they see Ventnor in fifty (50) years.
- 21. Commissioner Landgraf said he thinks there will be more and more home elevations. He also said raising Wellington Avenue would be a great way to reduce flooding and Chief Biagi agreed with this.
- 22. Commissioner Landgraf said he thinks there will be an overall increase in the population of Ventnor based on the pandemic changing the way people are thinking.
- 23. Jaclyn Flor thanked everyone for their time and attendance at the meeting. She said that the CAC will try to meet once per quarter. She asked Commissioner Landgraf if it would be ok if we reached out separately. Commissioner Landgraf said that would be fine.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

# Northfield CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** May 12, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Northfield

A meeting was held April 15, 2021 at 2:00 PM with members of the Northfield CAC Team to discuss the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Paul Newman	City of Northfield	pnewman@npdnj.org
Rami Mazur	City of Northfield	rami@snsce.com
Mayor Erland Chau	City of Northfield	Echau@cityofnorthfield.org
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

- Jaclyn Flor, ENGenuity, started the meeting by going over the agenda, including the key
  questions, project process and the discussion section of the agenda. Jaclyn then went over
  introductions and the Consultant Team and Northfield CAC (Community Advisory Committee)
  Team Members introduced themselves.
- 2. Jaclyn Flor then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coast Region Project overall. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resiliency-NJ Project. Jonathan Carey explained where the consultant Team is in the process and how the CAC will influence the Resiliency Plan.
- 3. Jaclyn Flor discussed the Engagement Plan to date. Jaclyn Flor explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Northfield CAC

- members were specifically chosen by Tim Joo from the Steering Committee and represent a mix of experts. Jaclyn said if the CAC has any suggestions for Focus Group Members to follow up with the Consultant Team separately.
- Tim Joo, Northfield, went through the feedback that Northfield had provided to date. He 4. mentioned that there have been no water hazards or flooding issues in Northfield after Sandy nor any other events. He said their biggest issues have been power outages and that the biggest storm challenge was the Derecho where several parts of the town were out of power for over two (2) weeks and during that time it was difficult to get in contact with the socially vulnerable populations. He also said that Northfield does not have a Code Red notification system yet and that Northfield is part of the Register Ready Program that helps to identify special needs populations. This helped during Sandy. He also mentioned that Northfield's Fire Department makes daily calls to senior citizens that have registered with the Fire Department. He said that after Sandy, Northfield applied for an energy resiliency grant and they used the grant to have two (2) trailer mounted generators installed that can be used to transport water to sewer stations to pump. Tim said they are working on a regional shelter that will be shared with Linwood and Somers Point and the Linwood Community Church. Tim said staffing the EOC in Northfield is also an issue but there are plans to try to increase staffing levels. Tim also mentioned there was a lack of PPE during the beginning of COVID but it seems to be getting better now. Tim said Northfield shares EMS dispatch with Egg Harbor Township. Tim mentioned that he feels we need a regional approach when looking at all of the issues.
- 5. Jaclyn Flor then asked the members of the CAC to keep socially vulnerable populations in mind when thinking about assets.
- 6. Jaclyn Flor then turned the meeting to Eric Fang, Perkins Eastman, to review the maps of Northfield with the CAC. Eric asked the CAC to talk about problems in past storms including flooding. Tim said it was really only a couple of homes on the bay that had any flooding. Eric asked what the CAC anticipates and if they see any trends from the coastal aspect or stormwater aspect for the future. Rami Mazur, Northfield, said electrical is really the only major problem and that the sewer station is linked to electrical so generators are key to keeping the sewer systems going during a storm. Eric asked the CAC about rain events and if that would be an issue in the future. Rami said that Northfield has a county drainage system that is maintained well and that there are no areas with major flooding. Police Chief Paul Newman, Northfield, said there was some flooding above where the Atlantic City Country Club is but that it is not a major issue.
- 7. Chief Newman said another issue when the power goes out is traffic lights. The lights cannot all be run on generators so officers need to go stand in busy intersections to direct traffic which is very dangerous. Chief Newman said these are state roads and therefore the state needs to resolve this issue and that Tilton Road, which is a state road and does not have generators when power is out, is also an evacuation route.
- 8. Eric Fang asked how the real estate market in Northfield was and how it had been affected in recent years. Rami said building permits are up drastically and the market has been good for the past year and a half. He said he attributes that to lower interest rates and people realizing they can work from home vs. having to go into Philadelphia.

- 9. Eric Fang asked the CAC to discuss the community of Northfield. Mayor Erland Chau said that due to COVID they have lost several businesses but have also gained a few and he is optimistic that despite COVID things are working in the favor of the community. Mayor Chau said home sales are robust and he doesn't see many people moving out of Northfield. Mayor Chau said Northfield has an excellent school system and Birch Grove Park which are assets to Northfield. Mayor Chau said many residents of Northfield work for the casinos and they have a good mix of white-collar and blue-collar workers. He mentioned one other attribute is the FAA expanding in the area.
- 10. Eric asked if the Blue Economy affects Northfield at all. Mayor Chau said right now they are stable and Tilton Road is still a road with a lot of businesses and goes directly through Northfield. Mayor Chau said the Atlantic City Country Club is also a big draw and that it is a public Country Club. Tim explained it is privately owned but open to the public.
- 11. Bill Cesanek, CDM Smith, asked what where some of the draws of the Birch Grove Park. Mayor Chau said it is a natural city park and that recently they opened up a pedestrian and bike path. He said the park also provides fields for sports.
- 12. Eric Fang asked if there were a lot of second home buyers in Northfield. Mayor Chau said that it is primarily first home buyers in the area.
- 13. Bill Cesanek asked if the Barrier Islands tend to use Northfield as a shopping area. Mayor Chau said he does not see Northfield drawing the barrier islands in that respect but there are several unique businesses that cater to people with higher incomes or people with secondary homes that may draw people from the barrier islands.
- 14. Bill Cesanek asked that if we looked out 50 years where would the CAC Members see Northfield. Mayor Chau said he really does not see much change in the future and that there really is not much land left for future projects.
- 15. Bill asked if the Birch Grove park was a municipal park and if it could be developed. Mayor Chau said it was a municipal park and that there was an ordinance for no development in the park so it will not change in the future. Rami said they are looking at a master plan for additional recreational areas.
- 16. Jaclyn Flor thanked everyone for their time and attendance at the meeting. She said that the CAC will try to meet once per quarter. She also said that if anyone on the CAC knows of anyone interested in Focus Groups to please reach out to the Consultant Team.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.











# Atlantic City CAC Meeting - Resilient NJ

# **MEETING MINUTES**

**DATE:** May 12, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Atlantic City

A meeting was held April 20, 2021 at 12:00 PM with members of the Atlantic City Community Advisory Committee (CAC) to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Deputy Chief James	Atlantic City	JSarkos@acpolice.org
Sarkos		
Barbara Woolley-Dillon	Atlantic City	BWoolley-Dillon@cityofatlanticity.org
Jacques Howard	Atlantic City	JHoward@cityofatlanticcity.org
Steve Perskie	Atlantic City	stevenperskie@cityofatlanticcity.org
India Still	Atlantic City	India.Still@dca.nj.gov
Mike Epps	Atlantic City	Michael.epps@dcs.nj.gov
Chief Scott Evans	Atlantic City	evanss@cityofatlanticcity.org
Anthony Swan	Atlantic City	aswan@cityofatlanticcity.org
Anthony Cox	Atlantic City	acox@cityofatlanticcity.org
Crystal Lewis	Atlantic City	clewis@cityofatlanticcity.org
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

The following was discussed at the meeting:

1. Jaclyn Flor, ENGenuity, started the meeting by going over the agenda, including the key questions, project process and the discussion section of the agenda. Jaclyn then went over introductions and the Consultant Team and Atlantic City CAC (Community Advisory Committee) Members introduced themselves. After introductions Jaclyn Flor outlined the goals for the meeting as follows: What are the assets in the Region that we need to protect? Why are they important to Atlantic City? Which of these assets are the most critical to the Region? In terms of Atlantic City, what happened in past disasters and why did it happen?

- 2. Jaclyn Flor then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coastal Region Project overall and key milestones. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resilient NJ Project. Jonathan Carey explained where the consultant Team is in the process and how the CAC will influence the Resiliency Plan.
- 3. Jaclyn Flor discussed the Engagement Plan to date. Jaclyn explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Atlantic City CAC members were specifically chosen by Barbara Woolley-Dillon and Jacques Howard from the Steering Committee and represent a mix of experts. Jaclyn said if the CAC has any suggestions for Focus Group Members to follow up separately with the Consultant Team.
- 4. Barbara Woolley-Dillon, Atlantic City, went through the feedback that Atlantic City had provided to date. She explained the feedback is focused on the major impacts of superstorm Sandy and other events, including the COVID-19 pandemic. Damage to the boardwalk, streets, casinos and schools caused by storm debris were all challenges that the city faced. Some homes were never elevated or done so improperly due to bad contractors and language barriers.
- 5. Eric Fang, Perkins Eastman, asked Barbara to go in depth into the diversity challenges the City faces when it comes to language barriers. Barbara responded that Atlantic City is the 10<sup>th</sup> most diverse city in America. The Mayor's focus was to translate the City webpage into multiple languages. Eric noted that language barriers could make it difficult to explain the project to multiple demographic groups. He asked, what has been driving the increasing rate of immigration to Atlantic City? Barbara explained that Atlantic City is a service economy that provides attractive jobs for immigrants who are not proficient with the English language. Fast growing immigrant communities adds to the attractiveness of Atlantic City.
- 6. Barbara Woolley-Dillon moved on to explain that Atlantic City's large low-income population creates some disadvantages as the residents may not be able to afford improvements to their homes. The attached dwellings (row homes) in Atlantic City cost a lot more to raise off the ground compared to non-attached dwellings (\$150k vs. \$35-50k). These improvements will put low-income residents in an even worse financial position when it comes to their mortgage. Another area of concern is the high rate of renters vs. homeowners which is the opposite of most communities.
- 7. Barbara Woolley-Dillon then discussed the short-term solutions the City has implemented. The City has developed a code red system to notify residents during emergencies; PA system on boardwalk will be operational soon; OEM city offices have improved and are more active; the boardwalk has been rebuilt and infrastructure such as fiber optics have been installed.
- 8. Barbara Woolley-Dillon explained the long-term solutions which include: pump stations that are planned, already built, or under construction; development of microgrids near hospitals for casinos; establishment of minimum height for bulkhead; incorporated FEMA standards with BFE minimum into zoning ordinances; participated in Route 40 study area with USACE and NJDOT; NJDOT to replace drawbridge on Route 30. Eric Fang asked if the bridge will be raised when it is replaced or will it be replaced as is, ie. purely for maintenance purposes? Barbara

responded by saying NJDOT has not made that clear yet. She added that the bridge has outlived its usefulness and needs to be replaced. Barbara went on to identify two other bridges on the map that have outlived their useful lives and will be replaced. Barbara also identified locations on the map where bulkheads can be added to mitigate flood damage. Eric asked if the bulkhead project is funded. Barbara responded that the City is making the improvements now at some sections.

- 9. Anthony Swan, Atlantic City, added Uzo Ahiarakwe (City engineer) and Jim Rutala (grants) should be incorporated in this conversation especially regarding the \$20 million given to the City by the lieutenant governor to address resiliency concerns. There are five projects ongoing that affect resiliency and the details and projected end dates should be known and incorporated into the discussions. The projects must be completed within a certain time frame before the money expires. Jaclyn Flor added that Jim Rutala has been heavily involved during this process by writing grant that resulted in the team being selected and that Jim Rutala is the Regional Coordinator for the Steering Committee.
- 10. Anthony Swan asked if Engagement Team would be reviewing the new FEMA preliminary base flood elevations. Jaclyn Flor responded that the team is looking into that and that goes into the report that identifies baseline conditions. Looking forward to 2070 in terms of sea level rise.
- 11. Anthony Swan added that the City is trying to develop the Bader Field area to protect it from flooding. Eric Fang asked for Anthony to explain the current plans for Bader Field. Anthony responded by saying the plans are unknown as of now. From the Lieutenant Governor's perspective, Bader Field is to be razed for development. Now is the time to determine specifics like how much it will be razed. Eric follows up by asking if there are specific ideas for Bader Field and if the City is trying to secure funding before putting it out to bid. Anthony responded that there is an idea being considered. As of now, the community hasn't determined the best use for the land.
- 12. Barbara Woolley-Dillon explained some long-term solutions: working with NJDEP about repetitive losses; working to install generators in additional municipal facilities; OEM has begun regularly training personnel for emergency situations; COVID-19 forced the City to make remote work an option for employees; developed comprehensive system for cameras. Areas of repetitive losses are located primarily along the bay area near Chelsea.
- 13. Steve Perskie, Atlantic City, asked who made the maps shown during the presentation. Eric Fang responded by saying it's an aerial map to identify points of interest. Steve pointed out spelling mistakes of Adriatic Ave and Mediterranean Ave on the aerial map to be corrected for future use.
- 14. Eric asked what is the reason Mediterranean Avenue is prone to flooding? Chief Scott Evans responded by explaining there are multiple reasons for this: the bulkhead at Rhode Island Ave is breached because it is a low point; Massachusetts Ave floods because there is no bulkhead at all. An upcoming project will try to rectify this; water comes up through storm drainage even in fair weather conditions filling the streets with water as a result of the stormwater system being antiquated and in need of replacement/upgrades. This type of flooding occurs monthly.

- 15. Eric Fang asked if the level of water is passable when the roads are flooded. Chief Evans responded by saying the level of water is dependent on the tide/wind/moon cycle and therefore variable. Occurring more frequently in recent history.
- 16. Mike Epps, Atlantic City, asked Chief Evans to explain the valve system in the flood prone areas. Chief Evans responded that the valve system is very antiquated. Valves replaced in Venice park area by the newly constructed bulkhead have proven to be effective. The check valves get dirty and need to be cleaned regularly but they have improved the amount of flooding in flood-prone areas. Forty percent (40%) of storm water goes to Baltic Ave canal system while the rest flows through seventeen to twenty (17-20) outfall pipes located in the City.
- 17. Eric Fang followed up by asking why the Chelsea neighborhoods flood. Chief Evans responded by explaining those neighborhoods are in the back bay area prone to flooding and don't have a bulkhead. Water flows back up through the outfall pipes and stormwater system causing the roads to flood. That area is one of the projects under consideration to be covered by the \$20 million the City received. Not sure if the budget will be big enough to cover the cost of any proposed bulkhead.
- 18. Eric Fang asked if that area's shoreline is under City control. Chief Evans answered by saying that area is mostly privately owned with some public areas. The current project in that area is public-private partnership to construct a bulkhead.
- 19. Eric Fang followed up by asking how that partnership will work. Chief Evans responded that the partnership is tricky and the problem lies with getting permission to make improvements on private property. This can drag the project out longer than if it was all public property owned by the City.
- 20. Eric Fang pointed out that most of the Atlantic City waterfront is public owned and that it must be challenging to manage. Chief Evans responded by saying that the public owned waterfront is mostly in good condition and that most of the problems arise in the back bay areas which are heavily privately-owned. Most of the waterfront improvements have occurred on public land.
- 21. Jaclyn Flor asked India Still and Mike Epps, Atlantic City, to comment on the challenges of socially vulnerable populations. Mike Epps stated that one of the biggest challenges is the high percentage of renters vs. homeowners. A lot of the vulnerable residents are renters within walking distance of their jobs and rely on public transportation. So, when an emergency situation occurs, it is more difficult to evacuate these vulnerable residents.
- 22. Eric Fang asked the Atlantic City representatives how they want the City to be characterized and embodied. Mike Epps responded by saying the City has been through a lot of challenges and the future of the City depends how it reinvents itself. He does not know what the next iteration of the City will be but the improvements being proposed will increase the City's resiliency.
- 23. Steve Perskie adds that if the boardwalk was lost, it would completely change the identity of the City and that it is currently in distress.
- 24. As the meeting closes, Barbara asks for the slideshow presentation to be sent to Atlantic City's committee so they could provide responses to the questions presented.

- 25. Eric Fang adds that he will be in Atlantic City in the coming days and asks if there are any points of interest that he should look at when he's there. Chief Evans tells Eric to contact him before his trip to the City so they could meet.
- 26. Jaclyn closed out the meeting.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.
- 3. Visioning questions from the slideshow to be sent to Atlantic City committee.
- 4. Eric Fang to contact Chief Evans about points of interest.











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

# Brigantine CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** May 12, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

**SUBJECT:** Resilient NJ - Atlantic County Coastal Communities (ACCR)- Brigantine

A meeting was held April 22, 2021 at 10:00 AM with members of the Brigantine CAC Team to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
John Doring	Brigantine	jdoring@brigantinebeachnj.com
Lt. Bill Stroby	Brigantine	wstroby@brigantinebeachnj.com
Jim Bennett	Brigantine	jbennett@brigantinebeachnj.com
Paul Fuller	Brigantine	pfuller@brigantinebeachnj.com
Ed Stinson	Brigantine	estinson@ventnorcity.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

- 1. Jaclyn Flor, ENGenuity, started the meeting by going over the agenda, including the key questions, project process and the discussion section of the agenda. Jaclyn then went over introductions and the Consultant Team and Brigantine CAC (Community Advisory Committee) Team Members introduced themselves. After introductions Jaclyn laid out the goals for the meeting as follows: What are the assets in the Region that we need to protect? Why are they important to Brigantine? Which of these assets are the most critical to the Region? In terms of Brigantine, what happened in past disasters and why did it happen?
- 2. Jaclyn Flor then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coastal Region Project overall and key milestones. Jonathan explained that the end goal is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resilient NJ Project. Jonathan Carey explained where the Consultant Team is in the process and how the CAC will influence the Resiliency Plan.

- 3. Jaclyn Flor discussed the Engagement Plan to date. Jaclyn explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Brigantine CAC members were specifically chosen by Ed Stinson from the Steering Committee and represent a mix of experts. Jaclyn said if the CAC has any suggestions for Focus Group Members to follow up separately with the Consultant Team.
- 4. Jaclyn Flor turned the meeting over to Ed Stinson, Brigantine, who explained the feedback to date. He stated the focus for Brigantine is infrastructure, evacuation, and protecting egress off the island. He said since Brigantine is off to the side on Absecon Island, its difficult to protect it from flooding as compared to the other Absecon Island municipalities and that protection along bay front is good.
- 5. Ed Stinson said there are some openings that need to be addressed such as the North Point marina and that the drainage system near the golf course and the marina is interconnected so one breach has the potential to flood a large area. He said that providing funding to homeowners to hire bulkhead contractors didn't work as well as intended and that they need to help private properties get funding to do the bulkhead improvement work. On the oceanfront, the USACE and NJDEP use a six-year beach nourishment cycle. The south end of the island is accruing sand while the north end is eroding. There is a proposed project to mine sand from south end and transport it to vulnerable spots in order to fortify vulnerability on the north end. Another proposed project was to extend seawall across entire oceanfront to secure the north end but it wasn't authorized by the USACE.
- 6. Ed Stinson continued by explaining that low spots in some areas can be raised a few feet to extend the amount of time people have to evacuate from flooding (Lighthouse Circle and Brigantine Blvd). He said that it is important to get funding for old wells to be raised/replaced and that some older wells remain and need to be protected.
- 7. Eric Fang, Perkins Eastman, explained that the visioning process is not only to address problems about resiliency but to figure out what Brigantine and the other municipalities value.
- 8. Bill Cesanek, CDM Smith, added that some of the areas the Consultant Team is interested in is how the CAC sees Brigantine.
- 9. Ed Stinson said that Brigantine was once a "bedroom community" to Atlantic City. He said Brigantine has transitioned towards second home owners so year-round population has bottomed out at 8-9k.
- 10. Jim Bennett, Brigantine, agreed with that estimate and added that there is a 60-40% split between 2<sup>nd</sup> homeowners and full-time residents.
- 11. Ed Stinson added the school population has declined since Superstorm Sandy but Brigantine will remain a residential town. He said businesses are struggling since the year-round population is low, so expansion of the business community is not expected. Ed stated he believes the current population/demographic trends will continue.
- 12. Bill Cesanek asked if Brigantine is expected to pursue the blue economy strategy similar to Atlantic City.

- 13. Ed Stinson responded that is unlikely due to the rising cost of homes.
- 14. Bill Cesanek asked if they think Brigantine can be protected in the long-term against storm damage.
- 15. Jim Bennett answered by saying the State owns the north end of the beach which is the most problematic area and any improvements will have to be authorized by the State and that the expansion of the seawall would protect the City owned portion of the island. He said the observation tower at end of island is the extent of the municipal boundary and the beach on State-owned North End of the island is narrowing and eventually will breach and will work its way towards the developed portion of the island.
- 16. Eric Fang asked if this situation is inevitable and if they're just trying to buy time and if so, what is the efficacy of a delay. Ed Stinson responded by saying since its State-owned property, a sit down with state leaders is needed to share concerns and that the inevitable aspect makes it more important for mitigation efforts to be acted upon.
- 17. Ed Stinson said Brigantine has an advantage over other island municipalities since it set a minimum bulkhead height decades ago (about 8 ft). Therefore, Brigantine is ahead of the curve when it comes to bulkhead height since there are only a handful of areas that don't meet the requirement. Ed said that with the help of several pump stations that mitigate rain and seepage flooding, Brigantine can mostly manage moderate storms except for the few breaches and that the North End is most vulnerable.
- 18. Bill Cesanek stated that it seems to him like Brigantine is relatively well protected and that the current vision for Brigantine is stable and sustainable. Ed Stinson agreed and said the focus is on evacuation procedures so people have enough time to evacuate during a storm event. Ed also said the evacuation procedures will help the City become operational quickly and that this means the infrastructure needs to be protected.
- 19. Eric Fang asked for Ed to elaborate on why electricity is the key infrastructure issue and possible solutions. Ed responded that the utility companies' delivery system infrastructure is being fortified. He explained Brigantine lost sanitary sewer pump stations and other infrastructure during Sandy and that after Sandy, all the critical infrastructure was raised and 8 more generators were installed.
- 20. Bill Cesanek added that getting operational quickly after storms is key for resiliency and that Brigantine is doing a good job trying to implement changes.
- 21. Jaclyn Flor asked if Brigantine has emergency contracts to clear roads for power companies to fix their infrastructure after a storm event. Ed responded by saying Brigantine public works maintains relationships with contractors.
- 22. John Doring, Brigantine, explained how different contractors do different tasks during the recovery efforts.
- 23. Bill Cesanek asked what is the reaction to the USACE back bay study work about the seawall barrier between Atlantic City and Brigantine. Ed replied that they don't think it will positively

- affect Brigantine and that maybe it will help the offshore evacuation route but the island itself won't benefit. He said the cost of the project is also very significant.
- 24. Bill Cesanek then asked if there is any talk of raising roads/houses. Ed responded by saying Brigantine adopted FEMA maps after Sandy and that about 400 homes were elevated or torn down and rebuilt. He said road elevations are challenging because Brigantine is mostly fully developed. Ed said evacuation routes are primary concern but in order to get funding to raise roads they have to be raised to critical facility elevations which is impossible due to the adjacent development on the road and that even raising the roads slightly will eliminate some flooding during the day and it buys another two hours in evacuation time. He said that the current funding requirements make it hard to raise roads.
- 25. Eric Fang asked what the issues are near the golf course, its current state, and its future. Jim Bennett replied that the biggest issue is near the marina where there is 300 feet of oceanfront that lacks a bulkhead which leads to most of the flooding in the area. He said there is a temporary pump installed in that area has become permanent.
- 26. Eric Fang asked if the golf course is owned by the City. Jim replied that it is and that the golf course is in good shape and flooding events on the course are not common. Eric asked if the course is exclusive for residents, and if not, are there are a lot of people coming from outside of the island. Jim responded that the course is open for anyone and that in the past few years there have more people from out of state playing and that the increase in 2<sup>nd</sup> home buying led to the increase.
- 27. Eric Fang asked if the affluence in the City has risen. Jim Bennett said yes and said there were \$38 million in home sales last year and that people are paying cash for homes since the value in Brigantine is higher compared to other affluent communities.
- 28. Eric Fang followed up by asking if the increase in affluent residents makes flood mitigation construction easier. Jim Bennett said yes and that homes 50% or more improved require the bulkhead to be improved. A lot of new bulkheads installed within the last 5 years.
- 29. Eric Fang added that the downside would be that residents can't afford to stay in the community. Jim agreed and said it is hard for lower income people to buy homes and that you have to have a lot of money to be able to withstand repeated flood damage.
- 30. Jim Bennett stated the pandemic caused lower income people to move out and affluent people to move in.
- 31. Eric Fang stated that it appears Brigantine is more independent from Atlantic City than in the past. Jim Bennett agreed and said it's because Brigantine isn't reliant on one industry.
- 32. Bill Cesanek asked about the Marsh area near southern end and if it does anything for flood protection. Jim Bennett responded that the dune field is so big that flooding isn't a concern. He said the jetty can be raised on south end near ocean drive because sand is being lost in the cove area. He also said Nor'easters are the most frequent flooding events and that the storm in nineteen sixty-two (1962) was catastrophic and caused a lot of damage, more so than Sandy due to improvements made over the years.

- 33. Jaclyn Flor asked if a second groin near the north end has been proposed to combat the sand erosion. Jim responded that the USACE has been consulted about the additional groin and that the USACE is just coming around to the idea of a 2<sup>nd</sup> groin.
- 34. Jaclyn Flor closed the meeting.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.











# Longport CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** May 13, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Longport

A meeting was held April 22, 2021 at 3:00 PM with members of the Longport CAC Team to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Bruce Funk	City of Longport	zoning@longport-nj.com
Edward Dennis	City of Longport	Edward.dennis@rve.com
Frank Culmone	City of Longport	Culmone_Frank@longportpd.org
Scott Porter	City of Longport	administrator@longport-nj.us
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

- 1. Jaclyn Flor, ENGenuity, started the meeting by going over the agenda, including the key questions, project process and the discussion section of the agenda. Jaclyn then went over introductions and the Consultant Team and Longport CAC (Community Advisory Committee) Team Members introduced themselves.
- 2. Jaclyn Flor then turned the meeting over to Jonathan Carey, WSP, to go over the Resilient NJ Atlantic County Coastal Region Project overall. Jonathan explained that the end goad is to formulate a plan that leads to implementation of specific actions. Jonathan went through the project timeline and what has happened to date on the Resilient NJ Project. Jonathan Carey explained where the Consultant Team is in the process and how the CAC will influence the Resiliency Plan.
- 3. Jaclyn Flor discussed the Engagement Plan to date. Jaclyn Flor explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). Jaclyn Flor explained that the Longport CAC members were specifically chosen by Bruce Funk from the Steering Committee and represent a

- mix of experts. Jaclyn said if the CAC has any suggestions for Focus Group Members to follow up separately with the Consultant Team.
- 4. Bruce Funk, Longport, went through the feedback that Longport had provided to date. He said that infrastructure, critical facilities and beaches are critical assets. Bruce mentioned that throughout the process he has learned Longport has the same assets as the surrounding communities. This includes elevating assets to a 500-year level. Regional assets include things needed to keep the barrier island up and running before, during, and after a major event. Bruce explained that these assets will have to be resolved by each municipality rather than a regional approach.
- 5. Bruce continued by explaining that the access points coming on to the Island are an issue when there are power outages and flooding. During Sandy, trying to get people to stop from coming back on to the island was a problem and that caused a slowdown of sand and debris removal. Sand and debris removal along with power outages were the biggest challenges. Some things that have been done since Sandy include relocating utilities in municipal buildings to higher levels. He mentioned that there are three wells in town one that was compromised that they are in the process of elevating and building a new one. He also said a public works water protection flood system needs to be created and that there were homes lost south of 18<sup>th</sup> Street due to wave action going over seawall and bulkheads but the new dune system will hopefully mitigate that.
- 6. Jaclyn Flor pointed out that Edward Dennis mentioned in a previous meeting that flood water infiltrates the sewer system in the street. Ed Dennis, Longport, responded by saying the tidal flooding coming up through the inlets is a common issue that is combatted with valves. Public works maintains the valves. Ed also said some inflow will rise through the inlets then get washed away with the tide.
- 7. Bruce Funk added that ¾ of storm outfalls to the bay have check valves. Scott Porter added that the valves are replaced every year so they are compliant. Jaclyn Flor asked if that is covered under the capital improvement program. Scott said it is covered by the regular budget. Scott added that well number four (4) will be elevated to 500-year level.
- 8. Jaclyn Flor then asked Eric Fang to review some of the maps. Eric discussed the planning and visioning process of the plan. He asked what are the strengths of the community and what do you think the future holds?
- 9. Bill Cesanek, CDM Smith, added on by asking what Longport was like now and where do the CAC Members see it going.
- 10. Bruce Funk said Longport is not what it used to be. He said the winter time population has decreased and that large homes being built for part-time residents are making Longport a weekend resort community. Bruce said the good news is the new homes are being built to a higher regulatory standard which will mitigate storm damage. He envisions the population continuing to drop as senior citizens move out of the area.
- 11. Bill Cesanek then asked about areas in Longport that are vulnerable to erosion and flooding and if these areas can be protected.

- 12. Bruce Funk explained there is a fair amount at the end of the island. He said one idea was to take the jetty up by the beach and extend it. This will help the drift of the sand from north to south and the sand accumulation on the inlet.
- 13. Bruce Funk said nuisance flooding is also a problem and there are seven (7) distinct areas that flood first during storm events. Bruce said there needs to be an overall game plan that updates some of the areas that limits the time frame where areas flood.
- 14. Bruce Funk said the bulkheads are not the issue and are being built up to meet new code. He said when there is a rain event with a high tidal surge, the water backs up causing a drainage issue.
- 15. Ed Dennis said it is typical flooding on the barrier island and that currently there are two (2) pump stations but only one is operating well.
- 16. Bruce Funk adds that the city applied for a grant for a storm water system down Winchester Ave which will help the surrounding areas during flood events.
- 17. Bill Cesanek asked if the shared border with Margate is a vulnerability when it comes to back bay flooding from Margate. Ed Dennis answered that Coolidge Ave acts as a boundary for the two drainage areas on either side of the border and he's not sure if this was by design or not.
- 18. Bill Cesanek asked if there are any areas that it may be difficult to address. Bruce said a jetty could hold a lot of sand and that may really help the southern end of Longport.
- 19. Ed Dennis asked if the USACE did any work on the Jetty recently and Bruce answered that they did a minor repair on the jetty because some of the rocks were moved during Sandy.
- 20. Eric asked how the Longport CAC feels about the proposed flood gates being proposed by the USACE. Bruce said he doesn't know if having the proximity of the gates so close to Longport will be something that Longport is happy about and that a similar project decades ago failed to make an impact.
- 21. Bill Cesanek asked if Longport had taken a position in any of the USACE's studies or meetings. Bruce said they have not.
- 22. Jaclyn Flor asked Ed Dennis if he had seen the USACE's presentation/study. Ed said he had not and neither has Scott. Chief Culmone said he saw a quick glimpse of the presentation. Jaclyn said it is important to get the study to the members of the Longport CAC so they can review and be aware of the study.
- 23. Bill Cesanek asked how everyone envisions Longport in 50 years which marks the end of the planning period.
- 24. Bruce Funk said he thinks it will be an area of high-end residents unless the nuisance flooding becomes so bad that people cannot reside there when the tide is high.

- 25. Bill Cesanek asked if Longport is prepared with emergency generators. Bruce said the town is well prepared to deal with flooding for the most part with its many emergency generators in municipal buildings. Ed Dennis added that there are some generators that need to be elevated or replaced. Bruce added that purchasing a mobile generator was talked about years ago.
- 26. Eric Fang asked about the shifting demographics within Longport and whether or not it influences the community. Bruce said since COVID they have seen more cars in the area year-round vs. just in the summer time.
- 27. Chief Culmone said the winter population may have doubled since COVID, based on school enrollment. He said there are four-to-five (4-5) dozen homes that are occupied year-round. He said they are showing up at hearings and that there are more and more full-time residents in Longport.
- 28. Scott Porter added the sewer and water usage in town has increased as well, which is a good indicator showing there are more people staying in town.
- 29. Ed Dennis added that white collar workers are working from home more often so living in Longport is more appealing.
- 30. Eric Fang asked how they see Longport in relation to the other communities. Bruce said he looks at it as they are part of the puzzle and every piece is needed to succeed. Bruce said that however electricity comes in down beach is critical since Longport and the surrounding municipalities don't make their own electricity. He said having proper access on/off the island is also critical.
- 31. Chief Culmone said he sees Longport as a destination vacation spot for people who want to have a second or third home. Chief Culmone added that he believes the population will be stable for the long-term since there is minimal undeveloped land remaining.
- 32. Ed Dennis said the only way they could achieve a higher density in the town by knocking down a 2-bedroom home and rebuilding with a 5- or 6-bedroom home.
- 33. Eric asked if Longport is facing pressure to build higher density residential buildings. Chief Culmone responded that the town isn't receiving that kind of pressure.
- 34. Bill Cesanek asked about the Blue Economy and whether or not Longport is affected by it. Chief, Scott and Bruce agreed that they do not see Longport being part of the Blue Economy.
- 35. Jaclyn Flor asked the Longport CAC if they think future residents will reside in Longport but have jobs in metropolitan areas using remote work. The Chief said yes.
- 36. Eric Fang pointed out that the median home price in Longport indicates income levels higher than what a blue economy could provide. The Chief agreed and added the median home price if \$800k and that the blue economy probably won't come to Longport and it will be interesting to see who goes back to office spaces after working remotely throughout the pandemic.

- 37. Bill Cesanek agreed with Bruce that the engagement team should reach out to the Longport elected officials to get their feedback.
- 38. Jaclyn Flor asked Bruce if he thought sending a memo of the visioning questions might be helpful. Bruce said that would be a good start but doing a presentation in front of the planning board or at a public meeting would be the best way to engage Longport rather than a regional meeting.
- 39. Jaclyn Flor then discussed the next steps of the project including issuing minutes, and a follow up of critical facilities.
- 40. Jaclyn Flor thanked everyone for their time and attendance at the meeting. She said that the CAC will try to meet once per quarter.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.
- 3. The Consultant Team will send a Visioning Memo and explore options for future public meetings.













### Pleasantville CAC Meeting - Resilient NJ

## **MEETING MINUTES**

**DATE:** May 26, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

**SUBJECT:** Resilient NJ - Atlantic County Coastal Communities (ACCR)- Pleasantville

A meeting was held May 13, 2021 at 11:00 AM with members of the Pleasantville CAC Team to discuss the Resilient NJ Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Frank Zimmerman	Perkins Eastman	f.zimmerman@perkinseastman.com
Shurlana Stewart	City of Pleasantville	sstewart@pleasantvillenj.us
Mayor Judy Ward	City of Pleasantville	mayorward@pleasantvillenj.us
Deirdra Alexander-Simms	City of Pleasantville	dalexander@pleasantvillenj.us
Linda Peyton	City of Pleasantville	lpeyton@pleasantvillenj.us
Mark Alexander	City of Pleasantville	malexander@pleasantvillenj.us
Katrina Mobley Dunn	City of Pleasantville	kdunn@pleasantvillenj.us
Laura Neumann	CME	Ineumann@cmeusa1.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com

- Jacki Flor, ENGenuity, started the meeting with introductions of the CAC (Community Advisory Committee) and the Consultant Team. Jacki Flor then turned the meeting over to Alyssa Curran, WSP, who went over the agenda, including the key questions, project process and the discussion section of the agenda.
- 2. Alyssa Curran went over the Resilient NJ Atlantic County Coast Region Project overall. Alyssa Curran explained that the end goad is to formulate a plan that leads to implementation of specific actions. She went through the project timeline and what has happened to date on the Resilient-NJ Project. Alyssa explained where the consultant Team is in the process and how the CAC will influence the Resiliency Plan. Jonathan Carey, WSP, explained what the Innovation Award was and that the point of the Resilient NJ Project is to make the region more attractive for State and Federal funding.

3. Jacki Flor discussed the Engagement Plan to date. Jaclyn said that the plan was and action-driven plan. Jacki Flor explained that the Steering Committee's role is to make final decisions and that those decisions are influenced by the CAC and TAC (Technical Advisory Committee). She explained the Steering Committee is made up of one member from each of the communities in Atlantic County that are part of the Resilient NJ project and that the TAC includes state and regional leaders who have technical expertise on the regions. Jacki Flor mentioned that there will be a meeting with DEP on May 17<sup>th</sup> and that TAC Members should have received an email inviting them to the meeting. She said if there is anyone else that the CAC Members think should be included, to give their contact information to Shurlana. Jaclyn Flor explained that the Pleasantville CAC members were specifically chosen by Shurlana Stewart from the Steering Committee and represent a mix of experts. Jacki Flor said if the CAC has any suggestions for Focus Group Members, to follow up separately. Mayor Ward asked that the meeting minutes include a detailed description of each of the committees.

In response to Mayor Ward's request, a detailed description of how the stakeholders are organized as follows:

\* Steering Committee (SC): One (1) decision member from each of the entities that make up the Steering Committee plus a Regional Coordinator will make up the ten (10) member Steering Committee; one member from each of the seven (7) municipalities (Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville), one member from the County (Atlantic County), one member from a Community Based Organization (the American Red Cross), and one (1) Regional Coordinator which is an individual that works with all the Steering Committee Members.

**Role and Responsibility:** To make final decisions about the Plan by considering feedback from all other stakeholders. Will assist with introductions to CAC and Focus Groups. **Frequency of Meetings:** Monthly

**Technical Advisory Committee (TAC)**: Consists of State and Regional leaders as well as technical individuals that have expertise in these communities (for example City Engineers) on coastal resiliency, disaster response and recovery, economic recovery, transportation, utilities, tourism, coastal engineering, and funding agencies.

<u>Role and Responsibility:</u> Serves as a technical resource to review and provide technical feedback on the planning process and deliverables.

Frequency of Meetings: Quarterly

Community Advisory Committee (CAC): Made up of diverse community representatives from each of the seven municipalities, Atlantic County, and Community Based Organizations that represent socially vulnerable populations. Several nearby coastal communities that were not part of the original application are included on the CAC- Egg Harbor Township, Somers Point, Absecon and Linwood. The CAC members have a local knowledge of the various elements that have affected these communities after natural disasters, such as emergency response, flooding, crime, job loss, road closures, power shortages, loss of business activity, and infrastructure challenges.

**Role and Responsibility:** To provide local perspective and guidance, potential community challenges to planned scenarios, and advice on how to position actions to align with their

respective funding sources or future plans. The CAC will also advise the Steering Committee on the engagement strategies and project deliverables. It will review the outcomes of the stakeholder surveys and feedback collected at meetings to guide the final recommendation to the Steering Committee for the Actions and Implementation Strategies.

<u>Frequency of Meetings</u>: Quarterly; due to size of the CAC, the Consultant Team will have the first CAC meeting organized by community to facilitate a more intimate stakeholder interview of CAC members organized into smaller groups

Focus Groups (FG) Consists of members of the communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, and Atlantic County. Focus groups include Residents, Businesses, Environmental, Youth and Institutions, and Utilities. There will also be focus groups for socially vulnerable populations including low-income people, seniors, people with disabilities, and people with Limited English Proficiency (including immigrants). There are a total of nine (9) Focus Groups.

<u>Role and Responsibility:</u> To provide local perspective and guidance on community assets, needs, vision, potential community challenges to planned scenarios, and the actions that will have the greatest impact on their respective communities.

<u>Frequency of Meetings:</u> The Consultant Team will meet with each of the nine (9) Focus Groups twice, for a total of eighteen (18) Focus Group meetings. The first round of focus groups will take place during the asset mapping and visioning phase of the project which is in the Spring 2021 timeframe. The second round of focus groups will take place later on in the planning process to discuss scenarios and action plans in August/September 2021.

- 4. Shurlana Stewart, Pleasantville, went through the feedback that Pleasantville had provided to date. She said the City of Pleasantville is a unique community in terms of diversity, and that there has been a huge shift in the population over the last ten (10) years. She said there is a high population of non-English speakers. She said that Pleasantville is situated within 8 waterways. She said most residents live in Pleasantville and work in the surrounding areas. Shurlana said Casinos and hospitals are big employers. She explained that during Super Storm Sandy there was a huge impact in terms of debris and that there was a huge economic impact because resources were slow to get into the area after Sandy. Shurlana said that during the Steering Committee meetings they were discussing sharing resources within Atlantic County to help the recovery process after a storm event. She said the closing of Atlantic City during Sandy impacted the economy because people could not go to work, as well as power outages. She said there has been an increase in the homeless population in Pleasantville and there were some homes abandoned after Super Storm Sandy. She said they are working with Blue Acres to assist residents in getting homes purchased. She also said they are working to have Lakes Bay and Tunis Basin dredged and that they are working to replace their older sewer systems.
- 5. Frank Zimmerman, Perkins Eastman, asked for a status on the dredging of Tunis Basin and Lakes Bay. Linda Peyton, Pleasantville, said the City is a recipient of Green Acres funding which means there is funding to have the Lakes Bay area dredged and their private marina dredged and that they have a developer for the Lakes Bay Area who is working out the details of dredging Lakes Bay within the next 12 to 15 months. She said regarding Tunis Bay they are working on selecting a contractor to do the work now. She said dredging will have a great impact on the area once it is done.

- 6. Jacki Flor went over some of the key questions which included, what are the assets in the region that need to be protected, why are they important to Pleasantville, which of these assets are most important to Pleasantville, what has happened in past disasters, and in terms of socially vulnerable populations what are the assets that need to be protected. Bill Cesanek, CDM Smith, added that by assets it means important businesses, civic resources, community centers, schools, and any key facilities that are important to the functioning of Pleasantville.
- 7. Jacki Flor then asked Frank Zimmerman, Perkins Eastman, to share some maps of the area. Frank went through all of the maps which included Pleasantville Boundary, Shore Conditions, Public vs. Private Waterfront, Topography Areas of Concern, and Commercial Corridors. Laura Neumann, CME, said the area by Oakland Avenue is prone to flooding due to tidal impacts as the marina is protected by bulkheads but the area around it is not. She also pointed out that the area on the topographic map near Oakland Avenue is not a plus (eight) 8 but rather a plus (three) 3 to a plus (six) 6. Laura asked the consultant team to elaborate on whether the assets were just in the low-lying areas or Pleasantville as a whole. Jacki Flor responded that the Consultant Team is looking at the entire City of Pleasantville. Laura said the infrastructure is critical and includes the sanitary sewer (particularly in low-lying areas) both by way of conveyance and pump stations, storm water pump stations, the train station, police station, city hall, recreation building, public works, and schools.
- 8. Linda Peyton added that the schools are used as shelters during evacuation events.
- 9. Alyssa Curran asked if there are preparedness and disaster plans and how are they disseminated throughout Pleasantville. Linda Peyton said that they do have preparedness planning but she's not sure how that information is disseminated to the residents.
- 10. Mark Alexander, Pleasantville, said there is a radio system that they use to communicate in case of a power failure and that they need to work on getting additional resources to communicate with the public if there is a power failure.
- 11. Bill Cesanek, CDM Smith, asked if there were any evacuations during Sandy or any other storms. Mark Alexander said they didn't evacuate but did take some residents to the shelter at the high school.
- 12. Bill Cesanek asked if there was an impact on the town as surrounding communities evacuated. Mark Alexander answered that there was an issue coming out of Atlantic City and that they needed to use the expressway to get residents out of the City to Stockton College.
- 13. Jacki Flor asked if the preparedness plans were in multiple languages. Mark Alexander said yes, they were in both English and Spanish.
- 14. Deirdra Simms, Pleasantville, confirmed they are in both languages and are passed out at different events including National Night Out.
- 15. Jacki Flor asked if there were any businesses within the boundaries of Pleasantville that are critical to the workforce and are there any critical economic facilities that would be an asset.
- 16. Linda Peyton said the downtown area would be a critical asset to Pleasantville and there are many small businesses that are critical to the economy. She said that there are commercial

- buildings that also house residents. Linda said there are three to four buildings that house seniors and affordable housing for a large population of residents. She also said the road downtown is used to get in and out of Pleasantville.
- 17. Jacki Flor asked if we could get the exact locations of the senior housing and affordable housing after the meeting. Linda Peyton said that Shurlana will provide the locations to the consultant team.
- 18. Frank Zimmerman asked if Conover's Creek had any long-term impacts on the community. Laura Neumann said there were no issues with that area and Mark Alexander added that they had done work in that area so there were no longer any issues.
- 19. Bill Cesanek asked Laura Neumann to elaborate on protecting the sewer system and if there were any programs underway now to protect the system or had they been protected at all already.
- 20. Laura Neumann said they have been working on putting emergency generators at the pump stations using their FEMA grants and a lot has to do with their conveyance system especially in the low-lying areas. She said that it is very difficult to get funding for improvements. Laura said the sewer system is an aged infrastructure and paired with low-lying areas there is a huge burden on the town.
- 21. Bill Cesanek asked if there were issues with general storm flooding on the streets and drainage. Laura Neumann said in the Lake Bay area if the tide comes up the area of the marina that is bulkheaded forces the water to flood other areas that are not bulkheaded.
- 22. Jacki Flor then turned the meeting over to Bill Cesanek to review the visioning questions. Bill said some of the questions are where do you the community in 50 years, is your area ripe for redevelopment, do you see the town being the same in 30 or 40 years or do you see changes, are people moving here?
- 23. Alyssa Curran asked Mayor Ward to share some goals and objectives for Pleasantville. The Mayor said Pleasantville is an old City and can either modernize or go back to being a quaint city, the way it used to be. She said she would like to see more mom-and-pop stores and that Pleasantville has always been a nice, pleasant place to be.
- 24. Mayor Ward said they have a diverse community and she hopes they always maintain that. She said the water is the best kept secret. Mayor Ward said Pleasantville used to have more smaller stores, restaurants, bowling alleys, movie theaters, and smaller shops. She said people used to walk up and down main street and that it changed gradually but now is a very different City. She said the malls contributed to the demise of main street.
- 25. Mark Alexander added that they lost a lot of mom-and-pop stores to the internet retailers and that goes for movies as well.
- 26. Bill Cesanek asked if the Mayor if she saw people moving into Pleasantville in the future. Mayor Ward responded saying that she hoped so, especially with the new redevelopment projects.

- 27. Laura Neumann said the redevelopment projects, including dredging of Lakes Bay area will hopefully attract more people to move to Pleasantville and that Pleasantville is more of a community. Laura added that there have been several successful redevelopment projects, including one on main street and that the projects will attract more people to Pleasantville.
- 28. Jacki Flor said there are additional visioning questions and that the consultant team would circulate a memo to get some additional feedback from the CAC.
- 29. Laura Neumann asked what the goal of the Resilient NJ program was. Jacki Flor said the goal is to come up with an action plan that will then go on to an implementation phase. She also explained the innovation award could allow for funding.
- 30. Bill Cesanek said the goal is to better set up things to be in the pipeline for funding.
- 31. Jacki Flor then discussed the next steps of the project including the TAC meeting on the 17<sup>th</sup> and that the Consultant Team would be issuing meeting minutes.
- 32. Jacki Flor thanked everyone for their time and attendance at the meeting. She said that the CAC will try to meet once per quarter.

- 1. The next Community Advisory Committee meeting will be in Q2 2021.
- 2. The Consultant Team will be reaching out for soft introductions for Focus Groups.
- 3. Linda Peyton mentioned that there are commercial buildings that also house residents; there are three to four buildings that house seniors and affordable housing for a large population of residents. Linda Peyton said that Shurlana Stewart could provide the locations to the consultant team.











# Resilient NJ – February 2022 – Feedbacks on Scenario Meeting (Brigantine)

#### **MEETING MINUTES**

**DATE:** February 17, 2022

**TO:** All Meeting Attendees

FROM: Consultant Team

SUBJECT: Resilient NJ – February 2022 – Feedback on Scenarios Meeting (Brigantine)

A meeting was held on February 17, 2022, at 10:00 am with Stakeholders from Brigantine and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Edward Blanchard	American Red Cross	edward.blanchard@redcross.org
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Frances Brown	Atlantic County	brown_frances@aclink.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Jim Rutala	Atlantic City	jmrutala@comcast.net

The following was discussed at the meeting:

#### **MEETING:**

#### Feedback from:

- Jim Rutala
- John Peterson
- Edward Blanchard
- Frances Brown

The group continued discussion on the resiliency scenarios.

#### Municipal

 The team discussed County Hazard Mitigation Plan 2021 – incorporate recommendations/ projects from this plan into Resilient NJ

- Eric Fang talked about USACE Back Bays Plan there is consensus amongst stakeholders supporting the need for USACE support:
  - Huge success w/ USACE on the oceanfront with engineered beaches continue to leverage these opportunities
  - o North Atlantic City and Brigantine are not protected by the USACE project.
  - Municipality matching requirements are relatively small when compared to the big picture.
  - There is recognition that there will be environmental impacts and the need to work through them.
- Jim Rutala discussed that Municipalities passed resolutions that mention short-term improvements while working towards/waiting for the Back Bays Plan.
- Jim Rutala mentioned elevating roads has challenges, such as adverse impacts on adjacent properties, and requires the narrowing of Brigantine Blvd. It also causes drainage issues for nearby properties. Requires advance planning to determine where to put cars etc. in case of a flooding event.
  - The potential solution might be to stick with a 2ft or 3 ft scenario which may not be for 2070 but help achieve 50% flood reduction which would still be a success.
- He added Brigantine supports Bay line structures like living shorelines, hard structures.
   According to the ordinance since 1980, Brigantine requires bulkhead on bayfront properties at a minimum elevation of 9' on 29 Datum. So, Brigantine in comparison to several neighborhoods is in a much better position.
  - Bulkheads protect against wave action and have been reconstructed since 1980 in Brigantine.
  - The Bayfront has a good situation, better to focus on areas in need of help.
  - Army Corps Plan (Back Bays plan) doesn't address Brigantine's situation and there is a need to fortify the bayfront.
  - Private property owners have to update bulkheads height increases over time.
  - Does not support the seawall along the oceanfront except there already is a wall down the North end (which is more vulnerable).
  - On the South end there is the stone jetty bordering the Absecon inland which is responsible for the success of sand retention along the south end.
  - o Do not support sheet pile dune core or extend the boardwalk in Margate.
  - Could support a steel bulkhead with floodgates North Jersey example as time progresses and as the boardwalk is placed.
  - Note that Margate/Longport have bulkheads already.
  - Support breakwaters can design for surfers (CA). USACE North End of Atlantic City
     Study lots of erosion looking at solutions like breakwaters.
- Jim Rutala discussed Reusing dredge material they are discussing adding/beneficial reuse to Bader Field.
- Dredging:
  - Bader Field the low area needs infrastructure, need to look at ways to elevate. The
     first recommendation could be Bader Field be promoted as a focus for regional activities

and elevate prominent sites by using dredge material. For example, Margate is currently dredging but has no place to put dredge material.

- Stormwater systems will need a source for funding stormwater utilities.
- Black Horse Pike:
  - Elevate Route 40 do not increase development along strip "causeway" but support
     Multi-modal Bike Path. Too low for development, environmental issues and wetlands.
  - Gateway Project in this area north of expressway can be an area that can accommodate a lot of dredge material.
  - Pleasantville Area Black Horse Pike area could have the potential for mixed-use redevelopment and multimodal access.
- Include ACMUA water, PFAS issues/resiliency whole filtration system too low rebuild/relocate to higher location. Safe drinking water in AC is important.
- Road raising support strategic road raising. DEP policies at odds with road raising?
- Elevate critical facilities
- Evacuate using buses, jitneys not ferries.
- Discussed Ventnor, Brigantine resolution we need you (USACE) but may not support large gates, walls necessarily.

#### **Brigantine**

- Near-term improvements should continue while the USACE Back Bays Plan continues.
- Brigantine Blvd Atlantic County study looking at elevating road but came back without a clear path adjacent property impacts, would narrow down to one lane and provide off ramp to adjacent properties. If 2-3' give some protection then Ed is supportive but it didn't really go anywhere (One part is looking for funding need to leverage not just County, but also partner with the State and Federal government for money also need to address specific storm, elevation so wouldn't get the money). So, went back to thinking about hard infrastructure/living shorelines.
  - The bulkhead policy for 40 years was updated since 1980 to elevation 8' on 88 datum.
     Brigantine was so close to closing off this area and stormwater pump stations.
  - Need to elevate homes that need to be elevation 8' on 88 datum and same for pump stations.
  - Attitudes towards elevating homes are more favorable since Hurricane Sandy.
     Approximately 300 of 400 damaged homes were mitigated (remodeled or rebuilt). Also, many people left after Sandy. (Unknown percentage)
  - Emergency generators at critical facilities are essential.
  - o Robust evacuation plan for storms that are bigger.
  - Saying elevation 8' is preparing for current conditions question: what will we need to meet for 2070 SLR/Precipitation? Likely, would need to be a bayfront wall but this would block views/cause controversy.
  - o Bulkheads have a 30 year lifespan on average before they need to be replaced.
  - Condo buildings could also block views. This option will not be supported by Brigantine overall at higher levels.

Look at individual infrastructure in each town for the best solution for protection.

#### Oceanfront:

#### Jim Rutala discussed:

- Need to look at outfalls and oceanfront continue USACE beach fill efforts.
- The Brigantine dune system and beach berm is good from 7<sup>th</sup> to 4<sup>th</sup> street (south good) north of sea wall is Brigantine. Losing sand on the northside, area is showing vulnerability.
- O Two terminal jetties (or terminal groin) help with the retention of sand; however jetty is not performing. If the jetty could be extended it would retain more sand both north and by the sea wall. Extend jetty at the inlet. (Back passing plant to the seawall and then drift from north to south). Extending the cycle by a year is good (beach fill is expensive).
- Jetty at the north end was studied and found not helpful.
- There are several groins on the oceanfront starting at Roosevelt Blvd going every six blocks to the south until 30th Street. USACE indicated groins are not the reason why the south is retaining sand. Jetty is the reason for the success of sand retention.
- Extension of the sea wall at the north end protects the developments.
- o Fortifying the seawall at bayside.
- Focus on the bayfront is elevating homes that need to be elevated to make sure that residences are protected and accessible in event of a flood.

#### Blue-Roads

- Stormwater from Hurricane Sandy drained quickly so the cost-benefit for this level of investment may not be there.
- Need to keep the roads functional, and limit erosion. Also need to limit the breaching of wells and keep pumps working so that people can come back to the island quickly.
- o People reacted positively to home elevation efforts after sandy.

#### Golf Course

- Brigantine is part of the stormwater sewer system feed lakes and outfall to the bay.
- For stormwater, the town is 100% behind this concept golf course is a low-lying area,
   the lake is fed by the drainage system from developed areas around the golf course.
- Double outfalls flood gates can close during high tide. Drain lakes to low tide. Most of the time it works.
- Lakes do overflow in heavy rainfall.
- Dredging the lakes (silted up over time) to the low point provides more of a reservoir.
   Need more depth at discharge point from streets.











# Resilient NJ – February 2022 – Feedbacks on Scenario Meeting (Downbeach)

#### **MEETING MINUTES**

**DATE:** February 17, 2022

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ –February 2022 – Feedbacks on Scenario Meeting (Downbeach)

A meeting was held on February 17, 2022, at 2:00 pm with Stakeholders from the Downbeach area(s) and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Edward Blanchard	American Red Cross	edward.blanchard@redcross.org
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Frances Brown	Atlantic County	brown_frances@aclink.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Jim Rutala	Atlantic City	jmrutala@comcast.net
Roger McLarnon	City of Margate	Mclarnon_roger@margate-nj.com
Ed Stinson	Ventnor City	estinson@ventnorcity.org

The following was discussed at the meeting:

## **MEETING:**

Continued discussion on the resiliency scenarios and feedback.

- Eric Fang, Perkins Eastman, mentioned that the Absecon Bay Marina adaptation plan is a joint study. The following was discussed about the Marina Adaptation Plan:
- Orsted Marina Marina is vulnerable, needs to develop a protection strategy.
  - Potential new action Port of Atlantic City is a Gate at the harbor. Further study could be warranted.
  - o The area will have a significant investment that will help protect assets in the future.
  - The Marina's Adaptation Strategy is focused on the Absecon Bayside, which is a recreational and commercial area.

 Most of the parts on Marina are adaptable and are on floating docks, but the owners need to replace their docks with a modern system. Money is needed to proceed with this change.

#### Access:

- Jim Rutala talked about the existing flooding issues on Shore roads in Northfield. These issues have been flagged and are being addressed by the county.
- Jim Rutala suggested a change in the report to "Municipalities should be encouraged, not required, to adopt stormwater management regulations by retaining or reusing stormwater with cisterns, blue roofs, and rain gardens."

#### Power:

- Jim Rutala confirms to bury power lines.
- He is interested in the microgrid idea and using AC engineered Microgrids as a model for the whole area and installing generators at schools.
- Jim highlighted that one of the microgrids has been taken out of the power station in AC and has been put in the midtown project.
- There are three power plants in Atlantic City and that could be microgrids. Marina, Boardwalk, and Midtown could be microgrids. There is currently \$1.5 M grant from DPU for engineering for Midtown Microgrid. Study for microgrids, locations, etc. is the likely action.
- Jim Rutala added that Stockton university could be a microgrid area as well. Princeton university
  has microgrids that operate well during storms and is a good case study to consider for
  operating microgrids on university campuses.
- Jim Rutala mentioned the Resilient NJ area is a model for energy efficiency with land-based and offshore wind installations, significant solar installations, natural gas jitneys, a national gas fueling station, dozens of EV charging stations, energy efficient buildings, energy savings improvement plans underway in Ventnor, Atlantic City, and Pleasantville, etc. Soon the area will also have a GWO certified wind training center, two offshore wind O & M centers, a Midtown microgrid, community solar, and "smart cities" technology is being implemented.

#### Equity:

- Jim Rutala talked about some issues in Elevating homes:
  - Cost/funding is challenging. The only funding source is the FEMA Assistance grant of which 75% of the grant is being paid as a reimbursement. Lots of homeowners don't have the up front means to elevate their homes even when they receive the grant. (Not able to get loans, matching funds, to carry projects through construction. For example, the cost to elevate is \$200K, and the home is not worth that much so cannot get a loan.). This issue has been discussed with FEMA but no significant progress has been made.
  - To make elevations viable, it was recommended that they should be part of a state program to front the cost of elevating homes and paying the local match for FEMA grants to make projects affordable to homeowners who need assistance.
    - o Have discussed with CRDA and there is some interest.

- Bill Cesanek asked about the potential of tax increment financing; Eric fang replied there is no increased tax value but there could be a revolving loan fund.
- Jaclyn Flor mentioned; FEMA has a repetitive loss program that provides the funds, it used
  to be run by municipalities which were problematic but currently, the homeowners are fully
  responsible for the fund.
- Jim Rutala mentioned; All the units of the multi-floor homes that include repetitive loss units should be funded by USDOI/FEMA, currently, one unit is funded and others remain below BFE because of funding requirements which makes no sense and structurally is a problem.
- Jim Rutala discussed the program to elevate mechanical equipment above BFE not rooftops.
- Eric Fang mentioned we need a program, more than just encouraging, for community solar, wind power, roof top solar and open spaces.
- Jim Rutala mentioned that solar requirements should be built into zoning as bungalows come down and are replaced over time by larger buildings.
- He mentioned supporting the university district is consistent with the current plan and University Overlay district could be an area of economic development.
- He added Bungalow Park is the second identified area which is a stable neighborhood and can be a potential site for supporting the wind industry.
- He mentioned NJEDA is funding an effort to remove barriers of development for several barren sites in AC including Trump Plaza site, Sand Casino site, Southeast inlet, Casino Pointe and the Mississippi/Fairmount site, and study the barren sites for thier potential to support the blue economy. (Jim Rutala is going to send maps to Eric Fang).
- Jim confirmed that the lighthouse in the Coast Guard Station area is a historic building. He is working with the congressman on understanding its redeveloping potential for various other uses. Eric Fang said not to take the site off of the maps yet. (TBD)
- Encourage the development of a Resiliency and Wind Institute in Atlantic City to bolster the economy and to continue R&D efforts—support idea. (Jim needs to send details of feasibility study of the 15 locations).
- Encourage the elevation of development sites like the Cove and Borgata sites using clean dredge material, clan fill, etc. Dredge material need storage locations Bader field, the Island are potential locations.
- Jim Rutala mentioned that Great Egg Harbor Wild and Scenic River Organization could be a
  potential mode for environmental education and advocacy organization. It has been a
  moderately successful organization. Suggested developing a feasibility study to see if this is
  viable.
- Eric Fang mentioned the vulnerable population category is mostly centered in housing authorities' properties and senior centers and there is an Adaptation plan for these locations: Examples of Senior Centers for Adaptation Plan- Margate Terrace (Terrace), Shalom House (Ventnor)
- Roger talked about the Infrastructure Investment Act, and how this program should be structured and funded, the state of NJ will manage the majority of this funding. There is setting of priorities at the State level and resilience is a high priority for lawmakers. Based on the funding source the priorities change; for Ventnor the water system is priority, for AC the water system resilience is priority.
  - Resilient NJ priorities can be tied to the bill.

#### **Blue Streets**

- Eric Fang suggested the blue living street could be a pilot but not rolled out widespread.
- Jim Rutala mentioned the state has tried the blue street project in some locations, for example in Somers Point which though it is not a barrier island, voids filled in with sand very quickly. Maintenance would be needed very regularly and that is a significant issue in barrier islands.
- Eric Fang mentioned that blue streets have sensors that help lower the groundwater level in storm events.
- John Paterson added sensors may not get the volume needed because of groundwater elevation in the barrier island. No capacity in lower-lying areas. Maybe higher area but still could be challenging.
  - Standard pump station might get more reservoir/capacity. A lot of outreach has been done to understand the community's expectations. Pumping reduces flooding duration but there will still be some flooding during precipitation events.
  - Timing is also an issue. By temporarily lowering the groundwater, the process of water infiltrating through the system still takes time, especially in an intense event. The traditional system is better.

#### Comments:

• Remove extending the boardwalk through Margate from the plan











# Resilient NJ – February 2022 – Feedbacks on Scenario Meeting (Atlantic City)

#### **MEETING MINUTES**

DATE: February 18, 2022
TO: All Meeting Attendees
FROM: Consultant Team

SUBJECT: Resilient NJ – February 2022 – Feedbacks on Scenario Meeting (Atlantic City)

A meeting was held on February 18, 2022, at 3:00 pm with Stakeholders from Atlantic City and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Jacques Howard	City of Atlantic City	JHoward@cityofatlanticcity.org
Barbara Wolley-Dillon	Atlantic City	Bwoolley-Dillon@cityofatlanticcity.org
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Edward Blanchard	American Red Cross	edward.blanchard@redcross.org
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com

The following was discussed at the meeting:

#### MEETING:

## Feedback from:

- Jacques Howard
- Barbara Woolley-Dillon

Continued discussion on the scenarios.

## **Coast Guard**

- Bill Cesanek mentioned Federal Military entities make decisions about the Bay's closing and it is
  important to consider in terms of future redevelopment since closings have adverse impacts to
  the Blue Economy. However, it is unclear when the federal government will decide to close the
  Bay due to insufficient information sharing.
  - o Jacques Howard proposed low-intensity development in the Bay area because it is already developed. He also suggested establishing a neighborhood with good potential

- of investment in terms of property values and looking to build it out as a maritime community Residential primarily.
- This could be framed as a long-term option for redevelopment again in line with the lateral Mariner/Blue Economy type of development discussed previously.
- According to the low population of AC, the general goal is not just to increase the
  population density but an appropriate mix of demographics to achieve the
  administration goals.

## **Microgrids**

- Jacques Howard proposed "District Energy" (All in and out concept); the option to have smaller centralized area microgrids. In case of inundation of a smaller microgrid area the larger grid can service as a backup.
- Bill Casanek discussed that the issue of District Energy is related to how the powers are connected, in the microgrid the powers are segregated from the surrounding grid. Currently, there isn't a good way to have several switching points to let electricity in and out of the microgrid.
- Bill Casanek continued that solar/nanogrids and batteries are more flexible with switching in and out grid. Jacques agreed solar/nanogrids are probably something to consider. Jacques encourages creativity in thought.
- Power is buried in the CBD, but they are above the ground in other locations.
- Barbara Wolley-Dillon discussed some potential locations with the team for microgrid:
  - o The shell of the former generator/microgrid at Absecon Lighthouse
  - ACUA feed into services nearby, high rises, geothermal location on Rt 30 as well
  - North area of AC
  - Jeffries tower
  - Stanley Homes
  - Martin Luther King School (also evacuation shelter)
  - Buzby Homes empty building from old boiler unit could reuse?
  - o Homeless city shelter by convention center transformer AC Electric
  - Baltic Ave pump can add turbines to power microgrid

#### **Blue Streets**

- Amy DiCarlantonio brought out the idea of exploring Blue Street as a pilot project. She asked if AC is open to sort of this opportunity.
- Jacques Howard replied AC is open to Blue Streets/Living Streets as a pilot project. And there is a need to identify the streets for being addressed and implemented as blue/green streets.

  "Jacques is communicating with Emily about a potential grant at DEP."
- Bill Casanek mentioned according to the engineer's thought most of Brigantine would drain fine
  on its own once the high tide goes out. However, AC is different and significantly lower area that
  would take longer to drain, or it might drain for a while and blue riads would be an opportunity
  to create a corridor to transfer and pump out water and access the area more quickly.

- Jacques Howard is interested in mitigating damage to homes during a storm/precipitation event. (Not necessarily how fast it will infiltrate or drain but what it means to keep property safe).
   Rockaways might be a potential example.
- Bill Casanek liked the idea of Blue streets since it lets the water drain while giving you access to your homes.
- Jaclyn Flor mentioned Longport, Margate, Brigantine, and Ventnor are not interested in the Blue/Green street project because of blowing sands in those areas and there is a concern of cost and maintenance standpoint and with these voids filled up with sands the streets would not be drained. But in AC due to the casino blocking the sands there is less blowing sand in AC and blue/green streets work well there. So, there should be a difference in green/blue street projects In AC and other areas in terms of types of surface pavement and other details. We need to work with a supplier that can work through these challenges while in a pilot project.

# **Elevating Homes**

- Jacques Howard mentioned three important issues in elevating home options:
  - Home's value is less than the cost to elevate them.
  - Home elevation needs money upfront in and most of the communities don't have that money at first.
  - The sense of community would be distorted with having all the homes elevated.
- Jacques Howard highlighted the goal of mitigating the flood impacts, not just reducing the timeframe for the tide to go down.
- Bill Casanek mentioned elevating homes is very difficult (cost-prohibitive). He agreed with Jim
  proposing that a better system needs to be developed by the state to fund this program and
  allow people to repay the loan in a much longer time period.
- Barbara Wolley-Dillon discussed an example of interior raising at 501 MLK Blvd. Raise the first-floor level up to mid-BFE and second-floor windows are almost at the floor level an all interior retrofit that elevated the inside of the home. (Slightly shorter ceiling height but maintain the structure and it's less intensive). Bill Casanek agreed with the idea.

## **Socially Vulnerable**

- Jaclyn Flor mentioned that all the scenarios should be equitable and not cause any adverse impacts on communities and the projects will speak well to all socially vulnerable groups identified for engagement.
- Jacques Howard mentioned Implementing actions that have minimum disruption to the social fabric is key. There is existing diversity, maintaining that diversity is important to achieving resiliency.
- Bill Casanek talked about increasing value and attraction of homes to investors and speculators as an element of improving resiliency in the area. So, understanding how to achieve better

- protection from storm events and how to protect existing neighborhoods from speculative investments is critical.
- Eric proposed that a potential approach to achieve what Bill mentioned is by establishing "Inclusive housing requirements".
- Avoiding speculative investment is important (rental sites)
- Barbara Wolley-Dillon talked about the challenges regarding the speculative investment that bigger home with higher values is going to Airbnb markets and short-term rentals that impacts the community by bringing commercial operation in a residential neighborhood. Currently happening around Venice Park, downtown is not so much, Chelsea is also clear.

## **Zoning/Rezoning**

- Barbara Wolley-Dillon talked about the older homes that have at-street level or below-street level basement apartments which are still being occupied even though nothing below BFE should be habitable.
- Jacques Howard mentioned in addition to changing policy and zoning might need Design standards for density above BFE. The North of Buzby village, Western Ave, should be targeted for redevelopment purposes; Amphibious communities' potential, Ventnor Ave and Weymouth Ave approaching the AC boundary in Ventnor.
- Barbara Wolley-Dillon mentioned the need for density and establishing clusters in some areas, but residents do not want it. So, it is essential to look at density patterns to figure out a better way to disperse.
- Need density look at where to place density shorelines
- Need more density around Transit village Area look at closer for resiliency/densifying.
- Jacques Howard proposed looking at shorelines create clusters of increased density but climate-related law in NJ would make problems
- Jacques Howard suggested to look at NYC Riverside drive- to see what else has been done in other cities?
- Discussed Pleasantville Up zone Rt 40/Rt 9 that was done in recent years.

Jaclyn Flor replied by the idea of putting a turbine in the conveyance system and spin would produce energy that there is a way to capture the energy and feed it to the microgrid.

Barbara Wolley-Dillon asked about Carbon sequestering related to offshore wind. She said some of the offshore wind is ok, but the down shore has problems. Buildings sequester the carbon.

Open to training/pilot projects to help diversify the local economy – equitable for disenfranchised groups.











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN
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# Resilient NJ - March 2022 - DRAFT Preferred Scenario Meeting

#### **MEETING MINUTES**

**DATE:** March 4, 2022

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – March 2022 – DRAFT Preferred Scenario Meeting

A meeting was held on March 4, 2022, at 4:00 pm with the Steering Committee and members of the Consultant Team. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Flor Mason	WSP	flor.mason@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Jim Rutala	Atlantic City	jmrutala@comcast.net
Frances Brown	Atlantic County	brown_frances@aclink.org
John Peterson	Atlantic County	Peterson_john@aclink.org
Jordan Exantus	Chplanning	Jordan.exantus@chplanning.com
Edward Blanchard	American Red Cross	edward.blanchard@redcross.org

The following was discussed at the meeting:

# MEETING:

- 1. Action Plan for Housing:
  - Adaptation action plan for Atlantic City & Pleasantville Housing Authority Communities and the region's senior centers.
  - Meeting with the Housing Authorities on the Adaptation Action Plan idea. They are separate authorities.
    - Older facilities except for Stanley Homes rebuild
    - Are there opportunities to retrofit?
  - Absecon Bay Keepers there are already non-profits in the area that are focusing on stewardship of Absecon, they should be acknowledged.

- 2. Build upon the three non-profit organizations that are already involved in protecting the Bay Area(s):
  - Mullica Watershed head of the green team
  - Egg Harbor Watershed Association Wild Scenic River
  - Pecan Creek Protection organization

Eric has experience working to help establish community-based and non-profit organizations and can serve as a reference.

- 3. Install generators at all critical facilities
  - Extend the microgrid program to the emergency Locations
  - Installation of solar panel batteries
  - Community Microgrid study
  - Community Solar
    - Solar in large-scale low-cost energy too low to moderate-income families.
       Already happening in Pleasantville area and some other locations (AC is preparing an RFP for a 200-acre solar community)
    - Include this program as a way to reduce fossil fuel dependency.
    - Identify additional sites and explore how to expand the community solar program on municipally-owned land.
    - Many of the public buildings have solar, but residential solar is not as common in the region - there is a lot of opportunity for it.
- 4. Bayshore Protection
  - Strategies to protect bay shoreline:
    - 1. Rely on USACE Back Bay Plan
    - 2. Install Sheet pile dune core
    - 3. Reinforce dune
    - 4. New bulkhead

#### Discussion:

- Opinion regarding Back Bay Plan: long-term timeline, high cost, and environmental issues.
- The strategy for the Back Bay plan will include two approaches, one is looking at private development to incentivize shoreline infrastructure and the second is looking at actions under the municipality's control.
- USACE meets every month with the vulnerable communities. Beach replenishment, sea walls, look to continue these initiatives. The two questionable projects are the Back Bay wall and the surge barriers at the inlets (no consensus on these two projects). There is consensus on hardening on Back Bay frontage and ocean side. Will continue to collaborate with the USACE.

- Region realized after Sandy that engineered beaches are good. USACE are the one entity that has got things done in Atlantic County. The Back Bay Plan continues to be considered even though there are lots of questions. The town has asked to be kept up to date with what is going on.
- Also looking to do a Continuous Shoreline Study (interim period municipalities look together to pursue in each municipality – funding, land-use decisions, rightof-way actions)
- Each town has its own Back Bay plan. (AC has a linear park at back bay developed as part of new floodwalls).
- Since the Resilient NJ is a regional program is there a consistent plan that needs to be addressed for each town plan?
- Blueway/Greenway trail component would provide public health and recreational benefits.
- Some towns have floodwalls, projects in planning/construction part of recreation park in AC
- This could be a gap analysis look at what is already being planned. Concerned that this plan may raise conflicts for implementation for municipal-led projects.
- Frame as the longer-term strategic plan that does not supersede other municipal projects but builds on those projects.
- Hazard Mitigation Plan projects represents town's priorities.
- Beach Nourishment / Offshore Breakwaters add terminal groin in Brigantine
- Living street, a feasibility study for Atlantic City pilot project program:
  - Not <u>established</u> in other places so be mindful of the wording!
  - Have Walter flesh out precedents support. Provided some precedents to Frances in chat, fill in with Walter's support.
- Due to the high cost of implementation and maintenance, this option is just being studied as the feasibility to apply.
- Look at municipality-controlled land for stormwater parks

## 5. Equitable Economic Development

- Three areas for development: two for mixed-use (Black Horse Pike, Atlantic Ave) and third is Atlantic Harbor area.
- Bader's field The coordinated plan for dredged-site raising compact for this area needs to be more generalized.
  - The question was raised regarding whether there has been any dredged soil plan for this area before?
  - AC just awarded money to study Bader Field to do the analysis for the potential use of dredge material.
  - Ventnor and Margate are doing a joint study of using potential dredging material in duck island.
  - Duck Island off of Ventnor west restore this area using dredge material. Look at a strategy to enhance resiliency.
  - More than one community could have a location for dredging materials.

#### Jim's Feedback:

Wetland Restoration

- Important for the back bays to absorb stormwater
- Elevating Homes
  - This is the best way for resilience in the barrier islands.
  - The current program under FEMA is challenging and doesn't work for everyone.
  - The possible solution can be: Revolving home-ownership loan programs
     Enterprise funding, changing the funding order, eligibility and subsidy from the state, etc...
- There are short-term elements for the municipalities from Hazard Mitigation Plan. The team needs to revise and look at how it intersects with Resilient NJ Plan and Task 6 funds. (The plan approved recently).
  - The plan is about repetitive loss projects and discussions between the emergency management folks and working with municipal emergency management.
  - The team needs to review the plan and Jim needs to let us know if there are specific projects that need to be fleshed out in more detail (leverage task 6 funds)











# Resilient NJ - March 15 - ACCR Resilient NJ Preferred Scenario Meetings with CACS

# **MEETING MINUTES**

**DATE:** March 15, 2021

**TO:** All Meeting Attendees

**FROM:** Consultant Team

SUBJECT: ACCR Resilient NJ Preferred Scenario meetings with CACS (Linwood, Somers Point, Little

Egg Harbor, Absecon)

A meeting was held on March 15, 2021, at 9:00 am with members from the community advisory meeting. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Amy DiCarlantonio	WSP	Amy.dicalantonio@WSP.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Flor Mason	WSP	flor.mason@wsp.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jordan Exantus	Chplanning	Jordan.exantus@chplanning.com
Deirdra Alexander	City of Pleasantville	dalexander@pleasantvillepd.org
Tim Joo	City of Northfield	tjoo@cityofnorthfield.org
Chief Paul Newman	City of Northfield	pnewman@npdnj.org
Greg Schneider	City of Somers Point	greg@ksecivil.com
Leigh Ann Napoli	Linwood City	Inapoli@linwoodcity.org
Katrina Mobley-Dunn	City of Pleasantville	kdunn@pleasantvillenj.us

The following was discussed at the meeting:

# 1. Introduction

- Amy introduced members of the consultant teams and explained the roles of the different team members.
- Amy provided an overview of the project timeline. She reviewed the previous community
  engagement work that began in Fall of 2020. She also said that the project team began
  developing resilience and adaptation scenarios during Summer of 2021. The scenarios were
  presented to the public through public meetings during February 2021. She reviewed next
  steps in the project.
- Jacqulyn reviewed the project's vision and the engagement work that happened in the Pleasantville Area. Including:

- o 12 Monthly meetings with steering committee; plus, on-on-ones (SC)
- 10 advisory committee meetings- Quarterly
- Public Meetings conducted during the AM and PM. Available in Spanish and English.
- Meetings with Technical Advisory Committee (TAC)
- o 9 Focus Groups.
- The main findings from the engagement work were introduced. Some of these findings are:
  - Diversity of the region is valued
  - People have a strong connection with nature
  - The region is rich in ecological resources
  - Tourist Economy is valued

## 2. Asset Categories

- Bill explained that the scenarios were developed based on asset inventory and risk assessment. The most critical assets needed to be identified to figure out how to protect them.
- The team collected information on over 37,000 assets in the region. These assets were classified into the following categories.
  - Government services
  - Infrastructure
  - o Economic
  - Natural
  - o Health
  - Social Cultural
  - Housing
- The team identified ~4000 assets. They developed a model to identify the most critical assets within this model and narrow down the number.

#### 3. Future Conditions

- 2030: Sea Level Rise of 0.8"; 2% increase in annual precipitation (the amount of rain that will accumulate in a 24-hour period for a storm with a 1-in-100 (1%) chance of occurring in 2030).
- 2050: Sea Level Rise of 2.4"; 10% increase in annual precipitation
- 2070: sea level rise of 2.4'; 10% increase in annual precipitation
- Team used the asset management approach to identify how flooding would affect assets.
  - o It considered the probability of flooding and the consequences of flooding.
  - The map presented shows the areas with the most vulnerable areas.

## 4. Resilience and Adaptation Scenarios Goals

- Respond to the vision identified by the region
- Reduce anticipated flood impacts in 2070
- Include actions that respond to immediate flooding concerns within the region
- Protect or enhance natural resources and ecosystem function, as well as public access
- Address the needs of socially vulnerable populations in the region
- The team defined resilience and adaptation scenario as a suite of actions that will work collectively to increase resiliency over time
- Actions that can be included: flood mitigation projects, capital improvement projects, future studies, analysis, planning and regulatory actions, communication, or outreach activities.

- Key challenges to address:
  - Shoreline protection
  - Stormwater management
  - Access and transportation
  - Power and Communications
  - Equitable Economic Development
  - Public Facilities
  - Vulnerable Populations
- Three scenarios are proposed:
  - Scenario 1: Mix of actors but public sector leads on key projects. Oriented toward gray infrastructure solutions.
  - Scenario 2: Mix of actors but looks to State, County, and Municipalities to partner on needed resiliency improvements. Mix of gray and green solutions.
  - Scenario 3: Mix of actors but looks to leverage private investment to leverage private investment to help finance needed resiliency improvements. Oriented toward nature-oriented solutions.

## 5. Scenario 1: Absecon Bay Living Bay Master Plan

- Provide a framework to establish condition monitoring.
- Prioritize actions to restore habitats through thin layer sand deposition in targeted locations.
- Provides public education to recognize the importance and value of back bay tidal wetlands in protecting the region from storm surge.
  - The Absecon Bay Keepers: will be a non-profit organization focused on stewardship of Absecon Bay and working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.
  - Translate all emergency preparedness materials.
  - o Evaluate and Improve Preparedness Actions for SVPS
  - Action Plan for Housing: adaptation action plan for Atlantic city and Pleasantville housing authority communities and region's senior centers. Solar panels on all rooftops, solar trellises on all surface parking lots, elevate electrical and mechanical equipment.

#### Power and Communications

- Harden all above grade utility poles and bury utilities where possible
- Install 10 new generators at firehouses and other public buildings

# • <u>Installation of Solar Panels</u>

- Require installation of solar panels for all renovation and new construction projects above a specified dollar amount to increase energy resiliency during power outages
- Adopt incentive program to encourage installation of solar trellises at surface parking lots and batteries at all buildings to encourage bi-directional charging for electric vehicles
  - Funding source still to be determined.

# • Microgrids Systems Study

- Microgrid clusters would be associated with facilities that are critical assets at risk of flooding.
- o Can be centered around schools, public facilities, casinos, hotels
- Coordinate with Atlantic City Electric (ACE)

• Eric asked for their feedback on the three projects that were presented. 1/3 of the money from the project goes into the project but want to hear what resonates the most with the community.

## • Bayshore continuous Shoreline Protection Study

 Plan to look at a combination of raising sections of streets along the bayside and incentivizing development of key properties with bayside frontage to achieve enhance shoreline protection measures to form a continuous bayside protection system.

#### Absecon Bay Blue/Greenway

 Network of interconnected kayak/canoe trail (blue way) connecting the Atlantic County bays developed in conjunction with new recreational train (greenway), along the Blackhorse pike and roads paralleling the shoreline.

## Living Streets Feasibility Study and Pilot Program

Living streets: upgrade existing streets for subsurface conveyance without pipes.
 Network Green Infrastructure offer groundwater reduction through evapotranspiration and structural soils.

## • Storm Water Management Parks

• Create new storm water management parks on city-controlled land. Link pump stations effluent to new wetland parks.

#### • Rezone Gardners Basin and Delia Basin

- Rezone area around gardners basin and delta basin to allow for industrial /blue economy related land uses.
- Black Horse Pike Strategic Growth Corridor: leverage Black Horse Pike Road Raising project- to create a new boulevard as corridor for economic development in Pleasantville.

## 6. Feedback provided:

Eric asked for their feedback on the three projects that were presented. 1/3 of the money from the project goes into the project but want to hear what resonates the most with the community.

- Greg Schneider from Sommers point agrees that there is a need for the Living Shoreline Plan. It is a great idea to have a master plan to streamline the permitting process.
- Tim from Northfield liked the idea of microgrids especially around the areas that were presented during the presentation.
- Planning team asked if there would there be general support for Bay Keepers?
  - Gregg said that Sommers Point is always in support for activities that support open spaces/nature-based projects.
- Greg from Sommers point also said that Sommers point would have problems elevating streets. Money would be better spent on other things.
- Pleasantville would be in favor of projects like the blue and greenway projects.











# Resilient NJ - March 16- Atlantic County CAC Meeting to Review Draft Preferred Scenarios

# **MEETING MINUTES**

**DATE:** March 16, 2022

**TO:** All Meeting Attendees

FROM: Consultant Team

SUBJECT: Resilient NJ- Atlantic County CAC Meeting to Review Draft Preferred Scenarios

A meeting was held on March 16, 2022, with members from Atlantic County. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Jaclyn Flor	EnGenuity	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	cesanekwe@cdmsmith.com
Jonathan Carey	WSP	jonathan.carey@wsp.com
France Brown	Atlantic County	Brown_frances@aclink.org
John Peterson	Atlantic County	Peterson_john@aclink.org

The following was discussed at the meeting:

#### Introduction

- Bill reviewed the three scenarios:
  - Scenario 1: Mix of actors but public sector leads on key projects. Oriented toward gray infrastructure solutions.
  - Scenario 2: Mix of actors but looks to State, County, and Municipalities to partner on needed resiliency improvements. Mix of gray and green solutions.
  - Scenario 3: Mix of actors but looks to leverage private investment to leverage private investment to help finance needed resiliency improvements. Oriented toward nature-oriented solutions.
  - Scenario 1: Absecon Bay Living Bay Master Plan
    - Provide a framework to establish condition monitoring.
    - Prioritize actions to restore habitats through thin layer sand deposition in targeted locations.
    - Provides public education to recognize the importance and value of back bay tidal wetlands in protecting the region from storm surge.
      - The Absecon Bay Keepers: will be a non-profit organization focused on stewardship of Absecon Bay and working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.
      - Translate all emergency preparedness materials.
      - Evaluate and Improve Preparedness Actions for SVPS

 Action Plan for Housing: adaptation action plan for Atlantic city and Pleasantville housing authority communities and region's senior centers. Solar panels on all rooftops, solar trellises on all surface parking lots, elevate electrical and mechanical equipment.

## **Feedback**

- John Scenario 1 and Scenario 2 mix together well. He would like to see more analysis done about microgrids to figure out best ways/places to implement these projects.
- Back Bay Study and surge barriers are at least 20 years out; nothing will expedite these things; need to stick with the USACE plan (John takes exception with ability to pull off the back bay damns across the ICW).
- Municipalities will only implement what they like or have experience with doing already. The reason new actions are not being implemented is because of funding. Where is the money coming from?
- Pumping can't clear streets at high tide with moon tide; cannot do living streets without major costs. It is better to go with traditional pumping stations. Atlanta City has a canal system that is in despair but looking at that as a resource/at rehabilitation, it can better impacts.
  - John did not realize that the canal system was not a priority of the plans, but John thinks it is an important asset.
- Jaclyn asked if the army corps projects should be added to the preferred scenarios?
  - John said sea walls, break waters, bulk heads, should be added.
- USACE Project will have more environmental impacts than other traditional infrastructure. However, he does not think NJDEP will provide appropriate standards and the funding for the project will be hard to find.
- Bill walked through the projects and asked John and Frances to call out project that would be important or useful.

#### Living Bay Master Plan- consensus that it is a good idea.

- O John says that they have issues with green teams and Resilient New Jersey because they try to be government entities. They come to the county with requests and the county is not set up to deal with NGOs. The county can easily work with other government entities. He does not see this as a regulatory agency, but she also does not see it as having enough teeth, as the Great Scenic River, but the latter option would be the preferred choice.
  - Great Egg Harbor was shared as a good example to follow.
  - Bill clarified that the project is not proposing a new regulatory agency. It's proposing more of an NGO that can advocate for the bay. He asked if the county has the interest of having a role in the project? Maybe have a resilience coordinator?

- Frances said that they would have an interest if it tied with the county's economic development plans. But not if the plan is asking for more of a regulatory entity.
- Jaclyn asked if the plan proposed an entity that worked in taking care of the river, would that be something that would fall under the care of the county? Who would coordinate that?
  - John said that there is not really a department that would coordinate that. Public
    works oversees parks. Regional planning oversees planning open space acquisition,
    land preservation, etc. The department does not work directly with scenic rivers,
    but John believes that there is room to work more on this area.
- Bill asked if the commissioners are interested in helping the county with resilience efforts for the future?
  - John explained that the county is more traditional. The general intent is to keep the taxes down to provide the services the services that need to be provided. However, there have a couple of projects with scopes that are too big for the municipalities to handle/reach objectives.
  - John explained that after the last election, the county has shifted to more Republican based ideals and that impacts planning efforts.

# • <u>Translate All Emergency Preparedness Materials</u>

- o Consensus that this is a good idea.
- o Frances said that the NJ Resilient Institute is working on this project as well.
- Evaluate and Improve Preparedness Actions for SVPS
  - John said that Hurricane Sandy showed the importance of this project.
  - This is a type of project that the county could really work on, especially the public safety department.

## Power and Communications

Consensus that it is a good idea.

## Installation of Solar Panels

- John explained that the county has seen green acres installations and that this is something that should not be encouraged.
- Solar Trellises are not architecturally appealing. However, they are very efficient and have had some success with small businesses. Rooftops are more visually appealing.

#### Microgrids Systems Study

John said that implementation is going to be the key area to figure out.

#### • Bayshore continuous Shoreline Protection

No concerns from the county.

#### Bayshore continuous Shoreline Protection Study

- Bill explained that this project is a bit more controversial. It involves raising streets, raising blocks where there is private development, including waterfront areas.
- John said that bold cutting is the solution. Raising streets have problems associated with it, some communities, including the Down beach communities, are going to give push back, will be against rezoning or anything that will block their view. This might not be an issue for Atlantic City.

#### Absecon Bay Blue/Greenway

o Bill asked if there was a need for this in the region?

- John liked the idea of the blue way. He warned that in the summer it might be extremely hard for those without boats without motors.
- The greenway is a very good idea. It is currently de-facto there—there is a lot of public space in down beach. Longford does not have enough public space.
  - Jaclyn asked if this is the type of plan that the county could write.
  - John said no because the municipalities do not want the county involved in that. Right now, the relationship is that if the municipalities want help with creating more public space, the county can help with funding, GIS data, zoning.
- Jaclyn referred to the beach utility and posed a scenario. If the municipalities
  wanted, the county could advertise a concession as part of an economic
  development plan, the county could have kayaks as part of these concessions and
  those revenues could fund the employees renting out the canoes, and the rest of
  the revenue could be for other maintenance costs. It would be a bay utility rather
  than beach utility. Jaclyn asked who the lead for this type of project would be.
- O John said that if it was tied to an economic development plan, the main county economic alliance is good with reaching out to all different communities. It has been well received county-wide. Right now, the county alliance has been focusing work on the airport, but they do have the potential to work on this type of project. They also have a good relationship with the chamber of commerce.
- John asked if bike sharing has been considered as part of this project? John says that
  it has potential around Atlantic City and down beach.

## • Living Streets Feasibility Study and Pilot Program

- o Bill said that some cities are interested in this, including Atlanta City.
- County said that there were no concerns with this project.

#### • Storm Water Management Parks

- o John said that there was no place on the island to accommodate this project.
- Frances said that the golf course already has a water retention system.
- Echo park- John thinks that it is a valuable area for environmental purposes, but it is at the highest point in the area and is not good for groundwater management.

## • Equitable Economic Development

- John said that the discussion about rezoning the area around the Delta basin and Gardners basin is a really good idea because that is the only area that can accommodate blue economy, including wind energy. There is a substantial fishing fleet. There are some concerns with the bungalow communities there.
- Gardners basin is actually open space and should be discussed. John said this does not fall within his area.

#### Redevelopment Study and Vision Plan for Lower Risk Areas

- Bill explained that there has been pushback from Northville and Pleasantville about up zoning. They want to stay the way they are now.
- Northville will not up zone. Pleasantville has some high-rise buildings and could be more open about it.
- The Atlantic City commercial corridor and the length of Atlanta Avenue is too long and cannot be supported. There is not the population or businesses interest to populate this area. Too sprawly.

# • Bader Field Coordinated Dredge-Site Raising Compact

John said that there will be a lot of regulatory problems.

- Bill reviewed the first feedback slide. The home elevation feedback is that it creates temporary resilience but it in the long term can create problems, especially if not done uniformly. Other folks say it is a way to protect homes for 40-50 years.
  - o John said that Atlanta City is not beneficial, but it is essential for the other areas that are in the lower line.
  - There needs to be a way to front the money and better ways to assist people to stay in these areas who might not be able to afford that.

## **Closing Remarks**

- Bill explained that the planning team wants to create a plan that serves multiple stakeholders and community groups.
- Jonathan mentioned that DEP informed the planning team that won the competition but have not received any news about additional funding.
- Jaclyn and Bill said that DEP originally had reserved 250,000 for implementation.
  - Jonathan clarified that there is already money for implementation but this would be additional money.













# Resilient NJ – March 17, 2022 – American Red Cross, VOAD, and Tri-County COAD CAC Meeting

# **MEETING MINUTES**

**DATE:** March 17, 2022, at 2:00 pm

**TO:** All Meeting Attendees

FROM: Consultant Team

SUBJECT: Resilient NJ- American Red Cross VOAD and Tri-County COAD CAC Meeting

A meeting was held on March 17, 2022, with CAC members of the American Red Cross, VOAD, and Tri-County COAD. The meeting was held via Teams. The following community stakeholders were in attendance:

First Name	Last Name	Email	Stakeholder Type
Ed	Blanchard	edward.blanchard@redcross.org	American Red Cross

Project team members present at the evening session included:

Name	Firm	Email
Jordan Exantus	CH Planning/Nspiregreen	jordan.exantus@nspiregreen.com
Amy DiCarlantonio	WSP	amy.dicarlantonio@wsp.com
Jaclyn Flor	Ingenuity	jflor@engenuitynj.com

The following was discussed at the meeting:

# I. MEETING:

#### 1. Introduction

- Amy DiCarlantonio, WSP, introduced the project's goals and objectives and she reviewed the timeline and the next steps coming up for the project.
- Jaclyn, Engenuity NJ, reviewed the outreach activities that have happened since the beginning of the project, the current stakeholder outreaching happening, and future plans for outreach.
  - Primary themes from the input include connection to the water (bay, beaches)
     value of diversity (people, landscapes, modes of transportation, economy.)
  - She explained that every proposed project is responding to the input provided by stakeholders.
- Jaclyn explained that the project is seeking to come up projects that are efficient, costeffective, and beneficial to vulnerable populations.

• Jaclyn also explained that the American Red Cross and the county are the glue entities. They can look at everything holistically and not only through a local specific lens.

# 2. Project Vision and Public Engagement

- Jaclyn Flor, shared the vision that leads the project development, especially public and stakeholder engagement.
- Jaclyn reviewed some of the public and stakeholder engagement activities. She described the conversations with tri-county COAD.
  - COAD has provided critical input about the experience of members from vulnerable communities during emergency evacuations. This input has helped the planning be aware of these perspectives and include them into the project development process.
- She reviewed feedback that has been received from the public:
  - i. The region is proud of its diversity, competitive economy, and its tourism.
  - ii. There is a connection to the "water" in the region. People come to connect with nature, oceans, and bays. Blue economy is very important for the people in the region.

## 3. Resilience & Adaptation Strategies

- Amy reviewed the list of assets that make up the region. She explained that the team had to categorize the assets as shown on the presentation slide.
- Amy described the target dates leading the project including the 2030, 2050, and 2070 dates and the assets that are at risk and need to be protected.

# 4. Scenarios

- Amy discussed the 3 scenarios:
  - a. **Scenario 1:** A centralized approach by looking at federal governments to lead the efforts with local governments and focuses on gray infrastructure. This scenario is reliant on flood gates, flood walls, raising streets, and pump stations.
  - b. **Scenario 2:** is a mix of green and blue solutions and looks at state and local government partnerships. It is looking at a mix of hard infrastructure mechanical solutions as well as nature-based solutions.
  - c. Scenario 3: is decentralized and relies on non-profit and private sector partnerships together with state, federal, and local governments. This includes living streets and decentralizes solar and battery power plants.
  - d. For specific information about each plan, please review the presentation slides.
- Eric said that the scenarios and their components were to be seen a la carte. Elements from different scenarios can be combined.
- Actions that can be included are flood mitigation projects, capital improvement projects, future studies/analysis, planning and regulatory actions, communication and outreach activities.

 Key Challenges to Address based on the input provided: shoreline protection, stormwater, access and transportation, power and communications, equitable economic development, public facilities.

## 5. Proposed Actions and Project

These were actions that were being proposed for all three scenarios. These are actions that affect the whole region.

- Living Bay Master Plan- focuses on the bays in the region with the understanding that the bays are is extremely important.
  - Bay Keepers there have been other nonprofit organizations like this one in the region, but there wasn't any specific group that advocated for the bay alone.
     Looking to continue coordination with organizations that are already working on the bay.
- Translate All Emergency Preparedness Materials
  - Paul provided the team with a lot of preparedness materials, and some were in Spanish.
  - However, most materials were not translated, aside from Spanish. There is a high amount of people with Limited English profiency in Atlanta city and Pleasantville.
  - Even if materials were translated in Spanish, there were not people who spoke
     Spanish during an emergency.
  - CHPlanning found during the focus groups that young people were excited to have a long-term preparedness activity. They felt that if someone explained that to the youth, they could help prepare their families.
- Amy explained that most of the information gathered focused on emergency preparedness.
   Input was broken down into four categories: shelters, evacuation, outreach and education, and social services and wellness.

## Feedback:

- The Red Cross has youth programs at schools. Those can be adapted for any youth group.
- The school groups focus on blood banks but there are some programs that offer preparedness training.
  - o Prepare with Pedro- Kindergartens to 3<sup>rd</sup> grade.
  - o Pillowcase project- 4th or 5<sup>th</sup> grade
  - Disaster Education- anything 5<sup>th</sup> grade.
- Red Cross has a lot of materials for reaching out to young people.
  - o Workbooks, quizzes, preparedness tips.
- The problem with materials and translation- you can translate into Spanish but there are different Spanish dialects.
  - The best approach is to work with the community and figure out which Spanish communities you are trying to reach.
- Ed says that there is a community leader wanted to teach the material to people, they are happy to provide the materials.

- Picture boards it shows photos of different types of food and numbers. People can signal the food that they want and the number that they need.
  - Not a perfect method but a good tool to have during emergencies.
- Neighborhood captains- through the mayor's office.
  - People who represent the needs of their communities during emergency situations.
     Usually those who speak English and advocate for their families. This is a method that can be adapted for future use.
- National Shelter System- a system that shows available shelter. It can be used in different languages.
  - But it needs to be downloaded to a phone. And people need to be trained how to use it.
  - Other family members in other cities can set it up and help their family members in the local area.
- American Sign Language what to do if a person that speaks another language other than language? You can't use ASL. That's a different type of service that is needed during emergencies.
- Amy asked how can the Red Cross models be expanded?
  - Ed said they can look at current youth clubs and analyze ways to partner up with other organizations.
  - o If there are no youth groups but there is a lot of interest, they are happy to come and start some programs.
  - Need for preparedness materials but also what to do after an emergency event?
     What to do after coming home?
- Ed believes that outreach and education is a good area to focus on and with potential to expand upon what the Red Cross has already been doing.
- Ed explained that for shelters, the team should discuss what kind of shelters need to happen. Partnered shelters? Shelters solely run by the Red Cross?
  - The supportive community lane once a year, communities come and talk about shelter needs in NJ.
- With actions relating to shelters, Ed says there are a lot of layers, including figuring out who's responsible to manage programs, who's going to pick up the bill, who is getting the benefits (special arrangements for vulnerable communities). It will take longer to move these plans forward. Outreach and education is something that can start ASAP and can be built upon activities already going on.













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# Community Conversation: Limited-English Proficient Individuals - Resilient NJ

# MEETING MINUTES

DATE: 5-11-21

SUBJECT: Community Conversation Summary: LEP

Resilient NJ - Atlantic County Coastal Communities (ACCR)

A meeting was held on May 11, 2021 at 5:00 PM with La Casa Domenicana to discuss the Resilient NJ Project. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Nieves Garcia Pimienta	Rutgers-POET	Nieves.pimienta@rutgers.edu
Miriam Salerno	Rutgers-POET	miriam.salerno@ejb.rutgers.edu
Sarah Tomasello	Rutgers-POET	sarahtom@ejb.rutgers.edu
Julio Mora	Rutgers-POET	jcm328@scarletmail.rutgers.edu
Alyssa Curran	WSP	alyssa.curran@wsp.com
Lilliam Nunez	Community Food Bank,	Inunez@cfbnj.org
	Mental Health Organization	
Luis Rodriguez	La Casa Dominicana	lrodriguez@lacasadominicananj.org
Esther Bravo	La Casa Dominicana	esther0208bravo@gmail.com
Nilda Ramos	La Casa Dominicana	pinky7pet9@yahoo.com
Dr. Pedro Santana	La Casa Dominicana	pedrosantana2001@icloud.com
Celeste Fernandez	La Casa Dominicana	fernandezatlanticcounty@gmail.com
Joy Pinero-Deniz	Ideal Technology Institute	joyjpd8@gmail.com
Pilar Santos	La Casa Dominicana	pilarsantos976@gmail.com
Miguel Escoto	La Casa Dominicana	escotomiguel159@gmail.com

# Part 1: Introductions and Welcome

- The facilitator welcomed participants and introduced project staff members who were present.
- The facilitator explained the agenda for the conversation and provided background about the Resilient NJ project.

# Part 2: Past Disasters and Related Challenges

The facilitator guided participants in a conversation about their experiences with past disasters and how these disasters have impacted their communities. Participants introduced themselves and described the following challenges:

• Participant #1: Resident of Chelsea Heights, Atlantic City. She described the significant damage caused by 2 inches of rain and the resulting flood. She obtained funding from the Salvation Army to pay for home repairs after the flood. Although

she was able to repair the house, she was not able to raise the structure because she knew she would ultimately lose the house. Her house was a duplex; the owner of the adjacent duplex was able to raise their structure. During the repairs, she had to relocate for a period of eight months, with four months were spent in a hotel. Because of this experience, the need for adequate housing is very important to her and she has noticed more residents also fixing and raising their homes. She believes that it is important for people to make those repairs if they can afford it.

- Participant #2: Resident of Pleasantville. This participant had not personally experienced a natural disaster but knew of others who had. The only issue that he has experienced has been fallen trees after a storm.
- Participant #3: Resident of Hamilton Township in Mays Landing. This participant worked for Stockton University in Atlantic City for 9 years where he coordinated disaster recovery efforts during Hurricane Sandy, Hurricane Irene, and others storms. During these major storms, his office assisted students who had lost their homes and belongings or had no way to travel to school. His office followed up with professors to inform them of student challenges, purchased new textbooks and other supplies for students, and extended student loan programs.
  During Hurricane Irene, his office participated in an effort called Big Blue where the university's sports center opened up as a temporary shelter for 800 to 900 persons. This effort faced several difficulties, including 2–3-hour delays and limited to no food available within the shelter due to lack of internal coordination. He stressed the need for food and medical assistance during emergency evacuations. During the evacuation, he was concerned about several buses that spent an excessive amount of time in transit before evacuees were able to rest or receive food.
- Participant #4: During the last hurricane she lived in Galloway, one block away from the beach. Fortunately, her family was prepared to evacuate, however her neighbors were not so fortunate. They ended up being trapped in the second floor of their home when the flood level rose to 4 feet. She observed that residents received inconsistent information and stressed the importance of a consistent evacuation plan so that residents are aware of evacuation, food assistance, and relocation procedures.
- Participant #5: Resident of Galloway. She was affected by power outages during the hurricane, but she generally felt prepared. Her Atlantic City friends were less fortunate. For example, the first floor of many of their homes were completely flooded.
  - She stressed the need for personal responsibility, including the need to keep all important documents and other essentials secure and easily accessible in case of an evacuation. She has personally witnessed the difficulty of losing such documents, particularly for the immigrant community. She noted that it is important for people to educate themselves about evacuation procedures.

- O In her role as a mental health service provider, her agency was one of the companies responsible for providing assistance. From a mental health perspective, her agency noticed heightened levels of anxiety and compulsive hoarding after the loss of possessions. She has also noticed heightened anxiety during the pandemic. More mental health assistance is needed in the area.
- Participant #6: Resident of Galloway. This participant is a recent resident and has not experienced any natural disasters. However, she has heard stories from other residents. One person told the participant that she was not home during the time of Hurricane Sandy, and she came back to the area to find her home destroyed. This participant emphasized the importance of having essential documents and items easily accessible to be able to evacuate easily and efficiently.
- Participant # 7: This participant noted that many of the problems that the natural disasters caused were problems that were already present. The problems were only exacerbated by the disaster. Participants noted the following issues that are exacerbated by disasters:
  - o Poverty and the need to help immigrants
  - People that are in better social/economic circumstances are less likely to suffer as a result of the natural disaster.
  - People do not pay enough attention to communication about disaster readiness and therefore have little defense capabilities during natural disasters.
  - There is a need for further research about why issues with evacuation and relocation continue to recur as a result of natural disasters. The consequences of a disaster in the area have happened in the past. Conduct research in similar places that have been more successful in withstanding disasters.
  - Some residents prefer to stay at home during storms because of a fear of having their personal belongings stolen during relocation.
  - Single parents not only have to relocate their households but also assist their children through the evacuation and relocation process. They might need special assistance.
- Participant #8: Resident of Atlantic City. She has experienced power outages and has felt anxiety about how best to handle the situation for herself and her children. She stressed the need for education to be prepared in the event of a natural disaster.

# **Part 3: Community Assets**

Participants shared their ideas and thoughts about what community assets and important places are most important to protect from future disasters. The facilitators began this section of the conversation by reviewing different types of assets and examples of assets.

Assets mentioned by participants included:

- Transportation
- Public health
- Hospitals and medical services
- Schools
- Recreational services
- Accessibility to food and food assistance
- Consistent communication among community members
- Efficient internet connection for on-going communication
- Education
- Consistent community meetings
- Infrastructure
- Protection for youths and older adults
- Educational services
- Holding stakeholders accountable

# Part 4: Vision for the Future

Participants considered what they want their community to be in five or ten years and described their visions for a safer, more resilient future. They shared the following visions:

- A community where everyone is employed
- An informed community
- A community where everyone has access to resources and information
- A well-prepared community
- There is no digital divide
- There is no prejudice and there is inclusivity for all
- A community that exhibits Christian values
- The vulnerable groups (such as the homeless) are taken care of











# Community Conversation: Low Income Individuals - Resilient NJ

# MEETING MINUTES

DATE: 5-15-21

**SUBJECT:** Community Conversation Summary: Low Income

Resilient NJ - Atlantic County Coastal Communities (ACCR)

A meeting was held on May 15, 2021 at 5:00 PM with Family Success Center to discuss the Resilient NJ Project. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Nieves Garcia Pimienta	Rutgers-POET	Nieves.pimienta@rutgers.edu
Miriam Salerno	Rutgers-POET	Miriam.Salerno@rutgers.edu
Jaclyn Flor	Engenuity	flor@engenuitynj.com
Kia Jones	Success Family Center	kjones@acendahealth.org
Donna McClary	Unmask Joy	Unmaskjoy@gmail.com
Jamika Spellman	Success Family Center	jspellman@acendahealth.org
Bert Lopez	Hispanic Association Atlantic	bert.lopez@atlanticcityelectric.com
	County	haacnj@gmail.com
Jessie Keedy	Salvation Army	jessie.keedy@use.salvationarmy.org

## Part 1: Introductions and Welcome

- Facilitators and participants briefly introduced themselves. All participants worked or lived in Atlantic City and had limited resources and low incomes.
- Rutgers POET partnered with Family Success Center to recruit participants for this group. Staff from the center participated in the focus group by describing the challenges that clients of the center have faced.
- Nieves Pimienta gave a short presentation on resiliency and disaster preparedness. Ms. Pimienta also explained the structure of the community conversation and how the discussion would be divided into three parts: past disasters, community assets, and visioning for the future. She described the importance of community input in the resilience planning process in order for policymakers and technical experts to understand what is truly important to residents and how residents experience disaster events and resilience measures on the ground.

# Part 2: Past Disasters and Related Challenges

The facilitators guided the participants in a conversation about their experiences with past disasters and how these disasters have impacted low-income residents in the area.

Participants shared first-hand experiences as well as the experiences of clients, customers, and volunteers. Below is a list of challenges described during the conversation:

- *Conflicting information:* Participants felt that officials poorly communicated evacuation and disaster preparedness information leading up to and following Superstorm Sandy. There were mixed messages and conflicting information from various sources. Participants shared the following details:
  - Officials did not adequately communicate the seriousness of the evacuation order.
     Many residents did not understand that danger was imminent. The mixed signals and conflicting information from officials contributed to resident ambivalence about evacuation.
  - There was conflicting information from city hall and the state government. This
    problem was so severe that the resulting confusion made it to Saturday Night Live
    and was a source of embarrassment for the region.
- **Proactive information sharing:** Participants suggested that organizations need to share information through social media rather than wait for residents to visit a website. The information shared must be clear, accurate, and reliable.
- *Language barriers:* There was not sufficient information provided in Spanish. Language barriers contributed to poor communication overall.
- **Poor treatment of shelter volunteers:** One participant noted that volunteers (many of whom were interpreters) at shelters were not treated well and did not feel welcomed or readily embraced. One participant recommended providing incentives for volunteers to compensate them for their time. The Red Cross has paid staff but relies on the work of volunteers who should also be compensated in some way.
- *Lack of renters' insurance:* Renters did not always have insurance to cover the loss of their homes and personal belongings.
- *Challenges for people with autism:* People with autism and other special needs were not adequately considered in the disaster response. They felt completely left out of the planning process.
  - One participant stressed the importance of having a designated shelter for children with special needs. During Superstorm Sandy, they were placed in crowded buses and taken to crowded shelters that were overstimulating and challenging for them.
     The food provided in shelters was not necessarily suitable for them.
  - Many kids and teenagers with autism experienced cascading challenges with longterm impacts as a result of leaving their homes, being relocated, and witnessing the stress felt by their families and caregivers.
  - Disaster situations can trigger unwanted and unhealthy emotional and psychological responses in autistic kids and teenagers. After enduring these challenges, they are expected to quickly bounce back, return to school, and exhibit good behavior.
- **Disaster preparedness education for parents:** One participant noted there is funding for preparedness education, but it never reaches Atlantic City. Parents can be educated before a

- disaster event happens as a way to supplement the preparedness and evacuation activities of organizations like the National Guard.
- Applying for disaster assistance: The documentation required to access assistance can be challenging to complete for disadvantaged and vulnerable populations. For example, challenges in accessing unemployment and rental assistance in order to weather the COVID-19 pandemic continue to persist. Help with rental assistance is a major need right now as some renters have gotten very far behind in payments. Currently, it is challenging for them to go through South Jersey Legal Services for aid and assistance.
- *Digital divide and accessing assistance:* During the COVID-19 pandemic, many people, particularly older adults and Hispanic residents, were unable to apply for unemployment assistance because they did not have access to a computer or smart phone. Participants had several suggestions to mitigate this digital divide:
  - a. A special team should be available to help community members access social service programs. They could provide information about assistance programs, assist with completing paperwork, and assist with using technology. The participants, and the organizations they represent, received many requests for help from seniors, including the need for alternative methods to submit required paperwork.
  - b. The Hispanic Association of Atlantic County is looking to provide training on how to use smart phones. They are offering a "how-to" course to maximize smart phone use.
  - c. Many residents who are immigrants do not qualify for unemployment payments and other assistance. Volunteers were able to distribute food to this population, however, they did not qualify for other assistance and many were not tech-savvy. There is a need to distribute information through non-digital channels, improve knowledge about resources, and better distribute aid. One participant suggested a specialized bilingual team should provide assistance.
  - d. The pandemic is a present issue that many residents are still dealing with. There is a high rate of unemployment and many residents are in need of legal services and support.
  - e. In their work with homeless populations, the Salvation Army relies on word of mouth. Most of the people they serve do not have access to the internet or smart phones, so the Salvation Army relies on relationships with other grassroots organizations to promote their services and receive referrals. During Superstorm Sandy, residents visited the local Salvation Army site to ask about available services, and the organization advocated and searched for additional funding to continue servicing clients affected by Superstorm Sandy.

# **Part 3: Community Assets**

Participants shared their ideas and thoughts about what community assets and important places were most important to protect from future disasters. The responses from participants were diverse, ranging from physical infrastructure, to services, to cultural assets. Assets mentioned by this group included:

Housing

- Being able to get to your job via transportation infrastructure
- Being able to access social services at government offices and churches
- Social and cultural assets are also important. They provide an important sense of togetherness and make the community feel connected and secure. Schools, libraries, and churches are examples of these types of assets.
- Access to the internet, phones, and social media keep people in contact during a disaster. It is important to have a place to charge your phone and access the internet.
- Banking services
- One participant mentioned that identifying what assets are important really depends on the duration, type, and timing of the disaster event. When the disaster first hits, physical safety is most important (housing, infrastructure, etc.). However, depending on how long the disaster lasts and the trajectory of recovery, other assets, such as financial assets, become more important.
- Residents need to have all of their important documents handy so they can apply for services when needed.
- Low-income and minority residents may not understand the need for home visits in order to receive benefits and they may not allow these visits to occur. This can hinder them from receiving assistance.

## Part 4: Vision for the Future

Participants considered what they want their community to be in five or ten years and described their visions for a safer, more resilient future. They shared the following visions:

- A community that is counted and considered, especially for members of the Latino
  community who often feel secondary. Preparedness and resilience messaging must be
  distributed at a grassroots level in order to build awareness in the Latino community, many
  of whom lack information and resources.
- A community that is fair, exhibits equity and is well informed. Atlantic City is often left out because of residents' lack of understanding.
- A community that is together, all on one page.
- Atlantic City should be in the same "playing field" as other communities.
- A community with access to resources.
- A community that is more informed.
- Social services, especially homeless shelters, should be more accessible outside of Atlantic
  City. When someone in the region is homeless, they are sent to Atlantic City. Some people
  come from different states because Atlantic City is known for providing services. The dense
  population of vulnerable residents makes it very difficult for Atlantic City to recover from
  disasters.
- The community applies for and receives assistance in a timely fashion.
- An organized and informed community. Have a repository of information that is easy for the community to access.
- The Salvation Army serves as a hub for information and more residents are aware of its services.











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# Civic Association Resident Advisory Group Meeting - Resilient NJ

# **MEETING MINUTES**

**DATE:** June 10, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR) - Civic Association Resident

**Advisory Group Meeting** 

A meeting was held on June 10, 2021 at 5:00 – 6:30 PM with the Civic Associations Resident Advisory Group to discuss the Resilient NJ Project. The meeting was held via Google Meet. The following were in attendance:

Name	Organization	Email
Tony Vraim	Atlantic City Zoning Board	vraim811@comcast.net
David Grossman	Margate Homeowner's	grossdoc@yahoo.com
	Association	
Louis Strugala		Istrugala@yahoo.com
Bill Sill	President of St. Leonard's	wjstelecommlaw@gmail.com
	Tract Homeowner's	
	Association	
Tom Heist	Heist Insurance	Theist@heistinsurance.com
Dena Ferrone		Denaferone@gmail.com
Irvin Moreno		irvin.moreno.rodriguez@gmail.com
Michael Cagno	President of Ducktown	mcagno@noyesmuseum.org
	Neighborhood Association	
Surajit Chowdhury	City of Atlantic City	schowdhury@cityofatlanticcity.org
Walter Johnson	Atlantic City School Board	2walterjohnson@comcast.net
Frank Becktel		becktel@comcast.net

The following was discussed at the meeting:

- 1) Past Experiences We asked residents about their past experiences with disasters. The conversation centered on the experience with Hurricane Sandy in 2012.
  - a) Infrastructure
    - i) Impacts included roads and sewer lines floating up
    - ii) Infrastructure should be the responsibility of the government
      - (1) All homeowners required to put in new sewer lines rather than Atlantic City address the issue with the system
      - (2) Lack of government responsibility to clean up the sewers led to costly mold issues in many homes

iii) Atlantic City High School served as a resource center, but it needs more resources to help the community

### b) Scams & Safety

- i) There were many scams and people taking advantage of vulnerable people after Sandy
  - (1) Many families were left to fend for themselves after the grant funding ended because grant funding is not sustainable
  - (2) REM grants \$150,0000 sounds like a lot of money, but it often did not cover what was needed to fix the house. Many people spent unwisely or were left with projects half complete when the money ran out.
- ii) There was looting after the storm, which may make people less likely to evacuate next time
- iii) Many people are still not recovered, either living in moldy homes or forced to leave because they ran out of money to finish repairs or elevate their homes above the flood level.

#### c) Lack of knowledge

- i) Emergency relief and assistance programs were not well coordinated, priorities were not always aligned and equitable, some efforts were redundant while others were left out. Lack of centralized organization of assistance programs made it difficult to navigate and find the programs you needed.
- ii) Politicians need to get to know their City and its residents
- iii) Many people do not have access to the internet in Atlantic City, need to consider this when getting messages out especially in the immediate aftermath when electricity and internet connections may be down
- iv) People who evacuated and second homeowners did not know the status of their home
  - (1) Many called the police to ask about their homes exactly at the time when the police needed to be helping with the recovery.
  - (2) Then people started coming to the islands to try to see the damage, which meant police had to keep people from entering the islands as they tried to focus on the response.

### 2) What should be done in the future?

- a) Assets
  - i) Consider grocery stores and pharmacies as critical infrastructure needs this was made evident during the pandemic
  - ii) Schools and playgrounds are important for children and communities
- b) Coordinate Services
  - i) Centralize services and resources in a few locations
  - ii) Take care of people's immediate needs with food, shelters, clothing, and money after a disaster
  - iii) Designate a person for resilience with true authority to make decisions at the County level
    - (1) Every County has different concerns, experiences, cultures, so County level is good. Need to combine state and non-profit resources.
  - iv) Need access to legal aid
    - (1) After Sandy there were many contractors taking advantage of people, which was especially easy because attorney review of contracts was not required. Before people get more than \$5-10k, there should be an attorney review to ensure the homeowner is protected.
  - v) Create a list of trusted contractors and other support services
  - vi) Treat everyone the same do not prioritize homeowners over renters and second homeowners
  - vii) Create bridge loans to elevate housing because it is currently a reimbursement program and people are borrowing money they cannot pay back

- c) Infrastructure & Zoning
  - i) Consider infrastructure a public good and do not have each homeowner pay for a new sewer connection when it could be solved as a system problem
  - ii) Invest in infrastructure including roads and transit
    - (1) Many sinkholes were due to previous poor patching jobs
    - (2) Many people lost their personal automobiles and were left without the ability to travel in the aftermath
  - iii) Consider playgrounds, recreation centers, and schools as critical infrastructure for community children in the immediate aftermath
  - iv) Elevate or redevelop row homes as a group they cannot be raised individually
  - v) At what point do you stop people from building on the ground level?
    - (1) Create a Blue Acres program to keep areas that are extremely flood prone from being rebuilt time and again. These spaces can become open space used in new ways, similar to the Netherlands "Room for the River" Floodway Program creating designated spaces for flooding. In dry times, they can be parks and open space.
- d) Education & Awareness
  - i) Reaching people
    - (1) Create a centralized information portal online to help people find comprehensive information about how and where to find help
      - (a) It should include information like encouraging people not to call the police or visit the area immediately after the storm
      - (b) It should also offer tips on what to do BEFORE a disaster happens
    - (2) Use the automated phone call system the schools use to reach people who may not have internet
    - (3) The best way to reach people in Atlantic City is with the civic associations/CDCs
  - ii) Communicate the successes
    - (1) Atlantic City zoning was updated after Sandy and flood risk considerations have been integrated.
    - (2) Atlantic City has done a great job enforcing FEMA rules and getting the CRS points discount on flood insurance for all residents
    - (3) Communicate the benefits that dunes, sea walls, storm drains, and bulkheads have had in protecting the area it has been political in some areas, need to educate the community to gain support
- 3) Vision We asked residents about their vision for a safer, more resilient community.
  - a) Residents shared that they envisioned a future where the government helps people understand the risk of climate change and creates partnerships so there can be one central location for resources and services before, during, and after disasters.
  - b) Another resident shared that there is a study about how Wal-Mart had their stores open within three days of disasters, but it took FEMA a week to get people to the sites. The residents hoped the region could be more like the Wal-Mart example than the FEMA example.
  - c) Finally, residents understood that they live on barrier island and so they must learn to live with the water. They hope that resilience strategies can help them live with the water so they can remain on the islands for another 100 years.

#### **Action Items:**

 Next focus group will be held in September, CHPlanning to reach out at least one month in advance to choose a date.











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Community Conversation: People with Disabilities - Resilient NJ

### **MEETING MINUTES**

DATE: 6-16-21

SUBJECT: Community Conversation Summary: People with Disabilities

Resilient NJ - Atlantic County Coastal Communities (ACCR)

A meeting was held on June 16, 2021 at 5:00 PM with Unmask Joy to discuss the Resilient NJ Project. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Nieves Garcia Pimienta	Rutgers-POET	Nieves.pimienta@rutgers.edu
Miriam Salerno	Rutgers-POET	miriam.salerno@ejb.rutgers.edu
Jonathan Carey		jonathan.carey@wsp.com
Donna McClary	k Joy	unmaskjoy@gmail.com
Joy Pinero-Deniz	Ideal Technology Institute	joyjpd8@gmail.com
Tyonna Holloway	Unmask Joy	Hollowayt721@gmail.com
Valerie Love	Unmask Joy	Valerielove42@gmail.com
Alouis Hampton	Unmask Joy	aloishampton@gmail.com
Waheedah Mannan	Unmask Joy	Newworldp@msn.com
Carlene Rush	Unmask Joy	rush.carlene@yahoo.com

### Part 1: Introduction and Welcome

- The facilitator and co-host introduced themselves. Participants gave brief introductions stating their first name and town of residence. Towns of residence included Atlantic City and Pleasantville.
- The facilitators gave a short overview of Resilient NJ and its purpose. The facilitator
  explained how the community conversation would support the planning process,
  stressing the importance of learning from the events and challenges residents have
  experienced on the ground.
- The facilitator thanked Donna McClary from the organization Unmask Joy for partnering with the Resilient NJ team to recruit participants.

### Part 2: Past Disasters and Related Challenges

Participants discussed past disasters, the challenges they experienced as people with special needs, and how they were able to address or cope with these challenges. Participants noted the following experiences:

- One participant stressed the importance of having a designated shelter for people with disabilities. When Superstorm Sandy hit, residents were taken to crowded shelters that were unhealthy environments for some autistic people.
- The food provided at shelters should observe dietary restrictions and food allergies.
- The cost to raise a home is not always fully covered by insurance and can be unaffordable, especially if the homeowner already has limited resources.
- One participant is still paying \$150 per month on a loan she received to pay for repairs
  to her house, which did not include having the house raised. She wished that there had
  been more transparency around how much she would need to pay for the repairs,
  because it is difficult for her to make that monthly payment while retired. "They should
  be honest with you and tell you exactly how much you need to put to whatever they're
  giving you. I will probably die before paying it off."
- There should be more transparency about how long repairs will take. If home repairs take a long time to complete, the circumstances of the homeowner can change in the middle of the construction project. One person could not be in her home for 3-4 years while it was being raised, and the staircase had to be redone in the middle of the project because she developed a knee issue while waiting for the repairs. Participants also described seeing their neighbors' home repairs never completed.
- Two participants stated that there were not enough evacuation vehicles. Residents had to wave down trucks to find these were at capacity. Often trucks did not return. Consequently, some residents were left behind despite the call to evacuate.
- Not all evacuation vehicles can accommodate people with medical issues or medical devices (like a walker). Even when advance notice is given, sometimes the medical transport service cannot accommodate these needs.
- Evacuation personnel should be trained in how to properly move medical devices and people with disabilities, including how to lift a person with a disability and how to lift move a wheelchair into an evacuation vehicle.
- Have an alternative transportation system for the after math. One participant was in high school during Superstorm Sandy period, and she had to be driven instead of taking school bus; school buses were not doing pickups at hotels.
- One participant noticed that many homes smelled of mold, suggesting that no repairs
  were made after a flood. There should be more property inspections to identify and
  minimize this type of situation, including holding property managers accountable for
  making repairs. A map of communities that need repairs or have negligent managers
  will help in improving negligence.
- During Superstorm Sandy, people in wheelchairs and with special needs were put in hotels that were not accessible and many ended up returning to their homes despite flood conditions.

- Participants felt that the government was not effective in assisting with emergency housing. Agencies would create programs and quickly discontinue them. One participant lived in four different motels before moving to a FEMA hotel. One participant was helped by a government office to put a security deposit on an apartment.
- There was no supervision of contractors.
- People with special needs need to evacuate with their medical records and equipment, in addition to clothes and medicines.
- Shelters should have power outlets for medical devices and accessible bathrooms. The food available should accommodate people with special diets and allergies.

### **Part 3: Community Assets**

The facilitators led participants in a discussion about what community assets they feel are most important to protect from future disasters. Responses included:

- Utilities, cell towers, power plants, and anything that would support having access to the internet.
- Libraries, books, and important documents that can be destroyed during a disaster.
   Residents should use the library to scan and digitize important documents. There could be outreach and education programs showing people how to digitize documents in case of a disaster.
- Continuity of therapy for people with special needs is important. One participant works as a therapist for kids with autism who can be disturbed by missing an appointment or having their schedule changes. Even having therapy online rather than in person can still be helpful.
- Medical facilities
- Government buildings and services. It is difficult to get through to the IRS to file documents during a disaster.
- Housing

#### Part 4: Vision for the Future

Participants considered what they want their community to be in five or ten years and described their visions for a safer, more resilient future. They shared the following ideas:

- 'To have knowledge and information provided to them as in other communities'
- Have the same resources as in other communities.
- Better communication and resources during and after disasters.
- Community drills to practice what to do in an emergency.
- The community is all on the same page.
- Everyone is prepared before a disaster based on education and practice drills.

- More information available about where people can access vital things like food, oxygen tanks, insulin, medicine, blankets, and showers in the event of a disaster.
- Prepared hospitals, a community with established relationships. Hospitals only have 3-4 days of supplies. They need a plan, perhaps including an agreement to borrow supplies from other states in the event of disaster.
- A community that is prepared for people with disabilities.
  - Need a plan for sheltering people in a place that is safe, clean, and healthy, especially for those with special needs.
  - "Just like they stockpile ice for the roads, you know a hurricane is coming up the coast—at least put some plans in place to get people somewhere safe."
- Hold monthly information sessions about resources and programs available for disaster preparation and assistance.











Community Conversation: Older Adults - Resilient NJ

### MEETING MINUTES

DATE: 6-17-21

**SUBJECT:** Community Conversation Summary: Older Adults

Resilient NJ - Atlantic County Coastal Communities (ACCR)

A meeting was held on June 17, 2021 at 2:00 PM with BERON Jewish Older Adults Services to discuss the Resilient NJ Project. The meeting was held via Zoom. The following were in attendance:

Name	Organization	Email
Nieves Garcia Pimienta	Rutgers-POET	Nieves.pimienta@rutgers.edu
Miriam Salerno	Rutgers-POET	Miriam.Salerno@ejb.Rutgers.edu
Alyssa Curan		alyssa.curran@wsp.com
Adrienne Epstein	Beron Jewish Older Adults Center	beronjoas@hotmail.com
Lori Scarpa	Beron Jewish Older Adults Center	l.chat1427@gmail.com
Gail Scherzer	Beron Jewish Older Adults Center	directress1102@yahoo.com
Emmy Todd	Beron Jewish Older Adults Center	toddemma73@gmail.com
Bernice Belfont	Beron Jewish Older Adults Center	beegee08@aol.com
Earl Warman	Beron Jewish Older Adults Center	warman123@verizon.net
Howard Rosenfeld	Beron Jewish Older Adults Center	howydooin@gmail.com
Jeanne Sackman	Beron Jewish Older Adults Center	hgrosin@gmail.com
Dawn Nieves	Beron Jewish Older Adults Center	jeannerita423@gmail.com

#### Part 1: Introductions and Welcome

- The facilitator and co-host introduced themselves. Participants gave brief introductions stating their first name and town of residence. Towns of residence included Margate, Linwood, Ventnor, and Ventnor Heights.
- The facilitators gave a short overview of Resilient NJ. The facilitator stressed the importance of public involvement in the planning process.
- The facilitator thanked Adrienne Epstein, Executive Director of the BERON Jewish Older Adults Services organization, for partnering with Resilient NJ to hold the community conversation and recruit participants.

### Part 2: Past Disasters and Related Challenges

Participants discussed past disasters, the challenges they experienced as older adults, and how they were able to address or cope with these challenges. Participants noted the following experiences:

• **Power outages:** Most of the participants had experienced power outages during a disaster.

- Power outages are happening more often and often last for more than two days.
- Not everyone can afford a generator. Being without electricity for more than two days becomes very challenging.
- Power outages are challenging for people who live in areas that are often the last to have power restored.
- One participant sits in their car for air conditioning during summer storm power outages.
- One clinic lost electricity and refrigeration for flu vaccines, medications, and food.
   Atlantic Electric kept them updated on electricity status.
- Coastal residents went without electricity for five days and were not allowed back to their neighborhoods.
- Evacuating with pets: Residents need to better understand how to prepare for an emergency
  with a pet. Pet owners need to have their pet's medical records, pet food, and find
  accommodation.
  - One participant could not find a hotel that would accept their two large dogs.
  - Pet owners need to have records and vaccine documentation handy, which is not always easy in an emergency.
- Keeping track of important documents: Residents discussed the need to have documents and
  information easily available when evacuating. One participant was told to write her social
  security number on her shoes.
- *Helping others:* Participants noted the importance of helping others during disasters. One participant hosted her in-laws for an extended time because their house had flooded.
- Damages to homes: Many participants experienced costly, extensive damages to their homes.
   Repairs took many months and required relocation. They had to throw out many belongings, including food. One participant suggested the need to save money for the cost of home repairs and staying in a hotel.

#### • Experiences during Superstorm Sandy:

- o Elderly residents were isolated and their children could not enter the city.
- One participant stayed with family in Pennsylvania during the week of Superstorm Sandy and was not allowed to return home for some time.
- One participant had to work and had difficultly driving through flooded roads to get to work in Atlantic City.
- Other participants had to stay in hotels. One participant's wife was ill during one of the storms. This was very challenging and stressful.
- Another participant was out of the country during Sandy, and had to remain in Europe for 4-5 days because of flight cancellations.
- Participants were told they needed to raise their homes after Sandy. Flood insurance helped pay for this.

### • Experience with strong winds:

- A lot of trees were downed after a storm due to strong derecho winds
- o There was no weather forecast or warning of the derecho winds.

### • Older adults living in high-rise buildings:

 Many residents live in tall buildings where evacuation is difficult if elevators do not work. Older adults in their 80s or 90s were particularly fearful about being able to evacuate. Many of these residents went to shelters during Sandy.

#### • Access to home insurance:

- One participant evacuated to a hotel. However, the hotel management said they would have to leave in the morning before the storm
- One participant's insurance policy did not cover temporary quarters in the event of a hurricane.

### • Suggestions for improvement:

- o Plan for contactless delivery of meals to seniors.
- o Conduct wellness calls and checkup calls several times a week to seniors.
- o Improve access to telemedicine. Doctors started telemedicine appointments, but many seniors had no access to computers or Wi-Fi.
- o Ensure evacuation routes can move quickly without building up traffic.

### **Part 3: Community Assets**

The facilitators led participants in a discussion about what community assets they feel are most important to protect from future disasters. Responses included:

### • Infrastructure:

- Bridges are important infrastructure because if they are flooded and closed, residents cannot leave their neighborhoods.
- Getting off the island is an issue, which is why people evacuate before disaster events.
- It is impossible to get into Ventnor Heights during flood conditions or bad weather. Participants often have to stay with friends because of lack of accessibility
- *Medical/healthcare needs:* Health related assets was mentioned several times. Health is a top priority for many.
  - Ensure prescription medication is available and avoid potential shortages.
  - Telehealth medical appointments
  - Hospitals
  - Recreation centers
  - During the COVID-19 pandemic, many seniors were fearful of going to the hospital when they were sick.

#### • Pet care needs:

- Shelters should have food for pets.
- Pet owners should be prepared to find a kennel for their pets in the event of an evacuation. Kennels can be expensive.
- Banks/ATMs: Residents should have cash on hand in case they are unable to access an ATM.

## Part 4: Vision for the Future

Participants considered what they want their community to be in five or ten years and described their visions for a safer, more resilient future. They shared the following ideas:

- A community with access. Something has to be done to alleviate flooding on roadways, especially West End Avenue in Ventnor Heights, such as a sea wall.
- A well-designed community. No more flooding or bridge closures. Address sewer overflow during high-tide.
- An informed community
- A good alert system
- An advanced power grid to avoid outages. Consider burying power lines.
- One participant sees these challenges as an inherent part of life in a coastal area. She does not foresee any real solutions to them. The ocean is there, and it is unstoppable. If one wants to live on the beach, one must be prepared. The community or the government cannot fully protect you from nature.













# **Business Focus Group Meeting - Resilient NJ**

# **MEETING MINUTES**

**DATE:** August 24, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR) - Business Focus Group Meeting

A meeting was held July 21, 2021 at 10 AM with the Business Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Lance Landgraf	Casino Reinvestment Development Authority (CRDA)
Lou Joyce	South Jersey Economic Development District
Joe Dougherty	Casino Association of NJ
Karen Worman	Caesars, Harrah's, and Tropicana
Joe Lodise	Caesars, Harrah's, and Tropicana
Michael Monty	Bally's
Hugh Turner	The Borgata
Joe Muskett	Ocean Casino
Brian Jackson	Stockton University
Vince Maione	Orsted
Kate Gibbs	Operating Engineers Local 825
Hillary Chebra	SJ Chamber of Commerce
Michael Chait	Greater AC Chamber of Commerce
Noel McGuire	Atlantic County Economic Alliance
Steve Mazur	Atlantic City International Airport (SJTA)
Jim Rutala	Regional Coordinator
Alyssa Curran	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the Consultant team and meeting participants.
- 2. Jaclyn Flor then went over the agenda, including the meeting objectives, key questions, project process and the discussion section of the agenda.
- 3. Alyssa Curran, WSP, gave a high-level overview of the Resilient NJ Atlantic County Coast Region Project overall. Alyssa Curran explained that the end goal is to formulate a plan that leads to

implementation of specific actions. She went through the Key Milestones for the project and what has happened to date on the Resilient-NJ Project. Alyssa explained the plan development phase and the implementation phase. Alyssa explained what the Innovation Award was and how it could grant additional funding.

- 4. Alyssa Curran explained what the crowd source mapping tool was and that it allows the public to leave comments.
- 5. Alyssa Curran explained where the consultant Team is in the process and explained each of the groups taking part in the Engagement Plan and how each group will influence the Resiliency Plan.
- 6. Jaclyn Flor explained the importance of the Business Focus Group to the Region and then opened the meeting to the participants to identify critical assets in their area.
- 7. Lance Landgraf, CRDA, explained that access to the barrier islands is critical. He said that some businesses, during high tide, are forced to close due to lack of access caused by flooding and over the last 20 years, dune systems and other mitigation methods have been constructed which protects the oceanfront areas. He said that now, the back bay areas are the most vulnerable and that the economy won't be able to function without clear access throughout the municipalities.
- 8. Kate Gibbs, Operating Engineers Local 825, added that access to all infrastructure is important, not just the roadways (i.e., energy, water, transportation) and that the team should take into account new regulation policies from NJDEP and others to ensure proper access to infrastructure. Jaclyn Flor said that this will be discussed further in the Utility focus group meeting.
- 9. Kate Gibbs added that the region needs more access to affordable and reliable energy and needs to make sure there are layers of redundancy so residents aren't left without energy for extended periods of time like during Super Storm Sandy.
- 10. Jaclyn Flor asked Vince Maione from Orsted to describe assets that help/hurt businesses from becoming resilient. Vince Maione replied that access is imperative and utility asset resilience is important. He said that micro grids can help to alleviate the problems caused by power outages.
- 11. Jaclyn Flor then asked the casino representatives to explain how energy resiliency is important and to identify assets that should be included for analysis.
- 12. Hugh Turner, The Borgata, replied that while energy is important, it's not the biggest problem. He said access to the casinos is the biggest problem and that it's the vulnerability of the communities in the area to flood. He said in the past, access to flood prone communities is cut off due to safety reasons and that the barrier island economy isn't robust without visitor access. Hugh Turner said that the power grid of the casinos held up well during past storm events.
- 13. Jaclyn Flor asked if the airport has a role in growing/diversifying the economy and what assets are worth protecting.

- 14. Kate Gibbs, Operating Engineers Local 825, replied that transportation infrastructure in general is very important to the region since it is a tourism hub and that no community in the region can succeed without all forms of infrastructure being functional.
- 15. Jaclyn Flor asked the SJTA (South Jersey Transportation Authority) to explain what made the airport and the SJTA transportation assets vulnerable in past disasters and are there any gaps that remain with response and recovery.
- 16. Steve Mazur, SJTA, replied that one section of the expressway flooded in Pleasantville. He said other than that area of flooding, the airport was relatively unscathed by storm effects. Steve said the tunnel in Atlantic City that provides access to marine district casinos and Brigantine stays dry and that there are flood hazard areas at the airport but they are mainly at the roadway into the airport and that it hasn't flooded recently.
- 17. Jaclyn Flor asked the Focus Group to describe the less obvious vulnerabilities in the economy such as workforce accessibility/availability or threats to tourism during normal day-to-day operations as a result of major storm events. In addition, Jacklyn asked how small businesses are vulnerable.
- 18. Michael Chait, Greater AC Chamber of Commerce, replied that Atlantic City is very resilient when it comes to bringing visitors back. Michael said every few years an event causes tourism to dip (COVID, Hurricane Sandy, etc.) but visitors always come back. He said Atlantic City is a "drive-in" market so access to the city and between the neighboring municipalities in the region is critically important. Therefore, maintaining these access points is a priority to maintain tourism volume. It remains to be seen if new regulations from NJDEP and others will slow down economic development due to cost increases.
- 19. Jaclyn Flor asked what is unique about this region and, from an economic standpoint, what makes it vulnerable and what should be prioritized in terms of protecting it.
- 20. Lance Landgraf, CRDA, replied that when four casinos closed a few years ago, Atlantic County led the nation in foreclosures and that shows how much the region relies on Atlantic City. He said there has to be access to those jobs and the tourism industry (Route 30 Absecon Blvd, AC Expressway, Black horse Pike). Lance said a lot of homes in back bay area are row homes so they are virtually impossible to raise. Building bulkheads in the back bay is another priority.
- 21. Kate Gibbs, Operating Engineers Local 825, added the region needs more back bay dredging and that it is very difficult and expensive to raise certain homes, so in order to keep diversifying the economy, the Region needs local residents to be able to afford the homes and be able to work in the city and surrounding communities.
- 22. Lance Landgraf, CRDA, said if elevating isn't possible maybe there could be a combination of elevating and dredging.
- 23. Kate Gibbs added that she spoke to several home owners who either have to sell their home or put millions into it to renovate and lift it. She said we need to figure out a plan for these homeowners that does not involve forcing them out of the region.

- 24. Brian Jackson, Stockton University, explained that Stockton encourages their employees at the Atlantic City campus to live and work in the area. However, some of the barriers keeping this from happening including the cost of flood insurance and the concern for living on the barrier islands. He said that there is a need for more homeowners in AC and less renters to diversify tax base and that AC doesn't have the inventory to attract employees to live in the City due to flooding.
- 25. Jaclyn Flor asked if second home ownership is desirable and if there is a need for policies that will keep some areas purely full time residential.
- 26. Brian Jackson replied funding/grants that will encourage families to move to Atlantic City would be helpful and that a lot of the homes are not move-in ready so they need to be renovated or reconstructed.
- 27. Noel McGuire, Atlantic County Economic Alliance, explained the tourism/hospitality industry is the most vulnerable asset during natural disasters and that fifty to sixty percent (50-60%) of the economy relies on hospitality/tourism. Noel said the Atlantic County Economic Alliance is pushing for key infrastructure to diversify economy and build resiliency so the area isn't as impacted from natural events and that the ACEA can provide more information about these infrastructure plans.
- 28. Joe Dougherty, Casino Association of NJ, commented that the boardwalk is a very important economic element that is susceptible to storms. He said that the current condition of the boardwalk could be improved as it is more vulnerable now than when Super Storm Sandy occurred and that assistance is needed to renovate boardwalk. Joe said some parts of the boardwalk were under construction when Hurricane Sandy hit the region which contributed to economic losses.
- 29. Hilary Chebra, South Jersey Chamber of Commerce, added that diversifying the economy includes ensuring job training and retraining is available to the workforce for new jobs coming to the region.
- 30. Jaclyn Flor asked if there are any policies/projects currently funded in the region to address vulnerabilities and are there any policies/projects that would make the region more resilient.
- 31. Jim Rutala, Regional Coordinator, described a microgrid project in midtown that the City just received funding for. He said the grid will serve a hospital, some casinos, and Boardwalk Hall. He said this could be the first of many microgrids in the city.
- 32. Lance Landgraf, CRDA, explained that the United States Army Corps of Engineers (USACE) had already done a study on the back bays in the region and Steven Roche with the United States Army Corps Of Engineers, USACE, should be contacted since they are in the process of doing a back bay bulkhead study. Jaclyn explained that the USACE has presented to the consultant team already and that data from that study can be shared with the focus group participants. She said the back bay study is a topic of interest that has garnered mixed reviews.
- 33. Joe Lodise, Caesars, Harrah's, and Tropicana, explained that workforce development is a critical issue in the area and the tourism industry. He said an aging workforce means there needs to be

- a solution to bring new residents in. Joe said any policies around training and recruitment grants would be very helpful.
- 34. Brian Jackson explained Stockton has proposed building a coastal resiliency center in Atlantic County. He said in 2018/2019 Stockton received a grant to develop the proposal to be submitted to the State and that this proposal is at the top of Stockton's capital improvements list. Brian explained Stockton also has a coastal research center that monitors the shore line and makes assessments for local, state, and federal government.
- 35. Joe Lodise added that Caesars, Harrah's, and Tropicana are looking into solar energy to create more energy and sustainability in the market. He said the hope is to bring solar energy to their properties over the next two years.
- 36. Jaclyn Flor went over the next steps for the focus group and closed the meeting.

### **Action Items:**

- 1. Send USACE study to Business Focus Group once released.
- 2. Next Focus Group Meeting will be Fall 2021.











# Utility Focus Group Meeting - Resilient NJ

# **MEETING MINUTES**

**DATE:** August 24, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Utility Focus Group Meeting

A meeting was held July 21, 2021 at 3 PM with the Utility Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Joseph Pantalone	ACUA (Atlantic County Utilities Authority)
Chris Olson	NJ American Water
Safeer Quraishi	South Jersey Gas
Jennifer Young	Verizon
Christopher Moore	Verizon
Fred Deandrea	Comcast
Thomas Smith	Comcast
Vince Maione	Orsted
Madeline Urbish	Orsted
Jim Rutala	Regional Coordinator
Alyssa Curran	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the Consultant team and meeting participants.
- 2. Jaclyn Flor then went over the agenda, including the meeting objectives, key questions, project process and the discussion section of the agenda.
- 3. Alyssa Curran, WSP, gave a high-level overview of the Resilient NJ Atlantic County Coast Region Project overall. Alyssa Curran explained that the end goal is to formulate a plan that leads to implementation of specific actions. She went through the Key Milestones for the project and what has happened to date on the Resilient-NJ Project. Alyssa explained the plan development phase and the implementation phase. Alyssa explained what the Innovation Award is and how it could grant additional funding.

- 4. Alyssa Curran explained what the crowd source mapping tool was and that it allows the public to leave comments.
- 5. Alyssa Curran explained where the consultant Team is in the process and explained each of the groups taking part in the Engagement Plan and how each group will influence the Resiliency Plan.
- 6. Jaclyn Flor opened the meeting to the participants to identify important assets in their area.
- 7. Tom Smith, Comcast, asked if the info discussed in this meeting is protected from OPRA. Jaclyn Flor replied that the consultant team may be able to keep some data confidential but have them in the internal models. Jaclyn said the she understands that utility assets can become vulnerable even by just locating them on a map. Alyssa Curran said she will confirm confidentiality with NJDEP. (Please see Action Items as an answer was received from NJDEP on this item)
- 8. Christopher Moore, Verizon, added that Verizon's policy is to withhold all info about their assets. However, if there is an ongoing project where Verizon's asset is conflicting with the project, they will mark up the project prints to show where the conflicts are. Jaclyn Flor explained that the goal is to protect critical assets during major weather events, so, understanding where the critical assets are located is very important. She added that if a utility company isn't comfortable sharing that data without assurances of how the data will be protected, that is understandable and the Consultant Team will get an answer on that.
- 9. Christopher Moore replied that more clarification is needed. He said Verizon can share location of some assets that are public knowledge such as the location of central offices. Assets that are off limits include underground fiber optic cables.
- 10. Jaclyn Flor replied that more clarification can be given after the meeting to identify assets that can be mapped. Alyssa Curran added that environmental social governance documents that are publicly available are a way we communicate about climate risk management.
- 11. Jaclyn Flor presented a utility asset map then asked ACUA to confirm that all their critical assets are shown and if not, to please identify any critical assets not shown.
- 12. Joseph Pantalone, ACUA, responded that the assets shown on the map are vulnerable and at risk. He said particularly the pump stations are at low lying areas so they are the most vulnerable. He also said that not shown on the map is an outfall line on the Ventnor- AC border that is critical infrastructure and if it ruptures could cause a lot of problems with millions of gallons of water flowing to an unknown location.
- 13. Jaclyn Flor asked if the line has ruptured since Hurricane Sandy. Joseph Pantalone said no and also responded that ACUA was fortunate in comparison to other municipalities that were inundated with flood water. He added access to the island is a critical asset during prolonged storm events.
- 14. Jaclyn Flor asked if the fuel brought in during these storm events were brought in by tanker trucks. Joseph Pantalone said that was the case and that the ACUA plant is located on route 30 which is a low-lying roadway. He said fortunately, you can still access the facility in a roundabout

way using different roadways, however if the bridge to the facility fails it will cause major problems.

- 15. Jaclyn Flor directed the meeting to NJ American Water to discuss their assets.
- 16. Chris Olson, NJ American Water, explained that their assets are in Pleasantville and Northfield. They also own systems in the surrounding areas with sources of supply utilizing ground water. He said their concerns aren't necessarily storm related since they have backup power in most, if not all, facilities and that their assets should be fairly protected during prolonged storm events. He said the biggest concern is quality of ground water over time. Jaclyn Flor asked if any of NJ American Water's facilities go under channels where after Sandy the lines had to be repaired or replaced or if there are any vulnerabilities related to that. Chris Olson replied that he isn't currently aware of facilities that would be affected in that way.
- 17. Joseph Pantalone added that most of ACUA's corridors from barrier islands to facility are under channels. This should be noted if dredging was to occur in these areas in the future.
- 18. Jaclyn Flor then directed the meeting to South Jersey Gas to discuss their assets. Safeer Quraishi, South Jersey Gas, said they would be interested in knowing what happens with any possible dredging project. He said South Jersey Gas has some pipe going underneath the bays and they have their corporate office in AC. He was unsure if there are compressor stations within this scope.
- 19. Christopher Moore added that Verizon would also want to know about any possible dredging projects since they may have some facilities in the bay.
- 20. Jaclyn Flor then directed the meeting to Comcast to discuss their assets. Thomas Smith, Comcast, explained that Comcast doesn't have critical facilities located anywhere on the map presented. He said a major obstacle is access into the island as well as getting access to the utility poles. He asked if the purpose of this meeting/project is to create a critical facility in the area that the national guard can be deployed to. Jaclyn Flor responded that's not the only purpose since the goal is to find short- and long-term solutions. Fred Deandrea, Comcast, added that he can identify one area with critical infrastructure on the map but, for competitive/security reasons, he can't disclose it during this meeting. He added that sharing info with other power utilities has benefited the area since power utilities might have different priorities than communication utilities. Thomas Smith added that there has been a push to ensure better coordination during storm events amongst the utilities and that one of the biggest assets would be the sharing of satellite/drone imagery by the state government during storm events. He said that it is important to have open communications between the utility and the municipality to ensure priority customers are accommodated.
- 21. Jaclyn Flor then directed the meeting to Orsted to discuss their assets. Vince Maione, Orsted, explained that they don't plan to have any critical electrical assets in Atlantic County. He said there will be an operating and maintenance facility located in Garden's Basin that will be critical infrastructure and that they are currently obtaining permits to reinforce the bulkhead around that property. He said USACE will be doing dredging in the mouth of the inlet and that access to the City through roadways is critical to maintain critical assets including ones in the ocean. Vince

- Maione added that the operating and maintenance facility needs to be running within hours of a significant event because the wind turbines depend on it.
- 22. Jaclyn Flor asked if water access is also critical in addition to road way access. Vince replied that water access is also needed to service the turbines and assess damage during storm events.
- 23. Jaclyn asked if there is concern with boats and marine debris in terms of accessibility. Vince Maione replied that is definitely a concern. During storm events, a lot of the vessels will be sent out to sea in order to prevent damage.
- 24. Jaclyn Flor added that the depth of the channel seems to matter significantly. Vince Maione agreed. Jaclyn Flor added that marine debris contracts need to be considered to maintain accessibility and Vince Maione agreed.
- 25. Jaclyn Flor then moved the meeting to discuss what critical utilities were most vulnerable in past disasters and what gaps remain.
- 26. Thomas Smith explained that during recovery efforts after a storm event, fiber optic lines are sometimes cut in an urgency to open the roadway and that these fiber routes serve critical roles more so than just cable.
- 27. Jaclyn Flor then moved the meeting forward to discuss planned or currently funded projects that will address vulnerabilities as well as projects that will make the region more resilient.
- 28. Joseph Pantalone started the discussion by explaining that ACUA was the beneficiary of the Sandy Resiliency Fund so many assets including generators and sea walls are brand new. He said the concern was mostly about the bridge entering the ACUA island which is aging and that the facility is inaccessible without the bridge since the facility is surrounded by water. He added that this project would be expensive but it is being considered.
- 29. Jim Rutala, Regional Coordinator, added the route 40 causeway is a major recommendation of the back bay study by the USACE that will be released later this month. The project will be critical to supply both employees and goods to various utilities. He added that fiber optic is planned to be extended throughout the City. Additionally, he said Atlantic City has submitted an application for the back bay dredging project with hopes to start in the Fall of 2021 with most of the work coming in the Winter of 2022 to provide access. He added utilities are a big part of the solution to climate change.
- 30. Jaclyn Flor asked the meeting participants to discuss projects that help with climate change that are being led by the utilities.
- 31. Joseph Pantalone discussed green hydrogen which is currently being explored. He said Legislators are interested in this project due to the positive climate effects that can result from it.
- 32. Vince Maione added that Orsted is working with AC to address draft issues in the Gardner's basin inlet. He said they are currently obtaining a permit for bulkhead work on the property of operating and maintenance facility. Jaclyn Flor asked if Orsted is unable to keep manufacturing

facilities in this region due to the depths of the channel. Vince Maione said that would be an issue but also that there are no ports in the Atlantic County area to support drop off of size required for offshore wind projects. He said the state chose Lower Alloway's Creek as best location to bring ships in and that this project will require a lot of work but is important because this location will allow ships to pass through without having to deal with bridges.

- 33. Jim Rutala added that OEM facilities for Orsted and Atlantic Shore will be in AC and comes with multimillion-dollar investment in the waterfront that hasn't received investment in 30 years. He said the county college received a grant to build wind safety training center that has been awarded and that another grant was requested for turbine technician training center which has the support of union and elected officials. Jum Rutala added that Stockton has done MOUs with Orsted and Atlantic wind to do water research and testing and that research and workforce development are key areas for AC.
- 34. Jaclyn Flor asked participants to describe any other assets the engagement team should be considering to assist with resiliency.
- 35. Thomas Smith responded that Comcast is discussing starting exercises with state emergency operation centers so everyone knows what is expected from each other. He said one of the challenges is "getting a seat at the table" in order to have these discussions.
- Jaclyn Flor and Alyssa Curran thanked the participants and then ended the meeting

#### **Action Items:**

- 1. Send presentation to Christopher Moore, Verizon.
- 2. The Consultant Team received an update from DEP regarding privacy and sharing information:
  - If stakeholders send WSP consultant team information directly that <u>does not</u> get transmitted to DEP (can offer NDA among parties as needed), we are able to treat those documents confidentially and separately from project documents shared with DEP
  - DEP asks us to reflect or portray data pertinent to Resilient NJ in public documents in some way where possible (e.g., aggregated/anonymized or generalized)
- 3. Next Utility Focus Group Meeting will be in the Fall of 2021.













# Environmental Focus Group Meeting - Resilient NJ

### **MEETING MINUTES**

**DATE:** August 24, 2021

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ - Atlantic County Coastal Communities (ACCR)- Environmental Focus Group

Meeting

A meeting was held July 22, 2021 at 10 AM with the Environmental Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Jim Rutala	Ventnor Green Team
Shurlana Stewart	Pleasantville Green Team
Monica Coffey	Sustainable Margate
Brian Kempf	NJ Association of State Floodplain Management
Leah Yasencheck	NJ Future
Jonathan Carey	WSP
Alyssa Curran	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the participants. She went over the agenda, including the meeting objectives, key questions, project process and the discussion section of the agenda.
- 2. Jonathan Carey, WSP, went over the Resilient NJ Atlantic County Coast Region Project overall. He explained that the end goal is to formulate a plan that leads to implementation of specific actions. He went through the project timeline and what has happened to date on the Resilient-NJ Project. He also explained the crowd source mapping tool that that allows the public to leave comments. He explained where the consultant Team is in the process and how the focus groups will influence the Resiliency Plan.
- 3. Jaclyn Flor briefly explained the focus groups and their roles.
- 4. Jaclyn Flor opened the meeting to the participants to identify important assets that have the largest impact on the environment and ecology in the region.

- 5. Jim Rutala stated that tourism is the basis for the economy in the region so continuing to manage that industry is important. He said that the majority of the county's rateable base is on the barrier islands which is a big resource. He added that USACE has done a good job protecting the beaches and that now the back bays are most vulnerable. He said a combination of solutions are available to municipalities including bulkheads and other shore line projects and that he is waiting for the release of the back bay study and how that might affect barrier islands and mainland communities.
- 6. Jaclyn Flor presented a shore line map that identified different shoreline projects such as seawalls and jettys. She showed that the back bay study addresses both hard and soft shoreline projects.
- 7. Alyssa Curran, WSP, added that the USACE back bay draft report should be released in early August with public meeting occurring in early September.
- 8. Jaclyn Flor asked Shurlana Stewart, Pleasantville Green Team, what elements of the environment and ecology support the residents and make them want to stay.
- 9. Shurlana Stewart responded that the marine areas in Pleasantville are thriving and are still being developed and that the majority of eastern portion of City is low lying so protecting those areas is important.
- 10. Jaclyn Flor then asked Brian Kempf, NJ Association of State Floodplain Management, what he thinks is the most critical environmental and ecological asset. He said the dune system that keeps islands in place and mitigates wave damage is important. He also said that the back bay wetlands provide wave attenuation and habitat but also act to offset CO2 emissions and that proving the loss reduction benefit of the ecological assets is challenging.
- 11. Jaclyn Flor asked Monica Coffey, Sustainable Margate, to describe their critical assets. She responded that most have been addressed already. She added that marshes fill in for the loss of habitat for some shore species.
- 12. Jaclyn Flor moved the meeting to discuss past disasters and vulnerabilities. She asked Shurlana Stewart what were the challenges during past disasters that made the area vulnerable.
- 13. Shurlana Stewart responded that certain parts of Pleasantville are low lying and the bulkheads didn't hold up which caused more damage and flooding. She said power outages and residents not evacuating also added to the challenges and that the City considered getting residents involved with Blue Acres in order to help them sell their homes in flood hazard areas (mostly eastern portion of City).
- 14. Jaclyn Flor followed up by asking if Pleasantville experienced challenges with marine debris specifically with the marina.
- 15. Shurlana Stewart said there was a lot of debris washup in inland areas so there was cleanup that was necessary after the storm and that it was more so from debris from bay areas rather than from the boats.

- 16. Jaclyn Flor asked Monica Coffey to add to the discussion by describing Margate's vulnerabilities.
- 17. Monica Coffey responded that the bay side is still vulnerable and that a pump station was rehabilitated about 5 years ago in Ventnor Gardens area but she doesn't think it helped the area she resides. She added that flooding from the bay is a problem even from low-moderate strength storms. She said the flooding continues to worsen over time.
- 18. Jaclyn Flor asked during a major storm do the storm pumps work effectively? Monica Coffey replied that the pumps aren't enough to deal with the volume of water present and that sometimes it's difficult to access her neighborhood when flooding occurs.
- 19. Jaclyn Flor then asked Brian Kempf where vulnerabilities are located in the area that his organization aware of.
- 20. Brian Kempf explained that areas by inlets where wave action falls upon the marshes are very vulnerable as the marshes erode from the wave action. He said that in the bay areas, the wakes from passing boats erodes the shore line and that low lying area in marshes are converted to salt flats by sedimentation and sea level rise.
- 21. Jaclyn Flor then asked Leah Yasenchek, NJ Future, to describe the vulnerabilities her organization had identified.
- 22. Leah Yasenchek agreed with the other participants that increasing nuisance flooding is impacting residents' ability to safely access their homes. She said some streams and lagoons require constant maintenance and dredging. The marshes/bay area is very vulnerable as the marshes are a big line of defense against wave action and that after Sandy, a lot of residents weren't able to wade through the financing process for rebuilding their homes so they were sold to developers who constructed larger homes in their place. She added that as a result, now there are even more assets at risk.
- 23. Jaclyn Flor added that a lot of these new homes are second home owners who rent the property which affects community cohesion.
- 24. Leah Yasenchek added that communities with high proportion of second home owners have a hard time securing funding to fix their homes since it is not their primary residence which makes the community vulnerable.
- 25. Jaclyn Flor asked Jim Rutala if he has anything to add to the discussion. He went on to discuss actions that were taken after major storm events. He said that all the communities now apply for home elevation grants every year that has resulted in hundreds of properties being elevated. Jim Rutala added that the towns are also starting to look into replenishing the marshes/wetlands to protect the islands. He said another big issue is dredging and that since Sandy there hasn't been any major dredging projects in the region until this fall when a major dredging project will commence.
- 26. Jaclyn Flor moved the meeting forward to discuss planned/currently funded projects that will address vulnerabilities in the region and make the region more resilient. Jim Rutala described how Orsted and Atlantic Shores are building wind projects and facilities in AC that are major

operations. He said that this will be a benefit to the community similar to the opening of the casinos decades ago and that as a result, a lot of investment has been made in the area to support offshore wind projects as well as hydrogen projects. Jim Rutala added that this includes training facilities to train residents for better jobs and that a lot of residents care about the environment and want these green projects to continue.

- 27. Brian Kempf added that the community rating system is how communities consider resilience in an actionable way. He said that communities that didn't have incentive to fix flood challenges are now receiving the funding they need, so resources that focus on enhancing natural beneficial functions of floodplains is a good way to do the right thing.
- 28. Alyssa Curran asked participants if they have seen a wide spectrum of projects from larger scale projects to distributed scale projects.
- 29. Brian Kempf deferred to the local representatives and said he doesn't see a lot of acquisition. He said in terms of infrastructure policies from CRS, it is more challenging because a lot projects are out of the financial capabilities of a lot of communities.
- 30. Leah Yasenchek added that NJ Future ran into a lot of barriers to permitting with NJDEP for a project that was preventative and not reactionary. She said that hopefully NJDEP becomes more open to these kinds of projects.
- 31. Jim Rutala agreed and added that occurs often with restoration projects. He said the pandemic had significant impacts on the Jersey Coast as school age populations are increasing and more people work from home and live in the area year-round. He added that this may continue as these places are desirable to many people and that they have seen a transition from seasonal/rental properties to home ownership for second home and year-round residents which is changing the needs for the area.
- 32. Jaclyn Flor asked do these changes warrant a need for more parks/recreation facilities in the region? Jim Rutala said the towns recognize the need for more public space and that the pandemic certainly accelerated this trend.
- 33. Monica Coffey continued the discussion saying she believes policies that value trees are very important. She added that we need to preserve existing trees and that awareness about impervious surfaces and how they contribute to flooding needs to increase.
- 34. Leah Yasenchek added that a lot of communities have ordinances that regulate impervious surfaces however some consider some materials as pervious but they're really not. She said that this allows people to increase the number of impervious surfaces which can be addressed through planning mechanisms to encourage people to keep pervious material on their lot. Leah Yasenchek also agreed that trees need to be preserved and protected. She said that some communities are struggling to address the need for funding to remove and replace diseased trees and that small grants are not enough.
- 35. Jaclyn Flor discussed the next steps of the project then ended the meeting.

# Action Items:

1. The second Environmental Focus Group meeting will be scheduled in the Fall 2021.











LOCAL OFFICE
LANDSCAPE AND URBAN DESIGN

Civic Association Resident Advisory Group Meeting - Resilient NJ

#### **MEETING SUMMARY**

**DATE:** July 30, 2021

**TO:** The Project Team

FROM: CHPlanning

**SUBJECT:** Resilient NJ - Atlantic County Coastal Communities (ACCR) – Youth Focus Group with the

Boys and Girls Club of Atlantic City

A meeting was held on July 28, 2021 at 12 noon to 1:00 PM with teens of the Boys and Girls Club of Atlantic City to discuss the Resilient NJ Project. The Boys and Girl's Club provides resources for the development of young people, from all backgrounds to realize their full potential as responsible and caring adults. The meeting was held onsite at organization's facility at 317 N Pennsylvania Ave, Atlantic City, NJ.

The attendees for this event were:

- 20 teens enrolled in the Boys and Girls Club of Atlantic City's summer program.
- 4 Adult Camp Counselors

Names of participants were not collected to protect the privacy of minors.

- Introduction The moderators introduced themselves, explained what City Planners do and introduced the concept of resilience. We discussed experiences with past disasters, and then discussed how responses to future disasters should be changed and the vision for a safer and more resilient community.
- 2. Past Experiences We asked students about their past experiences with disasters. The conversation centered on the experience with Hurricane Sandy and other storms. We did not focus on this in depth or for very long with any one story, so as not to dwell on any traumatic experiences. There was also additional discussion about the field of urban planning and what sorts of projects the moderators had worked on.
  - a. Extreme events they have experienced
    - i. Hurricane Sandy and other storms
    - ii. Flooding is common occurrence places important to the youth are in flood prone areas including their schools, neighborhoods, and the Boys and Girls Club facility
    - iii. Tornadoes
    - iv. Earthquakes

### b. Personal Experiences

- i. Having to evacuate and live with extended family
- ii. Family members had to climb onto their roof
- iii. About half the participants said they did not evacuate during Hurricane Sandy and they were left without electricity for a long time
- iv. During Hurricane Sandy Many local people did not take the evacuation order seriously because they have received a lot of false alarms in the past. They didn't expect it to be serious. Analogy to "Crying Wolf" It makes the people not trust the warning systems, and they would rather stay home than evacuate to an unknown place.

#### c. Emergency Preparedness

- i. The school curriculum doesn't talk about emergency preparedness or climate vulnerabilities specific to the local area. They do have Fire Drills and Active Shooter Drills but they don't have drills for natural hazards.
- ii. They receive alerts about potential hazards by email from the school. If there is no email, they assume there's no issue.
- iii. When asked, 1 out of the 20 teen participants said they had a family plan in case of an emergency

#### d. Aspirations

- i. A handful of the kids said they wanted to stay in Atlantic City when they grow up. Ideas for jobs they wanted to have include lawyer, engineer, chef, and professional gambler.
- 3. What should be done in the future? We asked participants to identify what community locations, assets, or programs are important to protect.
  - a. We asked participants to identify what community locations, assets, or programs are important to protect.
    - i. Our own homes and neighborhoods
    - ii. The Boys and Girls Club of Atlantic City It floods and it is an important place for local kids to gather
    - iii. Our schools they also flood
    - iv. All the stores especially Renaissance Plaza (between New York Ave. and Kentucky Ave.)
    - v. Save A Lot grocery store—it has food
    - vi. Pharmacies they have medicine
    - vii. Ocean City
    - viii. Know where the homeless are and take care of them. They often congregate at Renaissance Plaza.
- 4. We asked participants what has not worked that we need to do better?
  - a. Transportation

- i. Many of these kids (about half) said they did not evacuate when Hurricane Sandy happened they stayed put and were without electricity for a long time
- ii. Not everyone has access to transportation or a place to go when there is an evacuation order. They have no options so they stay put.

#### b. Better warning systems

i. They receive alerts about potential hazards by email from the school. If there is no email, they assume there's no issue. They didn't know about other ways emergencies are communicated.

### c. Emergency Preparedness

- i. Drills so people know what to do in an emergency and don't panic
- ii. Have a family plan including knowing where to meet in case you are separated
- 5. Vision We asked students to brainstorm about their vision for a safer, more resilient community.
  - a. Build a new Reef / Jetty further out to sea to act as a new barrier to the barrier island. (They also talked about "Force Fields" to protect the City)
  - b. Preserve more natural areas
    - i. Plant more grass and natural areas
    - ii. Put skate parks in areas prone to flooding. They can be used when there is no flood.
  - c. Better sidewalks
  - d. Put houses on Stilts to stay above the flood waters
  - e. Have a system of water pumps to take the water away (Like the Dutch windmills although they liked the analogy of giant "straws" that suck the water away)
  - f. Get rid of seagulls (this could be relevant to the idea of finding a better species balance in the natural habitat)
  - g. Use more things that are biodegradable so there is less trash

#### 6. Strategies – Student suggestions:

- a. Improve communications
  - i. Have different ways of communicating. Phone call, internet, radio
  - ii. Suggestions for ways to communicate if electric/phone/internet is down would be a Car that drives through the neighborhood with a loudspeaker that announces important messages and/or an emergency siren
  - iii. Big warning speaker (continuous announcement) or siren
  - iv. Emergency call protocols using school closing channels/procedure
  - v. Instead of "Crying Wolf" every time there is a potential emergency messages should be more specific about how likely or how bad events might be and what options people have to find safety.
- b. Make sure people have transportation and a safe place to go
  - i. Public, Free buses be available to pick up people and take them to a safe shelter when they need to evacuate

- ii. Special and early assistance for the elderly and people with disabilities.
- iii. Buses should go places where homeless people congregate to help them evacuate too.
- iv. Have a safe place for people to go these places need to be able to accommodate anyone with disabilities.
- v. Give everyone an inflatable boat
- c. Incorporating preparedness in school health education curriculum
  - i. Have different kinds of "drills" at school and include more locally specific climate resiliency lessons in the school curriculum. Flood Drills, Tornado Drills, etc. (This was not particularly popular with the kids, but was suggested by the staff).
  - ii. Provide a checklist to help people develop a family emergency plan
- d. Peer consultation among kindred organizations (eg. AC Boys and Girls connects with Miami Boys and Girls) to share ideas and experiences.

### 7. Next Steps

- a. The planning team shared the ResilientNJ-ACCR website and how to interact with it by adding the Boys and Girls Club facility to the map.
- b. The planning team remains available to meet with the Boys and Girls Club again upon invite.











# **Business Focus Group Meeting - Resilient NJ**

# **MEETING MINUTES**

**DATE:** April 26, 2022

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ-Atlantic County Coastal Communities (ACCR)-Business Focus Group Meeting

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A meeting was held April 7, 2022 at 3 PM with the Business Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Lou Joyce	South Jersey Economic Development District
Joe Grace	Operating Engineers Local 825
Vince Maione	Orsted
Amy DiCarlantonio	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the Consultant team and meeting participants.
- 2. Jaclyn Flor then went over the agenda, including the meeting objectives, introductions, Overview of what we heard, feedback on preferred scenario and next steps.
- 3. Jaclyn Flor explained that the primary objective of the meeting was to get feedback on the following key questions: 1. Based on the feedback provided to date on the Vision for the future of the Region and the Critical Assets that need to be protected, which projects should be advanced into a Preferred Suite of Projects, 2. Which projects would you like to see advanced into the Implementation Phase of this plan? Under the Implementation Phase we can advance projects through their respective planning phases such as concept design, planning studies, grant applications, capacity building, etc., 3. Are there any projects that are critical to the Region that are missing that you would like to see added?
- 4. Jaclyn Flor explained that the Atlantic County Region won the Innovation Award and that as a result additional funding is available for implementation.

- 5. Jaclyn Flor gave an overview of the Resilient NJ Project including the project goals and the engagement plan. Jaclyn explained how the scenarios were developed by looking at the vision of the project along with the region's assets.
- 6. Jaclyn Flor described that the key challenges in the region that were identified were shoreline protection, stormwater management, access and transportation, power and communications, equitable economic development, public facilities, and vulnerable populations.
- 7. Jaclyn Flor then went over the Scenarios including the Living Bay Master Plan and the Absecon Bay Keepers. Lou Joyce, South Jersey Economic Development District, asked how a non-profit organization like the Absecon Bay Keepers would be started. Jaclyn replied that if the project moves forward then the team would drill down on how the Bay Keeper was created in Hudson County and would model similar to that. Amy DiCarlantonio, WSP, added that there are other non-profits in the area that the project team would meet with to build upon what is already being done. Lou asked what the authority of the Bay Keepers would be. Jaclyn replied that the Steering Committee felt hesitant about any additional regulatory barriers placed on entities in the region. Jaclyn said that this would have to be kept in mind when drilling down the implementation. Lou expressed that he also felt that in New Jersey another organization or regulation is not needed when trying to file a permit but if the Bay Keepers were just an oversite organization without any permitting authority that it would be preferred. Lou asked what value the Bay Keepers would bring.
- 8. Jaclyn went on to the next Scenarios, which were Translate All Emergency Preparedness Materials, Evaluate and Improve Preparedness Actions for SVPS, Action Plan for Housing, Power and Communications, Installation of Solar Panels, and Community Microgrid Systems Study. Amy added that some of the Scenarios are more long-term and some are short-term. Jaclyn went on to describe the Bayside Shoreline Protection Scenario and explained it would rely on the USACE Back Bay Study. Jaclyn then went on to the describe the Bayshore Continuous Shoreline Protection Study, Absecon Bay Blue/Green Way, Beach Nourishment, and Offshore Breakwaters Study. Lou Joyce asked if there were any comments made on there being hazards to navigation. Jaclyn replied that the Steering Committee said that surfing alliance as well as fisherman may be against the design that is shown in the pictures from a navigation standpoint but if the design can be in favor of the surfers and fisherman that there would be support of the project. Lou pointed out that there is also a lot of off-shore boating at that spot.
- 9. Jaclyn went on to describe the Living Streets Feasibility Study and Pilot Program, Living Streets, Stormwater Management Parks, Equitable Economic Development, Rezone Gardner's Basin and Delta Basin, Black Horse Pike Strategic Growth Corridor, Redevelopment Study and Vision Plan for Lower Risk Areas, and Bader Field Coordinated Dredge-Site Raising Compact Scenarios.
- 10. Jaclyn Flor also reviewed that some of the feedback so far has been to implement a home elevation program, wetland restoration, expanding community solar, additional pump station locations, development of resiliency and wind institute, Stormwater Utilities, resiliency improvements for the ACMUA treatment plan, elevating roadways, blue economy expansion and to expand transit evacuation options.
- 11. Jaclyn Flor then asked for any additional feedback from the meeting participants. Lou Joyce said that the NJEDA is developing a wind institute at the EDA. He also said that pump stations can be

taken out with flooding. Jaclyn replied that we will be looking at back up power due to the flooding concern. Vince Maione, Orsted, asked what the time table for the implementation was. Jaclyn said some are short-term and some are long-term and that DEP understands the scenarios are a mix of both. She said the additional budget that was won in the Innovation Award would go to some short-term scenarios. Vincent said he agrees with that plan and asked what the time table would be for some of the short-term projects. Jaclyn replied that revising of emergency materials could happen within a year but something like raising Black Horse Pike would take about five years. Vincent went on to say that the NJEDA has already awarded \$3 Million to Atlantic Cape Community College to develop a wind institute and \$1 Million was awarded to Rowan College to do training for off-shore wind. Vincent also said that New Jersey BPU is in the process of putting something in place for a micro-grid in Atlantic City. Vincent said overall he felt the scenarios had value and as long as there wouldn't be any regulatory changes that there shouldn't be any problems implementing them.

### **Action Items:**

- 1. Public Meeting first week of may for last feedback on projects
- 2. Consultant Team to meet with DEP to discuss which projects are moving forward.
- 3. Action Plan will be mid-summer.











# **Business Focus Group Meeting - Resilient NJ**

# **MEETING MINUTES**

**DATE:** April 28, 2022

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ-Atlantic County Coastal Communities (ACCR)-Utilities Focus Group Meeting II

A meeting was held April 7, 2022 at 10 AM with the Utilities Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Rick Dovey	Atlantic County Utility Authority
Thomas Smith	Comcast
Kenneth Mosca	Atlantic City Electric
Vincent Monaco	New Jersy American
Jonathan Carey	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the Consultant team and meeting participants.
- 2. Jaclyn Flor then went over the agenda, including the meeting objectives, introductions, Overview of what we heard, feedback on preferred scenario and next steps.
- 3. Jaclyn Flor explained that the primary objective of the meeting was to get feedback on the following key questions: 1. Based on the feedback provided to date on the Vision for the future of the Region and the Critical Assets that need to be protected, which projects should be advanced into a Preferred Suite of Projects, 2. Which projects would you like to see advanced into the Implementation Phase of this plan? Under the Implementation Phase we can advance projects through their respective planning phases such as concept design, planning studies, grant applications, capacity building, etc., 3. Are there any projects that are critical to the Region that are missing that you would like to see added?
- 4. Jaclyn Flor explained that the Atlantic County Region won the Innovation Award and that as a result additional funding is available for implementation.

- 5. Jaclyn Flor gave an overview of the Resilient NJ Project including the project goals and the engagement plan. Jaclyn explained how the scenarios were developed by looking at the vision of the project along with the region's assets.
- 6. Jaclyn Flor described that the key challenges in the region that were identified were shoreline protection, stormwater management, access and transportation, power and communications, equitable economic development, public facilities, and vulnerable populations.
- 7. Jaclyn Flor then went over the Scenarios including the Living Bay Master Plan and the Absecon Bay Keepers.
- 8. Jaclyn went on to the next Scenarios, which were Translate All Emergency Preparedness Materials, Evaluate and Improve Preparedness Actions for SVPS, Action Plan for Housing, Power and Communications, Installation of Solar Panels, and Community Microgrid Systems Study. Kenneth Mosca, Atlantic City Electric, added that he and his wife started Autism Foundation. His wife is very active conducting seminars and training with 1<sup>st</sup> responders. Jaclyn replied that advanced key level training program on both County level as well as Municipal level. Jaclyn went on to describe the Bayside Shoreline Protection Scenario and explained it would rely on the USACE Back Bay Study. Jonathan Carey, WSP, added that Municipality should not rely on Army Core Projects and act on their own to enhance their Bay Side protection. Jaclyn then went on to the describe the Bayshore Continuous Shoreline Protection Study, Absecon Bay Blue/Green Way, Beach Nourishment, and Offshore Breakwaters Study.
- 9. Jaclyn went on to describe the Living Streets Feasibility Study and Pilot Program, Living Streets, Stormwater Management Parks, Equitable Economic Development, Rezone Gardner's Basin and Delta Basin, Black Horse Pike Strategic Growth Corridor, Redevelopment Study and Vision Plan for Lower Risk Areas, and Bader Field Coordinated Dredge-Site Raising Compact Scenarios.
- 10. Jaclyn Flor also reviewed that some of the feedback so far has been to implement a home elevation program, wetland restoration, expanding community solar, additional pump station locations, development of resiliency and wind institute, Stormwater Utilities, resiliency improvements for the ACMUA treatment plan, elevating roadways, blue economy expansion and to expand transit evacuation options.
- 11. Jaclyn Flor then asked for any additional feedback from the meeting participants. Rick Dovey, ACUA, explained that the bridge at ACUA that impacts the access to the wastewater treatment plan and Comcast has a hub at that same location. Rick Dovey said that if there was a microgrid from their site they could supplement the surrounding ACUA communities, but because of regulatory reasons ACUA can't do it and he thinks that would be a strong idea. Rick Dovey liked the Baykeepers project and liked the blue way green way and the ACUA was interested in being a Board Member or partner in Baykeepers. The Utilities group thought that South Jersey Gas is a vulnerability and analysis of their critical facility vulnerabilities and its affect on axillary power to keep water transmission lines and sewer lift stations viable. The Utilities group felt that many critical utilities are reliant on natural gas and that if natural gas fails in emergencies that in addition to fires that it has a huge impact on all utilities working Transmission vulnerabilities across the Bay for clean water is a vulnerability that should be reviewed with the project looking at the Water Treatment Plant. Rick Dovey felt that NJ Transit and freight service and passenger service is clearly impacted by climate change and a project reviewing those vulnerabilities.

Where the expressway ends is a flooding area that should be included in the projects. Kenneth Mosca said that ACE is part of the working group for microgrids and would want to be included in conversations for policy changes. Kenneth Mosca wants the ACCR to consider Battery Storage Project in ACCR. ACE just built a battery storage substation in Beach Haven (its 1 Meg). The Utilities group supported raising roadways, however felt it was very important to consider the utilities in the road and utilities under road are not designed to take heavy traffic load. Jaclyn mentioned that as South Jersey Natural Gas is critical utility group and needs to be include during implantation phase. Rick Dovey also added that getting Deisel Fuel is problematic during emergency and would prefer micro-grid and back-up battery power in the future. Rick Dovey mentioned about education and training facility project at ACUA might be good fit in the Resilient NJ project.

#### Action Items:

- 1. Public Meeting first week of May for last feedback on projects
- 2. Consultant Team to meet with DEP to discuss which projects are moving forward.
- 3. Action Plan will be mid-summer.











## **Business Focus Group Meeting - Resilient NJ**

### **MEETING MINUTES**

**DATE:** April 29, 2022

**TO:** All Meeting Attendees

**FROM:** The Consultant Team

SUBJECT: Resilient NJ-Atlantic County Coastal Communities (ACCR)-Environmental Focus Group

Meeting II

A meeting was held April 7, 2022 at 3 PM with the Environmental Focus Group Members to discuss the Resilient NJ Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization
Shurlana Stewart	Pleasantville Green Team
Amy DiCarlantonio	WSP
Jaclyn Flor	ENGenuity Infrastructure
Amanda Schermond	ENGenuity Infrastructure

- 1. Jaclyn Flor, ENGenuity, started the meeting with introductions of the Consultant team and meeting participants.
- 2. Jaclyn Flor then went over the agenda, including the meeting objectives, introductions, Overview of what we heard, feedback on preferred scenario and next steps.
- 3. Jaclyn Flor explained that the primary objective of the meeting was to get feedback on the following key questions: 1. Based on the feedback provided to date on the Vision for the future of the Region and the Critical Assets that need to be protected, which projects should be advanced into a Preferred Suite of Projects, 2. Which projects would you like to see advanced into the Implementation Phase of this plan? Under the Implementation Phase we can advance projects through their respective planning phases such as concept design, planning studies, grant applications, capacity building, etc., 3. Are there any projects that are critical to the Region that are missing that you would like to see added?
- 4. Jaclyn Flor explained that the Atlantic County Region won the Innovation Award and that as a result additional funding is available for implementation.
- 5. Jaclyn Flor gave an overview of the Resilient NJ Project including the project goals and the engagement plan. Jaclyn explained how the scenarios were developed by looking at the vision of the project along with the region's assets.

- 6. Jaclyn Flor described that the key challenges in the region that were identified were shoreline protection, stormwater management, access and transportation, power and communications, equitable economic development, public facilities, and vulnerable populations.
- 7. Jaclyn Flor then went over the Scenarios including the Living Bay Master Plan and the Absecon Bay Keepers.
- 8. Jaclyn went on to the next Scenarios, which were Translate All Emergency Preparedness Materials, Evaluate and Improve Preparedness Actions for SVPS, Action Plan for Housing, Power and Communications, Installation of Solar Panels, and Community Microgrid Systems Study. Shurlana Stewart asked why other municipalities are not included for affordable housing. Jaclyn went on to describe the Bayside Shoreline Protection Scenario and explained it would rely on the USACE Back Bay Study. Jaclyn then went on to the describe the Bayshore Continuous Shoreline Protection Study, Absecon Bay Blue/Green Way, Beach Nourishment, and Offshore Breakwaters Study. Shurlana mentioned that we should focus on the project which are beneficial for municipalities as well as residents.
- 9. Jaclyn went on to describe the Living Streets Feasibility Study and Pilot Program, Living Streets, Stormwater Management Parks, Equitable Economic Development, Rezone Gardner's Basin and Delta Basin, Black Horse Pike Strategic Growth Corridor, Redevelopment Study and Vision Plan for Lower Risk Areas, and Bader Field Coordinated Dredge-Site Raising Compact Scenarios. Shurlana mentioned that Gardner's Basin is under green acers zone. She also mentioned that black horse pike is main evacuation route in emergency and runs through Egg Harbor Township, Atlantic City and Pleasantville. Egg Harbor Township turned areas along the black horse pike in to blue acres and would not able to have strategic growth.
- 10. Jaclyn Flor also reviewed that some of the feedback so far has been to implement a home elevation program, wetland restoration, expanding community solar, additional pump station locations, development of resiliency and wind institute, Stormwater Utilities, resiliency improvements for the ACMUA treatment plan, elevating roadways, blue economy expansion and to expand transit evacuation options.
- 11. Jaclyn Flor then asked for any additional feedback from the meeting participants. Shurlana was interested in Blueway and Greenway, as they felt it was a project that positively affected all of ACCR and raised environmental awareness and had economic benefits. Jaclyn replied that when this project will over it will make sure that project will continue and handle by one of leading agency. Shurlana asked that can we get funding from state and what are the next steps? Amy replied that we can certainly ask DEP about the funding for further steps. E

#### **Action Items:**

- 1. Public Meeting first week of May for last feedback on projects
- 2. Consultant Team to meet with DEP to discuss which projects are moving forward.
- 3. Action Plan will be mid-summer.



# Community Conversation –Limited English Proficiency (Round 2) Resilient NJ – Atlantic County Coastal Region

**Target group**: Residents with Limited English Proficiency (LEP)

**Date**: May 11th, 2022

Facilitator: Nieves Pimienta (Rutgers-POET) The facilitator conducted the presentation and

discussion in Spanish.

#### Introduction and Welcome:

The facilitator welcomed all participants and explained the purpose of the meeting. The purpose of this follow-up conversation was to review the key takeaways from the first round of Community Conversations and discuss how the participants' feedback was incorporated into the draft scenarios and actions for the Resilient NJ Plan for the Atlantic County Coastal Region.

#### **Conversation review and highlights:**

Participants felt that the draft actions presented by the facilitator addressed many of their concerns and challenges relating to preparedness. When asked what additional actions and challenges there are to be addressed, the following comments were mentioned:

#### Additional actions to consider:

- Access to food is essential. One participant noted that he stayed in the area during Sandy. They were prepared with food, but it was quickly damaged. The participant stated the flooding prevented his family from leaving the house to get food. His wife was pregnant at the time, so the situation was quite severe. He stated that many in the area endured hunger during this storm.
- Participants suggested applying a similar "check-in" system used before and after the storm. For example, the police or municipality support system visits every home before the storm. They could visit the ones that remained in place to offer food.
- Another participant expressed the need for mental health programs. The participant is an active member/employee of the Mental Health Association, which offers help and assistance to clients affected by climate change events.
  - The participant noted that her client's main concern was/is the loss of documents. Many victims of Hurricane Ida ended up leaving their homes without



their documents. In addition, they could not return to their homes due to the area's conditions or the property owner prohibited it.

- Participants suggested creating a formalized system or databank to identify people who are most vulnerable to target assistance to those specific individuals and families.
- One participant raised concerns about residents who are hearing impaired. For example, do they have the proper resources to access information without sound?
- Participants recommended a designated outreach program in Spanish, listing all available programs and resources.
  - According to the participants, the Mental Health Association is aware of programs not offered in Spanish.
  - Provide information on accessing the information and the resource/program itself.
  - There are mental health programs available. However, the challenge is that people do not know how to access the information that is already accessible.
- FEMA should release more funds and release them more quickly. For example, a participant noted that her agency received funds for programs focusing on mental health. However, the agency received these many months after the need arose.
- Access to mental health help after the event is essential. Anxiety, post-traumatic stress, and depression are some effects in the affected population.
- Access to mental help and support programs should be shared before the event, so residents know where they will be able to find services. It should be available in all languages.
- Participants noted the importance of involving the community in addressing, suggesting, and providing solutions. The community should be self-organized to become more proactive. For example, coordinate with community leaders to help prepare a plan on how to assist the community. Do not wait for other organizations, such as FEMA.
- Have an emergency system to validate lost documents; assist residents with replacing lost documents promptly.
- Assist residents in accessing essential medications during and after storm events.
- Conduct outreach to residents asking them to have a backpack ready with essential documents/medicines.
- Be aware of the digital divide.
  - When suggesting storing and digitally accessing documents, one participant noted that not everyone would know how to store or access the documents at a later date.



- The participant suggested that residents share documents with friends and relatives outside or in an area less affected.
- Website https://www.familysearch.org/en/ was suggested as a digital storage.
- Participants expressed frustration with the current state of evacuation routes. Atlantic City and Brigantine currently have only one way in/out (bridge). Participants also noted frustration with the signage and wayfinding for evacuation routes. Signs are not clearly marked and are small, difficult to read and scarce. One participant suggested the evacuation signage has its own lighting system to identify the routes easily. Another participant suggested an advertising campaign to educate people about these signs and how to identify evacuation routes, etc. There should also be an "amber-alert-text-like" for the evacuation and evacuation route.

#### **Conclusion**

Participants emphasized the need for documentation, something very particular to this group due to its immigration status. Participants also underlined the importance of mental health. The group acknowledged the potential empowerment the community has in addressing these challenges. They also highlighted the need for better signage and wayfinding for evacuation routes.



# Community Conversation – Low Income (Round 2) Resilient NJ – Atlantic County Coastal Region

Target: Low and lower-income residents

Date: May 25, 2022

Facilitators: Nieves Pimienta (RU-POET) and Miriam Salerno (RU-POET)

#### Introduction and Welcome:

The facilitator welcomed participants and explained the purpose of the Community Conversation. The purpose of this follow-up conversation was to review the key takeaways from the first round of Community Conversations and discuss how The plan incorporated the participants' feedback into the draft scenarios and actions for the Resilient NJ Plan for the Atlantic County Coastal Region.

#### Conversation review and highlights:

The facilitator presented the recommendations from the draft plan and then opened the floor for a conversation with participants on their reactions/thoughts about the recommendations and whether they felt the actions accurately reflected their needs. Participants in this group raised issues about mental health services, hospital advocacy for ill or injured, community-level capacity to respond to disaster (rather than relying on government institutions), cyber and electrical grid security, and mistrust of policy and law enforcement as well an obstacle to effective evacuations. Detailed comments are provided below:

#### Health and social service needs

- One participant noted that the region needs more hospital advocacy. She is currently dealing
  with her mother, and it has been challenging to get advocacy for her mom. There is no Spanishspeaking staff to help a terminal patient understand their rights and situation, what is available
  and what is available to the family. She feels that her community is not getting the advocacy it
  needs when patients in the hospital need serious care. Sometimes they use translators on an
  app that are not 100% correct.
- This participant also noted that getting any mental health in Spanish is impossible. All mental
  health experts are English speakers in this area and use translators to help a patient who does
  not speak English. In all of Atlantic County, she could not find anyone to get mental health
  support for people that do not speak English.
  - She explained that speaking through an interpreter makes it very difficult to get the depth of what you are saying through to the counselor. This is because the interpreter can't always convey depth or nuance.



- One participant noted that social services are essential to help transition through crisis, but that
  is not a permanent solution. The region needs to focus more on empowering people in the
  community to be self-sufficient and provide for themselves. Residents need to be less
  dependent on social services that might not be available tomorrow because of government
  funding. The region needs to invest in people and invest in their families.
- In case of an evacuation, patients come in and might be in a critical situation. Their family doesn't know where they are, and no one speaks Spanish to translate for them; that is a huge problem. There are a lot of issues that can come up in a disaster. Mental health and stress add to it as well. Even more important, when you are displaced, so stressful during and in the aftermath.
- Another participant reiterated the need for Spanish-speaking assistance when you need an emergency, especially a national emergency.

#### Community-based emergency support and response

- Another participant recommended the establishment of a non-governmental, grassroots
  community organization or community leader to assist during emergencies and disasters. This
  could be someone on every street or in a neighborhood whose role is to share information, keep
  people updated, and prepare them for an emergency. The participant felt that this activity
  should not depend on the government (where funding and resources are unpredictable) and
  that the community should be self-organized. His community needs an organized network of
  people and representatives looking out for the community check on each other.
- Two participants discuss the need for emergency preparedness training for elementary school
  children. One noted that schools used to have this type of education, and we need to start doing
  it again. Kids need to know how to find their parents, where to go, and what to do. Schools need
  to have these drills so the kids can practice the quick reactions that we need to have in an
  emergency.

#### Cyber and electrical grid security

• One participant stated that he is working on an event related to emergency disaster cyber security and electric grid preparedness. He noted that cyber security and electric grid preparedness must be part of the conversation.

#### Mistrust of law enforcement and emergency personnel

• Finally, a participant brought up the lack of trust with police and other emergency officials. He stated that if emergency personnel try to get into a community, but that community has had issues with the police in the past, there will be mistrust, and they may not accept help and try to do it themselves. In such a case, the trained emergency personnel cannot effectively do their job. Therefore, the region must work with communities and law enforcement on the trust issue. He has heard of situations where people may need help but won't come out of their houses to speak with police or emergency personnel. This will cause challenges and complications when



trying to effectively evacuate a whole city; people will not trust that their property will be okay while they are gone.



# Community Conversation – Older Adults (Round 2) Resilient NJ – Atlantic County Coastal Region

Target group: Older Adults

**Date:** April 5, 2022

Facilitators: Nieves Pimienta (RU-POET), Miriam Salerno (RU-POET)

#### Introduction and Welcome:

The facilitator welcomed participants and explained the purpose of the Community Conversation. The purpose of this follow-up conversation was to review the key takeaways from the first round of Community Conversations and discuss how the plan incorporated the participants' feedback into the draft scenarios and actions for the Resilient NJ Plan for the Atlantic County Coastal Region.

#### **Conversation review and highlights:**

The facilitator presented the recommendations from the draft plan and then opened the floor for a conversation with participants on their reactions/thoughts about the recommendations and whether they felt the actions accurately reflected their needs. The participants raised some additional challenges missing from the previous conversation and highlighted the importance of strategies for overcoming these challenges. Overall, the participants felt that the recommendations and the actions presented to the group were well-developed and would address many of their previous concerns. A summary of the point points in the conversation is presented below.

#### **Communication Support**

- Participants noted the importance of having adequate outlines and equipment to charge
  cell phones during an emergency, as people leave their homes without their cell phone
  charger when rushed to evacuate. In addition, equipment should be compatible with all
  cell phone types or have equipment for all cell phone models.
  - One participant recounted an experience of an acquaintance who ended up in the emergency room. Unfortunately, there was no phone charger available at the hospital or rehab center where they were relocated. This made it difficult to communicate with relatives.



- O Participants expressed the importance of the ability to communicate with loved ones during an emergency to let them know they are okay.
- Participants suggested that the region create a designated channel to support the systematic and consistent dissemination of information during an emergency - a local TV station, Facebook Live feed, etc.
- One participant noted that Atlantic Electric, and the mayor's (Atlantic City) office, send emergency messages through landlines. However, participants were not aware if this is also available to cell phone users. If it is, residents should be made aware of how they can select their phone option for emergency calls.
- One participant suggested that the county/city should raise money to acquire and provide iPads to seniors to improve communication.

#### Social Media/ Media

- Participants recommended having a designated social media feed for updates, such as an emergency broadcast network of Facebook Live Feed. This will help residents access information and updates even if they are away from home. For example, if the resident leaves town to evacuate, such a feed can help them check in on their neighborhood's status or street.
- Television or local Radio stations broadcast important information. WOMD (or WOSD). There are Philadelphia radio stations that make emergency announcements too.
- For older adults not using social media, there needs to be a plan to collect and share information with them. Perhaps there should be a designated team for outbound calling to those that do not use social media.

#### Communication Infrastructure

- A participant recounted that during her Superstorm Sandy experience in 2012, it was challenging to get information about whether or not they would be able to access their homes. They had to constantly call but did not know who to call or where to find the information.
- Another participant recommended an outbound calling system similar to those used by public schools to notify of closures or delayed openings.
- Participants also discussed the need for wireless providers to have redundancy in capacity to assure ongoing service during and after the hurricane. The participant experienced many difficulties in connecting with others during the 9/11 events.

#### Evacuation



- Participants requested that there be additional buses available to take people away from the region.
- People should be evacuated towards other areas such as Burlington County or noncoastal regions such as Mays Landing, Hamilton, or the county's western end. Not Galloway since this also is a flooding area.
- Participants recommended implementing a practice of evacuation drills several times and for all types of residents, both year-round and seasonal residents.

#### Non-Shelter sites and Support

- Participants recommended having designated non-shelter- centers for residents to collect information, pick up toiletries and water or be used as designated meeting places with relatives. The participant suggested Pleasantville or neighboring communities.
- One participant noted that her church is not equipped to be used as a shelter. However, it could be a place to have water, hand sanitizer, get information or for families to reconnect and meet each other. The participant referred to these as potential "command centers" that can serve as hubs for information, meetings or pick-up toiletries.

#### Pets

- Participants reinforced the importance of pet-friend shelters equipped with appropriate food and supplies for pets.
- Veterinarians could distribute information on these pet-friendly shelters through veterinarians. Maybe at sponsored visits such as for vaccinations. Vets can share a packet with information for pet owners.

#### Preparedness and support

- One participant recommended having a designated group of tech-savvy individuals available to assist those who do not have a computer or the support of relatives.
- Prepare and distribute an essential list of needs for people that need to evacuate, such as batteries, diapers, and water. Look for sponsors to provide bags.
- Conduct outreach to educate residents about having an emergency bag of essentials
  prepared at all times. One participant noted that she had had an emergency bag in the
  trunk of her car for a long time. In addition, the towns should provide all residents with
  emergency battery-operated radios.

#### Casino collaboration



• A participant noted that it is often challenging to figure out where to move one's car ahead of a storm. She recommended that the towns/city pre-arrange with the casinos to use their space as overflow parking during weather events. These garages are usually in elevated/protected areas.

## Conclusion

• The participants expressed gratitude for having an opportunity to review the draft recommendations and continue an open dialogue about resiliency and evacuation planning issues. Several in the group expressed interest in continuing to be involved in these types of conversations in the future.



# Community Conversations - People with Disabilities (Round 2) Resilient NJ – Atlantic County Coastal Region

**Target group:** People with Disabilities (and their caregivers)

**Date:** April 7, 2022

Facilitators: Nieves Pimienta (RU-POET), Miriam Salerno (RU-POET)

#### Introduction and Welcome:

The facilitator welcomed participants and explained the purpose of the Community Conversation. The purpose of this follow-up conversation was to review the key takeaways from the first round of Community Conversations and discuss how the plan incorporated the participants' feedback into the draft scenarios and actions for the Resilient NJ Plan for the Atlantic County Coastal Region.

#### **Conversation review and highlights:**

The facilitator presented the recommendations from the draft plan and then opened the floor for a conversation with participants on their reactions/thoughts about the recommendations and whether they felt the actions accurately reflected their needs. Overall, the participants felt that the recommendations and the actions presented to the group were well-developed and would address many of their previous concerns. One participant stated that the most important aspects, such as overall preparedness, were well represented in the draft actions.

When asked about additional actions and challenges that have not been addressed during the presentation, participants noted the following observations:

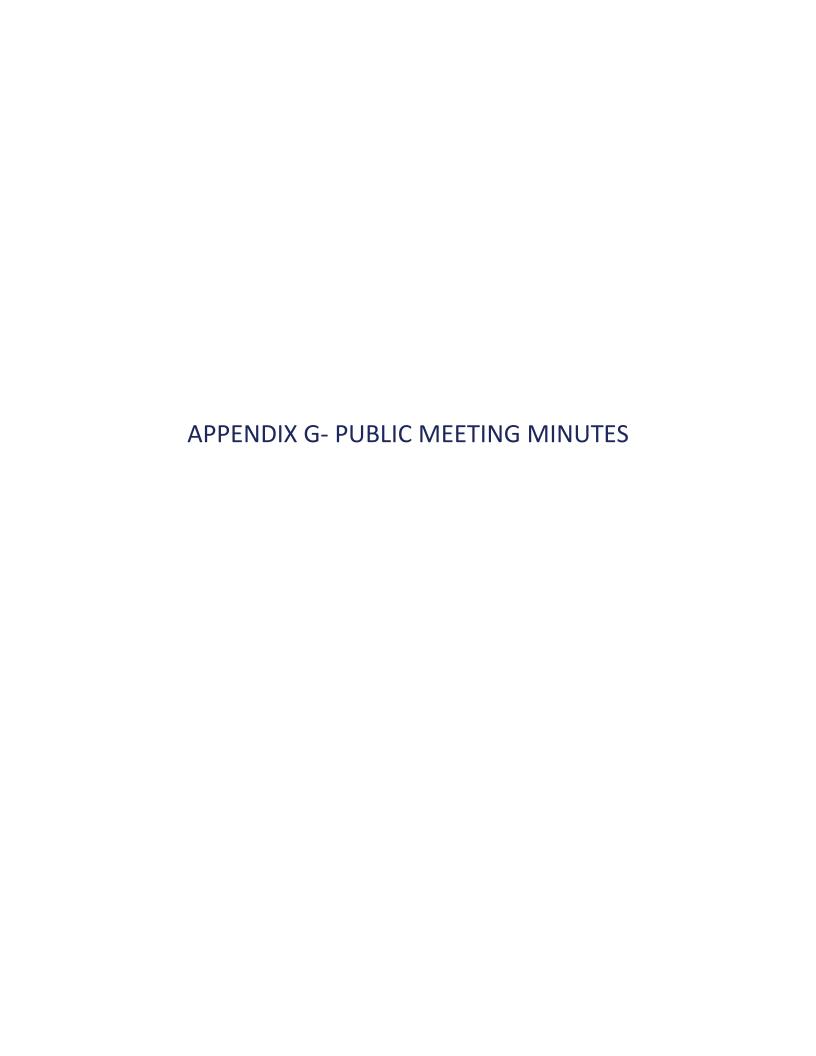
- Access to food is essential. One participant who remained in the area during Superstorm Sandy noted that finding food and identifying where to get groceries was difficult. The participant stressed the importance of knowing where and how to access food when needed during an emergency event.
- There were concerns about overall safety during power outages. Participants remarked that loss of power gave the impression to some that it was a "free for all" situation, indicating the occurrence of looting, etc.
- One participant reinforced the need for clear information on where residents could go
  in the event of an evacuation. They indicated that it was difficult for some to find a place
  to go during and after Superstorm Sandy.



- There have been issues in the past regarding the accuracy of emergency alters. For
  example, one participant stated that there had been emergency notifications about
  storms that never materialized or were not as severe as "they" indicated. This makes
  residents less likely to heed warnings when storms actually arrive. As a result, there is a
  mistrust of information.
- Participants expressed a need for additional support from the region to ensure that buildings are made safe to withstand weather events, such as hurricanes.
- Mental health is also a critical factor in preparedness. These events are stressful and traumatic for a community, and there is a need for additional and adequate resources to protect the mental health of residents. Preparedness plans need to include action about emotional health and assisting residents in handling anxiety. In addition, residents need resources on how to withstand potential emotional effects such as anxiety, stress, and depression.
  - o For kids with Autism, therapy centers to deal with overstimulation, anxiety
  - The region should provide tools to manage social-emotional challenges before residents start suffering.
- Once again, participants mentioned a need for additional education and clear and consistent information. Preparedness education needs to be a priority in the region.
   Also, residents need to know where to find information – if they can't find it, it doesn't exist.
- Businesses, banks, schools, doctors' offices, housing facilities, social service agencies, and libraries are assets to protect.
- One participant recommended using schools as shelters to accommodate autistic kids.
   These buildings would provide ample space to have quiet time and exercise.
- Preparedness training is essential for parents of kids with disabilities and the kids themselves.

#### Conclusion

The group acknowledged that the recommendations and actions in the draft plan well represented their concerns. The draft plan covers the most important topics for these residents, such as communication, needed translations, evacuation drills, charging station, digital documentation system, etc. The group noted additional challenges to add to the plan, including addressing preparedness and resources related to mental, emotional, and behavioral health.













#### Resilient NJ – June 15, 2021 – Virtual Open House Morning Session

#### **MEETING MINUTES**

**DATE:** August 24, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – June 15, 2021 – Virtual Open House Morning Session

A meeting was held June 15, 2021 at 9:00 AM until 10:15 AM with the Resilient NJ Consultant Team and members of the Steering Committee and the public. The virtual meeting was held via Zoom.

The following was discussed at the meeting:

- 1. Alyssa Curran, WSP, started the Zoom meeting at 9:00 AM. She introduced the polling software that would be used in the meeting and the three (3) different ways that Poll Everywhere software that will be used throughout the Open House to poll the public on certain topics. She explained that the meeting attendees can use the Poll Everywhere application (app), website, or text messaging to join the Poll Everywhere conversation.
- 2. Alyssa Curran outlined the meeting's agenda which included Welcoming & Housekeeping, Meeting Objectives, Resilient NJ Overview, Vision & Goals, and Ways to Stay Engaged.
- 3. Alyssa Curran said that the DEP's Chief Resilience Officer and Assistant Commissioner Dave Rosenblatt, as well as members of the Resilient NJ Steering Committee are all in attendance at this virtual meeting.
- 4. Alyssa Curran introduced Flor Mason and Nieves Pimienta of the Consultant Team that were translating all questions into Spanish for any Spanish speaking participants.
- 5. Alyssa Curran began the meeting by giving a brief description of the Resilient NJ project.
- 6. Alyssa Curran explained DEP is using consultants to form the project team.
- 7. Alyssa Curran reviewed what organizations/communities were part of the Steering Committee and explained that the Steering Committee meets every month and helps guide the planning process and the development of the action plan.
- 8. Alyssa Curran announced that any participants that were able to stay until the end of the meeting and participate in the exit survey would be eligible to win a free Adult First Aid CPR/AED course, courtesy of the American Red Cross.

- 9. Alyssa Curran reviewed some housekeeping rules for the Zoom audience which included using the chat box and voice etiquette for the public to ask questions throughout the meeting. She also announced the hopes that the audience would engage in the Poll Everywhere platform to gauge the viewer's real-time thoughts.
- 10. Kristin Shaw, WSP, further elaborated on the ways to use the Poll Everywhere function and reviewed the three ways that were mentioned earlier to use the Poll Everywhere tool. Kristin Shaw then opened the meeting's first poll for participants to add their name and affiliation. Participants shared their names and affiliations via the Poll Everywhere tool.
- 11. Alyssa Curran had a second poll with a map of the region for Resilient NJ and had the audience place a marker for the community they represented on the map. She mentioned that the Resilient ACCR Team was interested in working with members of surrounding communities as well. Most communities in the Atlantic County Coastal Region were represented by one or more members of the public/committees, and a few members of the poll placed markers outside of the region indicating they were from out of the project area.
- 12. Alyssa Curran outlined the meeting objectives were to describe the Resilient NJ process and to receive meaningful feedback for the Atlantic County Coastal Action Plan. She mentioned that this feedback will be provided from further polls and engagement questions about the region and how the audience members felt about certain topics the Action Plan was looking to address.
- 13. Dave Rosenblatt, DEP Chief Resilience Officer and Assistant Commissioner, introduced himself and explained the primary objective of Resilient NJ. He expressed the importance of understanding and addressing climate change issues and future preservation by adaptation. Dave Rosenblatt also said that the USACE is in the process of doing back-bay studies and that participation in those studies is also important. He said that once all studies and research are done that action items can be identified.
- 14. Alyssa Curran outlined the five main objectives of the Resilient NJ Projects . She launched a poll on what the word "resilience" means to participants. The responses to what Resilient means to the participants included a safe and effective community, bouncing back quickly, the ability to recover from an extreme weather event and return to normal community functioning, adaptability, being able to afford to live in the area in the future, having reliable access, a safer community that takes care of each other, ability to overcome difficulties, and managing disruption. She further explained the Resilient definition as per NJDEP perspective and reviewed climate impacts.
- 15. Jonathan Carey, WSP, outlined the Resilient NJ timeline. Jonathan showed where the project is on the timeline and showed what still needs to be done. Jonathan pointed out that the project is working towards building scenarios and that adapting an action plan will follow scenarios. Implementation of the plan will include identifying funding streams from federal and state government to build these projects. He explained that DEP is supporting the plan but that the plan will be consistent with the local region's priorities and goals. Jonathan explained the difference between short-term resilience plans and long-term resilience plans. He also mentioned that it is important to pair planning with urban design.
- 16. Jaclyn Flor, ENGenuity, introduced the different principles of sustainability. She discussed the environmental, social, and economic aspects of sustainable projects and raised questions of how

such projects could assist each of these three facets. She also discussed how a vision statement would help the team evaluate what the public wants for a sustainable future. Jaclyn asked the following questions related to visioning and participants were polled:

- a) What kind of place should the Atlantic County Coastal Region be? Responses were as follows:
  - A mix of a destination resort (Atlantic City and Beaches), Technical/Educational hub (FAA Tech Center and Stockton – ACC) and residential neighborhoods – 5 more people voted up
  - Equitable and empowering 2 more people voted up
  - A community postured to support climate change while addressing challenges that impact residents and long-range planning initiatives - 3 more people voted up
  - Vibrant and diverse 1 additional person voted up
  - Visually appealing and safe 1 additional person voted up
  - One that attracts and allows a diverse population that have a wide range of talents. The
    costal region needs opportunities for all levels of income to live work and play 1 more
    person voted up
  - Livable 1 more person voted up
  - Year-round community and amenities
  - On the meeting chat people responded with the answers "Safe and effective community" and "A pleasant place for family to gather".
- b) If lost what characteristic would change the identity of the region?
   Responses were as follows:
  - The shore appeal. Back bay communities flood and those homes need protection 5 more people voted up
  - Beaches and boardwalk 5 more people voted up
  - The ability for generation retention of property 3 people voted up
  - Boating, fishing, small dives 1 more person voted up
  - The people and community they have formed 1 more person voted up
  - Loss of wetlands 1 person voted up
  - FAA tech center relocated to other part of country
  - Beach sand
  - Casinos Voted down by 3 people
- c) Why do people choose to live and work in the region? Responses were as follows:
  - Ocean 4 more people voted up
  - Love for coastal community living activities 2 more people voted up
  - The sound and smell of the ocean and salt air. Feeling healthy, slower pace 1
    additional person voted up
  - Close to major cities
  - Great, long-term community
  - We love our communities and living at the shore
- d) Why do tourists choose to visit the region? Responses were as follows:
  - Conferences 4 more people voted up

- Beach and boardwalk 4 more people voted up
- To get away from the urban life and enjoy the seashore life for a brief moment 3 more people voted up
- Great beaches, Casinos and family in the area 2 more people voted up
- Best-located entertainment district in the country 2 more people voted up
- Beach and casinos 2 more People voted up
- Historic charm of cape may 1 person voted up
- Convenient to their homes
- To spend time near the ocean
- e) What aspect of the region are you the most proud of? Responses were as follows:
  - Beach and boardwalk 3 more people voted up
  - Clean beaches 4 more people voted up
  - The ability to provide services to visitors, second homeowners and primary homeowners each and every year 1 additional person voted up
  - Communities 2 more people voted up
  - Great communities to raise kids 1 additional person voted up
  - Stockton University and its growth 1 additional person voted up
- f) What services, improvements and technologies do you see your community benefiting from in the future?

Responses were as follows:

- Emerging technologies based on clean energy initiatives 5 more people voted up
- Bicycle infrastructure 3 more people voted up
- Shared Services 2 more people voted up
- Great community to work "remotely" broadband 2 more people voted up
- Improved airport service more airline 1 additional person voted up
- Multi-jurisdictional coordination 1 additional person voted up
- More resilient businesses and homes
- 17. Jaclyn Flor outlined a Vision Statement from the above polls and asked participants to poll on the proposed Vision Statement whether they agreed or not. The Vison Statement was "The Atlantic County Coastal Region is an inclusive, clean, and safe place with a diverse economy that supports local businesses, research opportunities, and new industries centered on renewable energy and the beach economy. The region is able to withstand climate impacts now and into the future through improved shoreline protection, inland infrastructure, and community resources." Jaclyn asked the audience to poll. From the poll 44% of participants said they strongly agreed with the statement, while 22% agreed and 33% neither agreed nor disagreed. No participants disagreed or strongly disagreed.
- 18. Jenna Scott, CDM Smith, discussed goal-setting and planning and asked for input on the goals that the team should focus on for the future plan. She had the audience place a marker for poll on goals form each column. This poll saw a majority of people asked to focus on protecting critical infrastructure and protecting residents ability to stay in the region. Other popular answers included diversifying the economy and tourism sectors, and protecting critical ecology. In the meeting chat

- Environmental Justice and making sure our most vulnerable residents are protected and Restrict development on the Bay Islands along the causeways were added as responses.
- 19. Richard Levitt, Chairman of Northfield Planning Board, asked NJDEP's opinion on 2018 Egg Harbor redevelopment plan for blocks 9701 and 9801 that showed nine (9), Four-story residential buildings in light of the Bay Island restrictions, sea-level rise problems, flooding on the Margate Causeway, the visual impact, the quality of life, and the loss of recreational space for boating to residential development. Richard asked for his concerns to be addressed by NJDEP.
- 20. Jena Scott answered that they will include this concern in the report and look for policies that are made.
- 21. Matt Baumgardner, DEP, added to answer that his team will be in touch with Alyssa and will try to address this concern.
- 22. Alyssa Curran presented three different revised vision statements based on participation and input from the meeting. Alyssa asked the audience place a marker on their preferred revised Vision Statement. Participants preferred "The Atlantic County Coastal Region is a safe and clean beachfront place with a vibrant and diverse year-round community destination that supports the ability to provide services to visitors and residents centered on community. The region is able to withstand climate impacts now and into the future through improved transportation infrastructure and improved local economy" as the top vision statement.
- 23. Alyssa Curran added the project email address to the chat box of the Zoom call to encourage the participants to stay engaged with the Resilient NJ process and added the program's website for the action plan and Survey Monkey link for post-meeting thoughts and any words members of the audience wanted to add to the vision statements.











#### Resilient NJ – June 15, 2021 – Virtual Open House Evening Session

#### **MEETING MINUTES**

**DATE:** June 15, 2021

**TO:** All Meeting Attendees

FROM: Consultant Team

**SUBJECT:** Resilient NJ – June 15, 2021 – Virtual Open House Evening Session

A virtual meeting was held via Zoom on June 15, 2021, from 6:00 PM until 7:15 PM with the Resilient NJ Consultant Team and members of the Steering Committee and the public.

Name	Organization	Email
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jflor@engenuitynj.com
Bill Cesanek	CDM Smith	CesanekWE@cdmsmith.com
Kristin Shaw	WSP	Kristin.shaw@wsp.com
Dave Rosenblatt	NJDEP	
Flor Mason		

The following was discussed at the meeting:

- 1. Alyssa Curran, WSP, started the Zoom meeting at 6:00 PM. She introduced the Poll Everywhere software that would be used in the meeting and the three different ways it would be used to poll the public. She explained that the meeting attendees can use the Poll Everywhere app, website, or text messaging to join the Poll Everywhere conversation.
- 2. Ms. Curran outlined the meeting agenda, which included Welcoming & Housekeeping; Meeting Objectives; Resilient NJ Overview; Vision & Goals; and Ways to Stay Engaged.
- 3. Ms. Curran also stated that the DEP's Chief Resilience Officer and Assistant Commissioner Dave Rosenblatt and members of the Resilient NJ Steering Committee were in attendance. She also introduced Flor Mason and Nieves Pimienta of the Consultant Team, who would translate all questions into Spanish for any Spanish speaking participants.
- 4. Ms. Curran then briefly described the Resilient NJ project, explained that DEP is using consultants to form the project team, and described the organizations and communities that form the Steering Committee, which meets monthly and guides the development of the action plan.

- 5. Ms. Curran announced that any participants remaining until the end of the meeting and participating in the exit survey would be eligible to win a free Adult First Aid CPR/AED course, courtesy of the American Red Cross.
- 6. Alyssa Curran reviewed housekeeping rules for the Zoom audience, which included using the chat box and voice etiquette for the public to ask questions throughout the meeting. She also announced the hopes that the audience would engage in the Poll Everywhere platform to gauge the viewers' real-time thoughts.
- 7. Kristin Shaw, WSP, further elaborated on the ways to use the Poll Everywhere function and then opened the meeting's first poll for participants to add their name and affiliation.
- 8. Ms. Curran opened a second poll with the Resilient NJ project area map and asked the audience to mark the community they represented on the map. She mentioned that the Resilient ACCR Team seeks to work with members of surrounding communities as well. Most communities in the Atlantic County Coastal Region were represented by one or more members of the public or committees, and a few members of the poll placed markers outside of the region indicating they were from outside of the project area.
- 9. Ms. Curran reiterated that the meeting objectives were to describe the Resilient NJ process and to receive meaningful feedback for the Atlantic County Coastal Action Plan. She mentioned that this feedback will be provided from further polls and engagement questions about the region and how the audience members felt about certain topics for the Action Plan.
- 10. Dave Rosenblatt, DEP Chief Resilience Officer and Assistant Commissioner, introduced himself and explained the primary objective of Resilient NJ. He expressed the importance of understanding and addressing climate change issues and future preservation by adaptation. Mr. Rosenblatt also stated that the USACE is conducting back-bay studies and that participation in those studies is also important. He said that once all studies and research are finished, action items can be identified.
- 11. Ms. Curran outlined the five main objectives of the Resilient NJ Project and launched a poll on what the word "resilience" means to participants. The responses included a safe and effective community; bouncing back quickly; the ability to recover from an extreme weather event and return to normal community functioning; adaptability; being able to afford to live in the area in the future; having reliable access; a safer community that takes care of each other; the ability to overcome difficulties; and managing disruption. She further explained the definition of resilience from the NJDEP perspective and reviewed climate impacts.
- 12. Jonathan Carey, WSP, outlined the Resilient NJ timeline, and stated that the project seeks to build scenarios and adopt an action plan. Plan implementation will include identifying federal and state funding streams to build these projects. He explained that DEP supports the plan and that the plan will be consistent with the local region's priorities and goals. He then explained the difference between short-term and long-term resilience plans and stressed the important of pairing planning with urban design.
- 13. Jaclyn Flor, ENGenuity, introduced the different principles of sustainability. She discussed the environmental, social, and economic aspects of sustainable projects and raised questions of how such projects could assist each of these three facets. She also discussed how a vision statement

would help the team evaluate what the public wants for a sustainable future. Jaclyn asked the following questions related to visioning and participants were polled:

- a) What kind of place should the Atlantic County Coastal Region be?
   Responses were as follows:
  - It should be the same great place to live and visit as it has always been. 2 Upvotes
  - Permanent community that's welcoming and full of opportunity
  - A safe and fun community for residents and visitors
  - An area that should not develop beyond what is safe to live in.
  - A destination and home popular tourist attractions whether its business or natural attractions **1 Upvote**
  - Restore natural functions to ocean side dunes and back side wetland protections
- b) If lost what characteristic would change the identity of the region? Responses were as follows:
  - Boardwalk 1 Upvote
  - If there was no more beach 1 Upvote
  - Tourism economy
  - Wetlands
  - Beaches, wetlands, and all sea life creatures that are part of it
  - Access to and views of water
  - Beaches
  - The summertime nature of our region beaches, boardwalks, families at ice cream shops, etc.
- c) Why do people choose to live and work in the region? Responses were as follows:
  - Accessible to metropolitan areas
  - Born and raised, family, friends, and community
  - Climate is not common for natural disasters
  - Beaches and boardwalk
  - Not as crowded as surrounding areas
  - Gorgeous location with a small urban feel got the amenities and the shore
  - Natural beauty, safety, charming way of life for those who appreciate the outdoor opportunities
  - The feeling of being by the water
- d) Why do tourists choose to visit the region?

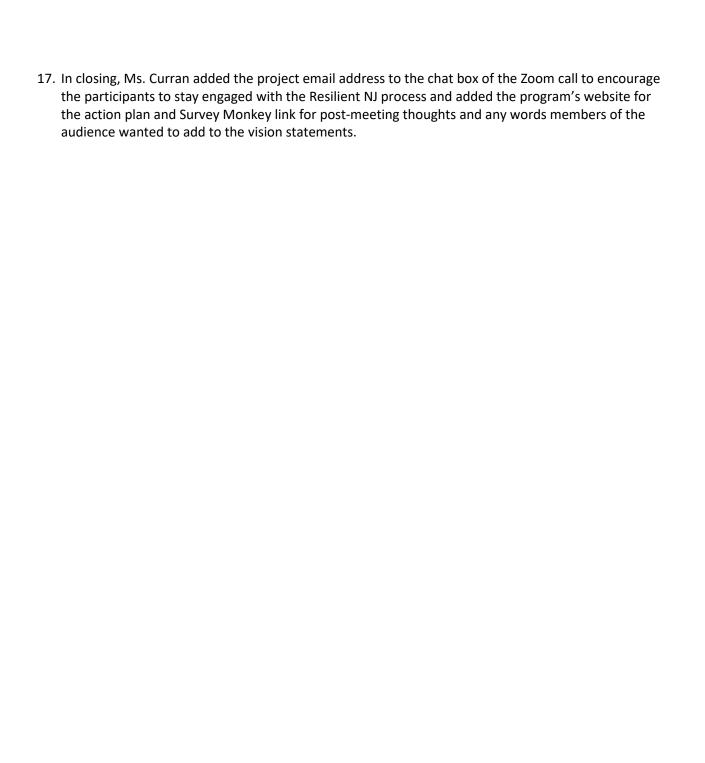
Responses were as follows:

- Beaches and Board walks 1 Upvote
- Place for everyone
- Quick and easy access by vehicle travel from major metro areas
- Hospitality employment opportunities
- Outdoor lifestyle tourism
- Parking is easy

- Casinos
- Peaceful region
- Good mix of fun for families, young adults, older adults, everyone in between
- e) What aspect of the region are you the most proud of? Responses were as follows:
  - Beaches 2 Upvotes
  - Cohesiveness of community and appreciation for the natural resources offered
  - Biking opportunities
  - Education
  - Back bays
- f) What services, improvements and technologies do you see your community benefiting from in the future?

Responses were as follows:

- Tax benefits for home gardens
- Solar Energy
- Forefront of the Renewable energy era. Wind, solar or tidal
- Educating the community
- Recycling
- More sustainable energy sources and technologies
- 14. Ms. Flor proposed a Vision Statement from the above polls and asked participants to respond as to whether they agreed or not with "The Atlantic County Coastal Region is an inclusive, clean, and safe place with a diverse economy that supports local businesses, research opportunities, and new industries centered on renewable energy and the beach economy. The region is able to withstand climate impacts now and into the future through improved shoreline protection, inland infrastructure, and community resources." 20% of participants strongly agreed with the statement, while 80% agreed. No participants disagreed or strongly disagreed.
- 15. Bill Cesanek, CDM Smith, discussed goal-setting and planning and asked for input on the goals that the team should focus on for the future Plan. He asked the audience to place a marker on goals from each column, and a majority asked for focus on "Protecting critical infrastructure" and "Protecting residents' ability to stay in the region". Other popular answers included "Diversifying the economy and tourism sectors", and "Protecting critical ecology". In the meeting chat "Environmental Justice", "Making sure our most vulnerable residents are protected", and "Restrict development on the Bay Islands along the causeways" were added as responses.
- 16. Ms. Curran then presented three different revised vision statements based on participation and input from the meeting. She asked the audience to place a marker on their preferred revised Vision Statement. Participants preferred "The Atlantic County Coastal Region is a welcoming place with important natural features that supports a safe place to live centered on outdoor activities, open space, and strong residential community. The region is able to withstand climate impacts now and in the future through improvements to critical infrastructure of renewable energy, water resources and public works." as the top vision statement.



# ACCR PUBLIC MEETING SUMMARY REPORT















# Objective

On February 10, 2022, at 9:00-10:30 AM and 6:00-7:30 PM, two virtual public meetings were held to discuss the Resilient NJ regional resilience and adaptation action plan. The NJ Department of Environmental Protection has launched a planning process to prepare for the impacts of climate change - including protection against hurricanes, flooding, and other hazards. At this second round of public meetings, attendees were asked to help in ranking scenarios and selecting projects that will enable the Atlantic County Coastal Region to prepare for, plan for, respond to, and adapt to our changing climate.

The agenda for each session was structured as follows:

- 1. Welcome
- 2. Introductions & Welcome
- 3. Polling Exercise
- 4. Vision & Goals
- 5. Protecting the Region
- 6. Scenario Presentations
- 7. Final Polling Exercise
- 8. Adjournment

# **Meeting Minutes**

The following was discussed at the meeting:

## AM Meeting:

- 1. Amy DiCarlantonio, WSP, started the meeting by explaining the importance of the community's feedback and the appreciation of having the residents here for this engagement process.
- 2. Jaclyn Flor began to discuss the vision statement for the Resilient New Jersey Atlantic County Coastal Region. This vision statement has a key focus on protections from natural disasters, flooding, and sea level rise.
  - a. Jaclyn reviewed key points the community has highlighted in the past as to why the region matters. This region is proud of its social fabric, diverse economy, and ecological assets.

## Resilience & Adaptation Strategies:

- Eric Fang, Perkins Eastman, began to discuss the scenario goals:
  - Respond to the vision identified by the region
  - Reducing the anticipating flood impacts in 2070
  - Include actions that respond to immediate flooding concerns with the region
  - Protect and enhance natural resources and ecosystem function
  - Address the needs of socially vulnerable populations
- Eric continued to discuss what actions are going to be taken. These look like flood mitigations projects, capital improvement projects, future studies and planning and regulatory actions.
  - Eric introduced the resilience checklist and how the scenarios will be ranked. This is based on the vision, risk, cost, capacity, environmental considerations, adaptation, health and population, socio economic assets.
  - Some of the challenges are shoreline protection, stormwater management, access & transportation, power & communication, equitable economic opportunity, public facilities, community members.
- Eric began to talk about what key assets are going to be protected.
  - This list includes natural resources, evacuation routes, electrical equipment and pump stations, public facilities, commercial corridors, marinas, vulnerable populations.

• Eric then discussed what we are trying to prepare the region from. There were a couple of items such as intense rainstorms, which will lead to a 10% increase in precipitation by 2070. Sea level rise will also become a threat as levels increase to 2.4' by 2070.

# Resiliency Criteria:

- 1. Eric Fang began to discuss the three scenarios
  - The first scenario is focused more on grey infrastructure and relies on Federal and local partnerships and includes raised streets and pump stations.
  - Scenario two is focused on a mix of blue and green solutions and relies on state and local partnerships. This includes raised bayside and continued beach renourishments, along with blue streets and pump stations.
  - c. Scenario three is decentralized and relies on non-profit and private sector partnerships. This includes living streets and decentralizes solar and battery power plans.
- 2. Eric Fang began to discuss region wide actions for all scenarios. He introduced Absecon Bay Living Bay Master Plan which will provide a framework to establish conditional monitoring. The idea is to establish a new non-profit organization to steward the bay and provide public education. They will act as a steward to promote responsible sustainable development. Along with this, translating all emergency preparedness information for the diverse region. Another action for all scenarios includes an adaptation action plan for Atlantic city and Pleasantville Housing Authority Communities and the Regions Senior Centers. Doing this will ensure continuity of service and provide resilience.

## Scenario One:

- 1. Eric started to discuss how this scenario will rely on hard measures to protect against storm surges and levees/floodwalls to protect against other surge events. This however will not protect Brigantine, so a seawall will be proposed. On the oceanside, the approach would be to install a sheet pile dune core and extent the boardwalk to act as a levee. These two in combination would address storm surges.
- 2. Stormwater is also a risk the community is facing and to address this, scenario one proposes raising roads and installing pump stations. Some of the key roads that will be raised would be evacuation routes.
- 3. Power and communications would propose a series of new microgrids at public buildings, installing new generators, and hardening all above ground

utility poles and bury utilities where possible. This will help ensure continuity of power.

4. Protecting commercial centers is a key aspect of this scenario and the adoption of the proposed university district.

#### Scenario Two:

- 1. Eric introduced scenario two which will weave in some decentralized approaches which include shoreline protection through a continued beach nourishment program with a gradual elevation increase to address surge over time.
- 2. This scenario will implement a blue/green way which is a network of interconnected kayak/canoe trail connection Atlantic County bays developed in conjunction with new recreational trail along the Blackhorse pike and roads paralleling the shoreline. This will help raise awareness, but also increase economic development.
- 3. For stormwater management, there will still be pump stations, but also blue streets to enable to city's ability to lower the stormwater and allow for the ground to increase the storage of water.
- 4. This scenario also relies on microgrids in leveraging existing facilities. Rather than diesel generators, the microgrid would be reliant on solar energy.

#### Scenario Three:

- 1. This scenario is more nature based where rather than relying on hard infrastructure, the community relies on up zoning all properties with bayside frontage and constructing offshore breakwaters and incremental dune elevation through three-year renourishment cycles.
- 2. Much as scenario two for stormwater management, there will be upgrades to existing streets with networks of green infrastructure for groundwater management. This will allow for natural infiltration to mitigate downstream flash flood risks.
- 3. It also looks at adapting existing parks and the golf course serves as stormwater management. Along with existing parks, they will also create new storm water management parks on city-controlled land.
- 4. For continuity of power, they are looking to encourage development of renewable energies throughout neighborhoods and businesses. This includes supporting weatherization of homes that can retain heat or cooling during a power outage, supporting nano grids, and encouraging bi-directional electrical currents.
- 5. For economic development, there would be incentivization for creating these adaptable corridors. This can be done through rezoning areas to support the blue economy.

#### Q&A:

**Q:** John Paterson asked about evolving away from gaming: How do you replace the economic productivity of the gaming industry if we evolve away from it and tourism?

**A**: Eric responded by talking about the enjoyment of the bay and the bay keepers to encourage the education of the bay and maintain a healthy ecological environment. Also encouraging gaming, but you can also come to the area to enjoy other aspects of the economy.

**A:** We need to diversify the economy even further to continue with gaming and the nightlife, but also those daytime activities, so when people come to this region, they realize everything that [this region] has to offer. No one's saying to eliminate one thing over the other.

**A:** We are not doing an economic development plan, but a resilience plan, so we want to make sure we are protecting the key assets from climate change. There are other proposals, like Gardener's Basin, to attract private investment to accomplish resilience and facilitate economic development.

**Q:** Lee Widman asked: Does the plan address the Stormwater runoff that is under the Boardwalk in Atlantic City and Ventnor

**A:** Eric Fang answered. "We did not include a proposal specifically for that, but it was brought up by project team consultants with CDM. We will send you the information after the meeting."

**A:** Bill Cesanek added that all these future flood conditions incorporate sealevel rise scenarios. Some of the ideas presented during the meeting, such as blue roads and the pumping, are designed to lower and reduce elevated water tables during flood events. Some do it more naturally than others, but the analysis anticipates some form of sea level rise that would have to be managed in the future.

**A:** Amy DiCarlantonio added that Rising groundwater was looked at for the stormwater parks. "The idea of potentially focusing or designing stormwater parks on the island might not be effective because of rising groundwater." (Amy DiCarlantonio)

**Q**: Caren Fitzpatrick asked: What area of the Black Horse Pike is being raised and What's the timeline of that? I do appreciate the multi-use plan of the area-including biking and walking.

**A:** That's a project that Amy DiCarlantonio from WSP is currently involved in, and it is taking place over the next couple of years. The exact extent is from Naples Avenue to Bayport (see the last slide for the map) the skinnier part, about 10 blocks to the east, is proposed to be raised, with an engineering report and preliminary concept design produced in 2021.

This promotes a fantastic opportunity to transform the identity of the road to change into a place you want to be that could attract more development and investment and not be a high-speed arterial.

**Q:** Lee Widman asked: Do the plans contain maintenance of anything that is being done.

**A:** Amy DiCarlantonio answered, "Implementation is a big focus of this project. As we move forward and get feedback from the public and steering committee on the preferred actions, we can combine those into a preferred scenario. We will have the ability then to dive deeper into each of those preferred actions and outline the upfront costs, maintenance plans, and tradeoffs."

**A:** Eric Fang added," that is a great question because the costs are not just the upfront costs, you may be left with something that is expensive to maintain and keep up over time. "

**A:** Bill Cesanek added, "it is important to recognize that the maintenance of green infrastructure involves a different skill set and set of actions than conventional pipes, drains and pumps. It is a paradigm shift in many ways."

**Q:** Kimberly McKenna said surprised to see all the hard structures proposed for oceanside shoreline protection! Was this coordinated with the USACE (United States Army Corp of Engineers) as they design and maintain the shoreline in Atlantic County?

**A:** The Army Corps is currently vetting proposals with the public, we added additional measures to our scenarios. We included the Army Corps as well as other ways to approach this to gauge the public's feelings on that. Anything that has already been studied will not be dismissed, it is important to get your take on each as we development scenario plans.

**Q:** Roger McLarnon asked in one scenario - a recommendation was to extend the Ventnor boardwalk though Margate to Longport as a solid wall structure. I do not recall that ever being discussed and it will not be recommended by Margate or Longport.

**A:** Jacklyn Flor answered Thank you, adding "I'll make sure the team knows that. We will set up one on one meetings in addition to the feedback we hear today to meet with the Steering Committee members next week before the Innovation Presentation on 2/24 to go over projects that have and do not have community support."

**Q:** Jacques Howard and Lee Widman mentioned need to create a regional trust fund, together with the Bay Keepers. Any other "Keeper" organization exist for a bay?

- Patcong Creek Foundation-not sure how active they currently are (Caren Fitzpatrick)
- There are multiple Bay Keeper's in the U.S. In NJ there is:
  - 1. https://www.nynjbaykeeper.org/ (Nicholas Angarone)
  - 2. https://www.savebarnegatbay.org/ (Kimberly McKenna)
- ➤ Barbara Woolley-Dillon mentioned this has been adopted by the city and is part of our Planning documents, referring to the Stockton Overlay Plan.

**Q:** Elizabeth Semple asked; Do you have examples of living bay plans in other areas? Do you have a compendium of nature-based solutions and what types of resilience they can realistically achieve? How would the Mullica River be best protected?

**A:** Eric Fang answered, "we have been diving into other precedents and lessons learned from other living bay plans, so there is more to come on this current research."

**A:** Bill Cesanek added, "The Living Bay Plan has been put forward to protect the bay. However, the Mullica River has not been a focus. The river would benefit from some of the water management ideas proposed in the scenarios. The team is open to hearing more ideas."

#### XI. Chat Items:

Comment and attendance metrics are summarized in "Resilient NJ Attendance and Comment Metrics\_2.10.22" Word and Excel files.

## PM Meeting:

#### Introduction

- Amy DiCarlantonio, WSP, introduced the project's goals and objectives.
- She explained that public input is especially important in informing how projects could be implemented.

#### 1. Project Vision and Public Engagement

- Jaclyn Flor shared the vision that leads the project development, especially when it comes to engagement.
- Jaclyn reviewed the different public engagement activities that the planning team has done including focus groups, public meetings, and meetings with steering committees.
- She reviewed feedback that has been received from the public:
  - i. The region is proud of its diversity, competitive economy, and its tourism.
  - ii. There is a connection to the "water" in the region. People come to connect with nature, oceans, and bays. Blue economy is important for the people in the region.

# 2. Resilience & Adaptation Strategies

Eric Fang, Perkins Eastman, discussed the resilience and adaptation strategies.

- The whole of this project is to adapt and prepare for Climate Change. But the region does not want to do this while losing its essence. Goals of these scenarios include:
  - i. Respond to the vision identified by the region
  - ii. Reducing the anticipating flood impacts in 2070
  - iii. Include actions that respond to immediate flooding concerns with the region
  - iv. Protect or enhance natural resources and ecosystem function
  - v. Address the needs of socially vulnerable populations.
  - A scenario is a suit of actions that will work collectively to increase resilience over time. Actions include flood mitigation projects, capital improvement projects, future studies/analysis, planning and regulatory actions, communications, and outreach.
  - Eric discussed key challenges to address including shoreline protection, stormwater management, access and transportation, power and

- communications, equitable economic opportunity, public facilities, community members.
- Eric also addressed things that the region is trying to protect, including natural resources (the bay), evacuation routes, electrical equipment and pump stations, public facilities, commercial corridors, marinas, vulnerable populations.
- Eric discussed why the region needs to prepare for the future such as aloo-year rainstorm that will lead to a 10% increase in precipitation by 2070. Sea level rise will also become a threat as levels increase to 2.4' by 2070.

#### 3. Scenarios

- Eric Fang began to discuss the three scenarios:
  - a. **Scenario 1:** A centralized approach by looking at federal governments to lead the efforts with local governments and focuses on gray infrastructure. This scenario is reliant on flood gates, flood walls, raising streets, and pump stations.
  - b. **Scenario 2:** A mix of green and blue solutions and looks at state and local government partnerships. It is looking at a mix of hard infrastructure mechanical solutions as well as nature-based solutions.
  - c. **Scenario 3:** A decentralized scenario which relies on non-profit and private sector partnerships together with state, federal, and local governments. This includes living streets and decentralizes solar and battery power plants.
  - d. For specific information about each plan, please review the presentation slides.

#### Scenario One:

- Eric started to discuss how this scenario will rely on hard measures and plan proposed in the USACE Back Bay Plan, great Egg Harbor Inlet SSB to protect bayside against storm surges and levees/floodwalls to protect against other surge events but does not protect against sealevel rise. This, however, will not protect Brigantine shoreline, so an extended seawall will be proposed. On the oceanside, the approach would be to install a sheet pile dune core and extend the boardwalk to act as a levee to Margate and Longport. Combined, these two would address storm surges.
- Stormwater is also a risk the community is facing and to address this,

scenario one proposes raising roads and installing pump stations. Some of the key roads that will be raised would be evacuation routes.

- Power and communications would propose a series of new microgrids/emergency generators at public buildings, installing new generators, hardening all above-ground utility poles, and bury utilities where possible. This will help ensure continuity of power. For instance, in Atlantic City, install a new emergency generator in Atlantic City Hall to operate the city's 911 system.
- Protecting commercial centers such as Margate, Atlantic City, and Brigantine commercial corridor is a key aspect of this scenario
  - o Expand midtown Microgrid to nearby local merchants.
  - Coordinate with developers to expand microgrid to local merchants on Atlantic Ave that are critical after emergency events/outages.
- In terms of Equitable Economic Development, the adoption of the proposed university district is a key aspect.

#### Scenario Two:

- Eric introduced scenario two which will weave in some decentralized approaches, which include shoreline protection through a continued beach nourishment program with a gradual elevation increase to address surges over time.
- On the bayside, a different approach is being taken due to private ownership in the bayside and this proposal is as raising sections of streets along the bayside to form continuous flood protection through Winchester Ave, Sunset Ave, North Annapolis Ave, Chelsea Court, and North Harrisburg Ave.
- This scenario will implement a blue/green way which is a network of interconnected kayak/canoe trails (Blue way) connection Atlantic County bays developed in conjunction with the new recreational trail (Green way) along the Blackhorse pike and roads paralleling the shoreline. This will help raise awareness of the sea and beauty of the bay as an educational function, but also increase economic development.

- For stormwater management, there will still be pump stations, but also blue streets to enable to city's ability to lower the stormwater and allow for the ground to increase the storage of water.
- This scenario also relies on microgrids in leveraging existing facilities.
   Rather than diesel generators, the microgrid would be reliant on solar energy. Microgrids can be centered around casinos/ hotels or other major sites that can provide emergency services and support.
- The microgrids focus on opportunities to use renewable/solar energies on rooftops and surface parking lots.
- Up-zone areas in less vulnerable areas to incentivize affordable housing. Incentivize increased density + affordable housing on high and dry areas with each municipality. With walking distance from transit and jobs.

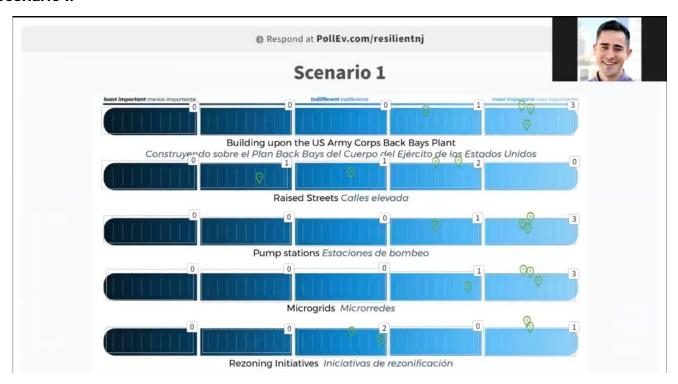
### Scenario Three:

- This scenario is more nature-based and decentralized where rather than relying on hard infrastructure, the community relies on up zoning all properties with bayside frontage and constructing offshore breakwaters and incremental dune elevation through three-year renourishment cycles on the oceanside.
- On the bayside, the Blue Acres program has been applied for homes north of Greenfield Ave and South of Bay Drive, and East of Edgily Ave to transform this area to a natural state to protect the wetland in upland Pleasantville.
- In Living streets much like scenario two for stormwater management, there will be upgrades to existing streets with networks of green infrastructure for groundwater management. This will allow for natural infiltration to mitigate downstream flash flood risks. This includes open swale along pedestrians to allow stormwater to penetrate and filter through natural planting and permeable pavement that is porous and allows water to go through.

- It also looks at adapting existing parks and the golf course serves as stormwater management, it links pump stations effluent to new wetland parks (rather than discharge to the bay). Along with existing parks, they will also create new stormwater management parks on citycontrolled land.
- For continuity of power, they are looking to encourage the
  development of renewable energies throughout neighborhoods and
  businesses. This includes supporting weatherization of homes that can
  retain heat or cooling during a power outage, supporting nano grids,
  and encouraging bi-directional electrical currents.
- For economic development, there would be incentivization for creating these adaptable corridors. This can be done through rezoning areas to support the blue economy.
- Rezone areas around Gardeners Basin and Delta Basin to allow for industrial/ Blue Economy related land uses.

Poll Everywhere Questions and Results

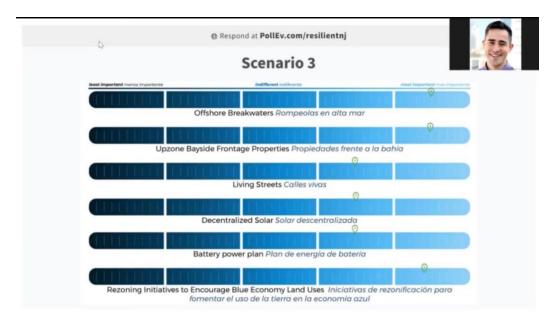
### Scenario 1:



### Scenario 2:



### Scenario 3:



## **Participant Questions**

Eric reviewed questions from the morning session. Some questions about whether these plans consider the cost of maintenance.

Answer: Eric said that there are costs associated with maintenance and that the team is studying these costs.

**Q:** How would the Mullica River be best protected?

A: Bill Cesanek said the Living Bay Plan has been put forward to protect the bay. However, the Mullica River has not been a focus. The river would benefit from some of the water management ideas proposed in the scenarios. He mentioned that the team is open to hearing more ideas.

Q: Do these plans for rising and more saline ground water?

A: Bill Cesanek said that all these future flood conditions incorporate sea level rise scenarios. Some of the ideas presented during the meeting, such as blue roads and the pumping, are designed to lower and reduce elevated water tables during flood events. Some do it more naturally than others, but the analysis anticipates some form of sea level rise that would have to be managed in the future.

A: Amy said that rising groundwater was looked at for the stormwater parks. The idea of potentially focusing or designing stormwater parks on the island might not be effective because of rising ground water.

**Q:** How would the proposed rezoning of Delta Basin impact the existing redevelopment that will be approved by Atlantic City? What is a blue economy?

A: Eric said that the notion of blue economy is to focus on industries that are water dependent. To take advantage of the region's location and ability to support businesses that depend on the ocean.

A: Bill said that the planning team is coordinating very closely with Atlantic City so there is no anticipation of overriding any plans that Atlantic City is planning to do.

A: Amy explained that these ideas also hope to build upon other proposals that are currently being discussed.

Q: Can we get a copy of the detailed plan rather than just a summary?

A: Amy said that all materials from this presentation will be posted on the website after the meeting. As the project moves forward these next months, the team will be producing a preferred scenario, which would be composed of

the diverse types of projects that gained support. The details of that proposed scenario will be publicly available.

### Public Engagement Metrics

The following tables summarize public engagement metrics for the Resilient NJ public meeting held on Thursday, February 10, 2022, at 9 am and again at 6 pm. Average attendee engagement in the 90-minute meeting lasted for 72 minutes during the morning session and for 63 minutes of the evening session before logging off from the Zoom platform.

In the morning (AM) meeting, there were 70 attendees, 13 of whom were project staff members in attendance. In the evening (PM) meeting, there were 46 attendees, 12 of whom were project staff members in attendance. A detailed overview of all meeting attendees classified by stakeholder type and role is provided below:

### Attendance by Stakeholder Type

Stakeholder Type	AM Attendees	% of AM Attendees	PM Attendees	% of PM Attendees
Local Government	16	23%	2	4%
Community members	15	21%	20	43%
Project Team	13	19%	12	26%
Local Government	8	11%	2	4%
Nonprofit	6	9%	5	11%
Local business	5	7%	3	7%
Academia	3	4%	1	2%
Federal Government	3	4%	1	2%
Media	1	1%	0	0%

# Public Meeting Comments & Project Team Responses by Category:

Clarifications requested on scenario planning content (11 Topic Areas)

Comment Topic Areas	Meeting Time	Commenter	Stakeholder Comment and Project Team Response
1. Black Horse Pike plan and timeline requested (1) 2. Support for pedestrian and bicycle facilities (1)	AM Meeting	Caren Fitzpatrick	What area of the black horse pike is being raised? What is the timeline of that? I do appreciate the multi-use plan of the area-including biking and walking.
			Response:  1. That is a project that Amy from WSP is involved in, the exact extent is from Naples Avenue to Bayport (see the last slide for the map) the skinnier part, about 10 blocks to the east, is proposed to be raised, with an engineering report and preliminary concept design produced in 2021.  2. You have a great opportunity to transform the road into a place you want to be that could attract more development and investment and not be a high-speed arterial.
3A. Coordinating existing and future land use (single family downzoning) (1)	AM Meeting	Joe Martucci	In 2019, CRDA awarded a variance to change a triplex to single family housing near the beach and they were in the midst of changing zoning regulations to allow for single family housing. How will that interact with one of the scenarios to zone the oceanside properties into more condos and townhomes?

3B. Coordinating existing and future land use (Delta Basin) (1) 4. Defining jargon economy")(1)	PM Meeting	Vincent Maione (Orsted)	How would the proposed rezoning of Delta Basin impact the existing redevelopment zone that will be approved by AC? What exactly is a blue economy again?  Responses (2):  1. The notion of blue economy is to focus on industries that are water dependent. To take advantage of the region's location and ability to support businesses that depend on the ocean. (Eric Fang)  2. The planning team is coordinating very closely with Atlantic City so there is no anticipation of
			overriding any plans that Atlantic City is planning to do. (Bill Cesanek)
5. Gaming industry (1)	AM Meeting	John Peterson	Evolve away from gaming? How do you replace the economic productivity of the gaming industry if we evolve away from it and tourism?  Responses (2):  1. We need to diversify the economy even further to continue with the gaming and the nightlife, but also those daytime activities, so when people come to this region, they realize everything that has to offer. No one's saying to

			eliminate one thing over the other.  2. We are not doing an economic development plan, but a resilience plan, so we want to make sure we are protecting the key assets from climate change. There are other proposals, like Gardener's Basin, to attract private investment to accomplish resilience and facilitate economic development.
6. Maintenance Plan (1)	AM Meeting	Lee Widman	Do the plans contain maintenance of anything that is being done?  Response (1):  1. Implementation is a big focus of this project. As we move forward and get feedback from the public and steering committee on the preferred actions, we can combine those into a preferred scenario. We will have the ability then to dive deeper into each of those preferred actions and outline the upfront costs, maintenance plans, and tradeoffs.  a. That is a great question because the costs are not just the upfront costs, you may be left with something that is very expensive to maintain and keep up over time.

			2. It is important to recognize that the maintenance of green infrastructure involves a different skill set and set of actions than conventional pipes, drains and pumps. It is a paradigm shift in many ways.
7. Nature-based solutions inventory and outcomes (re: Mullica River and national best practices) (2)  8. Plan review requested (re: living bay plans) (1)	AM Meeting PM Meeting	Elizabeth Semple Unknown Caller	Do you have examples of living bay plans in other areas? Do you have a compendium of nature-based solutions and what types of resilience they can realistically achieve? How would the Mullica River be best protected?  Responses (2):  1. We have been diving into other precedents and lessons learned from other living bay plans, so there is more to come on this current research.  2. The Living Bay Plan has been put forward to protect the bay. However, the Mullica River has not been a focus. The river would benefit from some of the water management ideas proposed in the scenarios. The team is open to hearing more ideas. (Bill Cesanek)
9. Stockton Overlay Plan adoption (1)	AM Meeting	Barbara Woolley- Dillon	This has been adopted by the City and is part of our Planning documents, referring to the Stockton Overlay Plan.

10. Stormwater management (re: AC, Ventnor, saline ground water, sea level rise) (2)	AM Meeting PM Meeting	Lee Widman Unknown Caller	Does this address the Stormwater runoff that is under the BOARDWALK in AC and Ventnor? Do these plans for rising and more saline ground water?
			Responses (3):  1. We did not include a proposal specifically for [stormwater runoff under the boardwalk in AC and Ventnor], but it was brought up by project team consultants with CDM. We will send you the information after the meeting.  2. All these future flood conditions incorporate sea level rise scenarios. Some of the ideas presented during the meeting, such as blue roads and the pumping, are designed to lower and reduce elevated water tables during flood events. Some do it more naturally than others, but the analysis anticipates some form of sea level rise that would have to be managed in the future. (Bill Cesanek)  3. Rising groundwater was looked at for the stormwater parks. The idea of potentially focusing or designing stormwater parks on the island might not be effective because of rising groundwater. (Amy DiCarlantonio)

11. Ventnor boardwalk extension (1)	AM Meeting	Roger McLarnon	In one scenario, a recommendation was to extend the Ventnor boardwalk though Margate to Longport as a solid wall structure. I don't recall that ever being discussed and it will not be recommended by Margate or Longport.
			Response (1):  1. Hi Roger, Thank you. I'll make sure the Team knows that. We will set up one on one meetings in addition to the feedback we hear today to meet with the Steering Committee members next week before the Innovation Presentation on 2/24 to go over projects that have and do not have community support (Jaclyn Flor)

Coordination requested with stakeholders on scenario planning elements (4 Topic Areas)

Comment Topic Areas	Meeting Time	Commenter	Stakeholder Comment and Project Team Response
1. Stakeholder coordination with USACE on design and maintenance requested  2. Justification	AM Meeting	Kimberly McKenna	Surprised to see all of the hard structures proposed for oceanside shoreline protection. Was this coordinated with the USACE as they design and maintain the shoreline in Atlantic County?  Response (1):
for hard structures requested			1. The Army Corps is currently vetting proposals with the public, we added additional measures to our scenarios. We included the Army Corps as well as other ways to approach this to gauge the public's feelings on that. Anything that has already been studied will not be dismissed, it is important to get your take on each as we development scenario plans.

3. Stakeholder coordination with Bay Keepers	AM Meeting	Jacques Howard Lee Widman	Need to create a regional trust fund, together with the Bay Keepers Any other "Keeper" organization exist for a bay?	
requested			Posponsos (3):	
4. Regional Trust Fund creation requested			<ol> <li>Responses (3):         <ol> <li>Patcong Creek Foundation-not sure how active they currently are (Caren Fitzpatrick)</li> <li>There are multiple bay keepers in the U.S. In NJ there is https://www.nynjbaykeeper.org/(Nicholas Angarone)</li> <li><a href="https://www.savebarnegatbay.org/">https://www.savebarnegatbay.org/</a> (Kimberly McKenna)</li> </ol> </li> </ol>	

Presentation materials (5 comments), feedback (3 comments) or troubleshooting (3 comments)

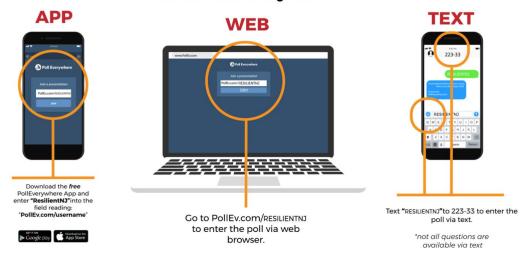
Comment Topics	Meeting Time	Commenter	Stakeholder Comment and Project Team Response
Positive feedback for public meeting (3)	AM Meeting	Victoria Phillips	Thank you. Well done and very informative!
	AM Meeting	John Doring	Thank you
	AM Meeting	David Heller	Thank you. Very informative.
Presentation materials comments/requests (5)	AM Meeting	David Heller	Will we be able to get a copy of the slides following the presentation? Thank you.
			Response (1):  1. Hi David! The presentation and

		recording will be available on the website after the presentations.
AM Meeting	Caren Fitzpatrick	Yes, I would like a copy also! Thanks.
AM Meeting	Lee Widman	The Last set of questions can you give a chance and move back
		Response (1):  1. Lee - are you looking for the Scenario 2 Poll to be reopened? Or are you looking for the PPT slide that shows the information for Scenario 3? (Lauren Peterson)
PM Meeting	Vincent Maione	Absecon is spelled wrong in your presentation. It should be ABSECON.
		Response (1):  1. Absolutely, thank you for catching our mistype. It will be corrected. (Amy DiCarlantonio)
PM Meeting	Larry Widman	Can we get a copy of the detailed plan rather than the summary?
		Response (1):  1. All materials from this presentation will be posted on the website after the meeting. As the project moves forward these next

			months, the team will be producing a preferred scenario, which would be composed of the different types of projects that gained support. The details of that proposed scenario will be publicly available. (Amy DiCarlantonio)
Troubleshooting Polling (2)	AM Meeting	Frances	I am having trouble getting the polling site to work/load
	AM Meeting	John	I have been unable to participate in any of the polling throughout the webinar.  Response (1):  1. Through March, we will have more meetings with focus groups, and we will also have this meeting at 6pm.  Please reach out to us and go to the project website to continue to let us know your feedback and be involved in the meetings.
Troubleshooting Zoom (1)	PM Meeting	Bill	I joined the call using the link provided by Lauren, but I do not have video or microphone access.

## Poll Questions and Responses

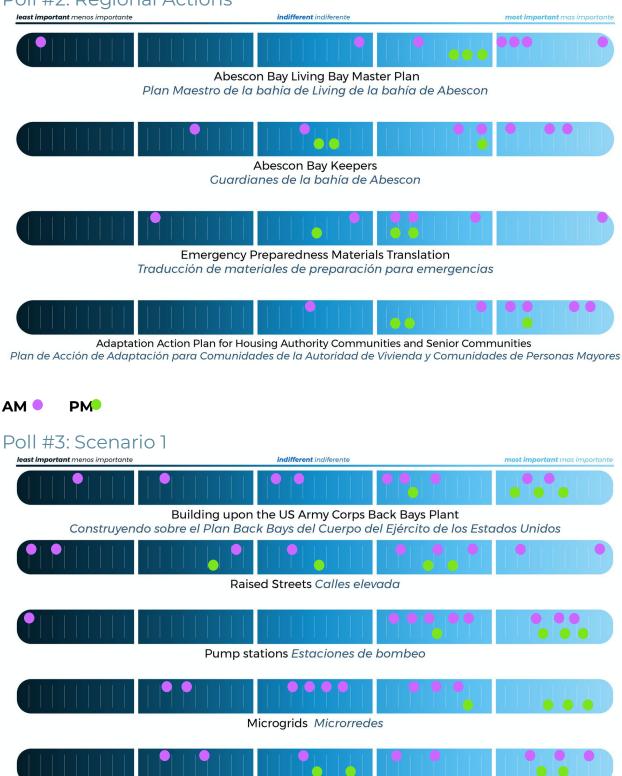
# Three easy ways to join the conversation with PollEverywhere.



# Poll #1: What is your name and zip code?

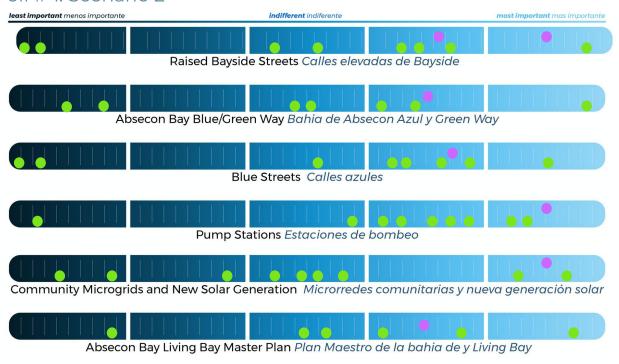
- Bill Cesanek, Resilient NJ Project Team
- Bruce Funk Longport
- Lori, 08225
- Richard Patterson, 08402
- Valarie Nardone, 08205
- Kim McKenna 08241
- Lee Widman, 08406
- George Loza, Architect, 08203
- Larry Widman, 08401
- Bill Stuempfig, 08250
- Jim Ulmer, 08403

### Poll #2: Regional Actions



Rezoning Initiatives Iniciativas de rezonificación

Poll #4: Scenario 2

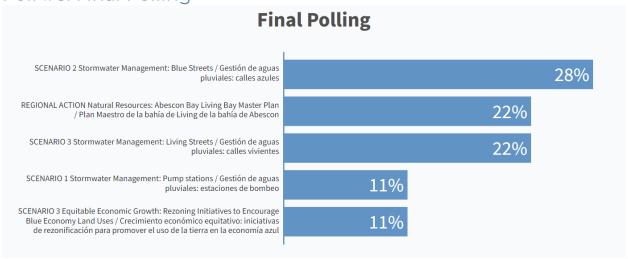


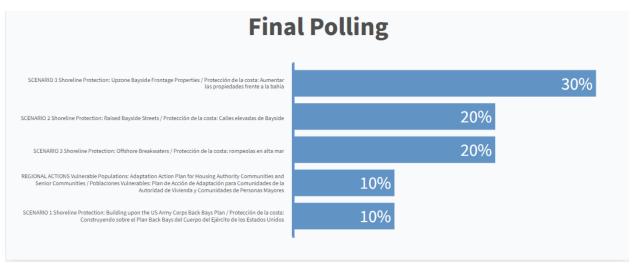
Poll #5: Scenario 3



Rezoning Initiatives to Encourage Blue Economy Land Uses Iniciativas de rezonificación para fomentar el uso de la tierra en la economía azul

# Poll #6: Final Polling





# Attendees

First Name	Last Name	Email	Stakeholder Type
Edward	Blanchard	Edward.Blanchard@redcr oss.org	Nonprofit (public health)
Jim	Eden	jim.eden@redcross.org	Nonprofit (public health)
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Jim	Rutala	jmrutala@comcast.net	Community member

# Project team members present at the morning session included:

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Michelle Bowen	WSP	Michelle.Bowen@wsp.com
Reed Alvarado	WSP	reed.alvarado@wsp.com

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Michelle Bowen	WSP	michelle.bowen@wsp.com

### Chat

## Morning:

**09:04:54** -From Flor Mason: ¡Buenos días y bienvenido! La presentación de hoy será en inglés y está siendo grabada. La presentación estará disponible en español en los próximos días en el sitio web del proyecto en resilient.nj.gov/accr

Un intérprete de habla español estará disponible para ayudar con las preguntas del público durante la reunión de esta mañana.

**09:05:12** -From Flor Mason: Para obtener más información, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

**09:05:23** -From Flor Mason: Durante la presentación de hoy, tendrá la oportunidad de participar en las preguntas de la encuesta. Hay tres formas sencillas de unirse a la conversación con Poll Everywhere

**09:05:36** -From Flor Mason: 1- Puede descargar la aplicación gratuita PollEverywhere App e ingresar "RESILIENTNJ" en el campo que dice "PollEv.com/username"

- 2- Vaya a PollEv.com/ResilientNJ para ingresar a la encuesta a través del navegador web
- 3- Envíe un mensaje de texto con la palabra "ResilientNJ" al 223-33 para ingresar a la encuesta.

**09:06:43** -From Flor Mason: Good morning and welcome! Today's presentation will be in English and is being recorded. The presentation will be available in Spanish in the coming days on the project website at resilient.nj.gov/accr. A Spanish interpreter will be available to assist with questions from the public during the meeting this morning.

**09:06:55** -From Flor Mason: For further information, you can contact the project team at resilientaccr@dep.nj.gov

**09:07:11** -From Flor Mason: During the presentation today you will have the opportunity to participate in survey poll questions. There are three easy ways to join the conversation with Poll Everywhere.

- 1- You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username
- 2- Go to PollEv.com/ResilientNJ to enter the poll via web browser

3- Text "ResilientNJ" to 223-33 to enter the poll via text

**09:09:22** -From roger mclarnon: In one scenario, a recommendation was to extend the Ventnor boardwalk though Margate to Longport as a solid wall structure. I don't recall that ever being discussed and it will not be recommended by Margate or Longport.

**09:10:33** -From Kristin Shaw: Hello everyone! Please participate in our first poll using Poll Ev and let us know your name and where you call home!

09:11:32 - From Kristin Shaw: www.pollev.com/resilientnj

**09:15:03** -From Flor Mason: ¡Hola a todos! ¡Participe en nuestra primera encuesta usando Poll Ev y déjanos saber tu nombre y a dónde llamas hogar!

**09:16:39** -From David Heller: Will we be able to get a copy of the slides following the presentation?

09:17:08 - From Caren Fitzpatrick: Yes, I would like a copy also! Thanks.

**09:17:10** -From Kristin Shaw: Hi David! The presentation and recording will be available on the website after the presentations.

09:17:23 -From David Heller to Hosts and panelists: Thank you.

**09:21:08**- From Jaclyn Flor to Roger Mclarnon and all panelists: Hi Roger, Thank you. I'll make sure the Team knows that. We will set up one on one meetings in addition to the feedback we hear today to meet with the Steering Committee members next week before the Innovation Presentation on 2/24 to go over projects that have and do not have community support

**09:25:42**- From Flor Mason: During the presentation Today, you will have the opportunity to participate in survey poll questions. There are three easy ways to join the conversation with Poll Everywhere.

- 1- You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username
- 2- Go to PollEv.com/ResilientNJ to enter the poll via web browser
- 3- Text "ResilientNJ" to 223-33 to enter the poll via text

09:25:58- From Flor Mason: resilientaccr@dep.nj.gov

Durante la presentación de hoy, tendrá la oportunidad de participar en las preguntas de la encuesta. Hay tres formas sencillas de unirse a la conversación con Poll Everywhere.

- 1- Puede descargar la aplicación gratuita PollEverywhere App e ingresar "RESILIENTNJ" en el campo que dice "PollEv.com/username"
- 2- Vaya a PollEv.com/ResilientNJ para ingresar a la encuesta a través del navegador web
- 3- Envíe un mensaje de texto con la palabra "ResilientNJ" al 223-33 para ingresar a la encuesta.
- **09:28:35** From Jaclyn Flor to Hosts and panelists: Important to note we are not asking the public to choose between the scenarios but among the projects within them. We can reorganize the projects within the scenarios to reflect ideal preferred scenarios
- **09:30:24** From Kristin Shaw to Roger Mclarnon and all panelists: Hello Roger! Could you kindly provide your contact information so we can follow up with you after the meeting? I saw you had a note to Jacklyn Flor. Please feel free to email me directly if that is easier Kristin.Shaw@wsp.com. Thank you for joining us today!
- **09:31:18** -From Jaclyn Flor to Kristin Shaw (Direct Message): Hi! We have Roger's info, he's on our Steering Committee.
- **09:32:21** -From Kristin Shaw to Roger Mclarnon and all panelists: Roger I was notified we have your contact information. Thanks again! Sorry for the false alarm.
- 09:32:29- From Lee Widman: Any other "Keeper" organization exist for a bay?
- **09:32:37** From Kristin Shaw to Jaclyn Flor(Direct Message): Thank you!
- 09:32:53- From Jaclyn Flor to Kristin Shaw (Direct Message): No problem!
- 09:32:58- From Kristin Shaw to Jaclyn Flor (Direct Message): Eric is doing great!!
- **09:34:09** From Caren Fitzpatrick: Patcong Creek Foundation-not sure how active they currently are
- **09:34:17** From Nicholas Angarone: There are multiple Baykeepers in the U.S. In NJ there is https://www.nynjbaykeeper.org/.
- 09:35:06- From Jaclyn Flor to Kristin Shaw (Direct Message): Yes, he is
- **09:36:09** From Flor Mason: Por favor tóme el tiempo para participar en la pregunta de PollEv en este momento.
- **09:36:11** From Kimberly McKenna: https://www.savebarnegatbay.org/

**09:38:08**- From Frances Brown to Hosts and panelists: I am having trouble getting the polling site to work/load

**09:40:59** - From Flor Mason to frances brown and all panelists: During the presentation today you will have the opportunity to participate in survey poll questions. There are three easy ways to join the conversation with Poll Everywhere.

- 1- You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username
- 2- Go to PollEv.com/ResilientNJ to enter the poll via web browser
- 3- Text "ResilientNJ" to 223-33 to enter the poll via text

**09:43:18** -From Bill Cesanek, Project Team to hosts and panelists: It might be helpful to note that we are not "proposing" any of these options at present, we are assembling past and current ideas for projects into logical groups for further public and steering committee consideration in nbuilding a plan for the region.

09:43:49 From Barbara Woolley-Dillon to hosts and panelists: This has been adopted by the City and is part of our Planning documents.

**09:44:13**- From Barbara Woolley-Dillon to hosts and panelists: Referring to the Stockton Overlay Plan

**09:44:42**- From Flor Mason: Good morning and welcome! Today's presentation will be in English and is being recorded. The presentation will be available in Spanish in the coming days on the project website at resilient.nj.gov/accr. A Spanish interpreter will be available to assist with questions from the public during the meeting this morning.

**09:44:55**- From Flor Mason: ¡Buenos días y bienvenido! La presentación de hoy será en inglés y está siendo grabada. La presentación estará disponible en español en los próximos días en el sitio web del proyecto en resilient.nj.gov/accr

Un intérprete de habla español estará disponible para ayudar con las preguntas del público durante la reunión de esta mañana.

09:49:58- From Kristin Shaw: The poll for Scenario 2 is now open for responses.

**09:50:28**- From Flor Mason: La encuesta para el Escenario 2 ahora está abierta para respuestas

**09:52:28**- From Flor Mason: During the presentation today, you will have the opportunity to participate in survey poll questions. There are two easy ways to join the conversation with Poll Everywhere.

- 1- You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username
- 2- Go to PollEv.com/ResilientNJ to enter the poll via web browser
- **09:52:42** From Flor Mason: Durante la presentación de hoy, tendrá la oportunidad de participar en las preguntas de la encuesta. Hay dos formas sencillas de unirse a la conversación con Poll Everywhere.
- 1- Puede descargar la aplicación gratuita PollEverywhere App e ingresar "RESILIENTNJ" en el campo que dice "PollEv.com/username"
- 2- Vaya a PollEv.com/ResilientNJ para ingresar a la encuesta a través del navegador web
- **09:53:34** From Lee Widman: Do the plans contain maintenance of anything that is being done.
- **09:56:37** From Flor Mason: Por favor tóme el tiempo para participar en la pregunta de PollEv en este momento.
- **09:57:29** From Lee Widman: The Last set of questions .. can you give a chance and move back
- **09:58:58** From Lauren Plinka to Lee Widman and all panelists: Lee are you looking for the Scenario 2 Poll to be reopened? Or are you looking for the PPT slide that shows the information for Scenario 3?
- **10:00:12** From Flor Mason: We will have a live Q&A at the end of the presentation. Questions asked during the meeting will be addressed during the Q&A. To participate: 1) Raise your hand to ask a question live-on-the-air or 2) Add your question to the Q&A chat box.
- **10:00:32** From Flor Mason: Tendremos una sesión de preguntas y respuestas en vivo al final de la presentación. Las preguntas formuladas durante la reunión se abordarán durante la sesión de preguntas y respuestas. Para participar: 1) Levante la mano para hacer una pregunta en vivo o 2) Agregue su pregunta al cuadro de chat de preguntas y respuestas.
- **10:03:28** From Lee Widman: Does this address the Stormwater runoff that is under the BOARDWALK in AC and Ventnor
- **10:04:09** From Flor Mason: For more information about the project, please visit the project webpage at: resilient.nj.gov/accr

If you need additional information, please can contact the project team at resilientaccr@dep.nj.gov

**10:04:30**- From Flor Mason: Para obtener más información sobre el proyecto, visite la página web del proyecto en: resilient.nj.gov/accr

Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

10:09:55- From John Peterson: Evolve away from gaming?

**10:10:12**- From Flor Mason: La encuesta para el Escenario 3 ahora está abierta para respuestas

**10:10:23**- From Flor Mason: Our Q&A will go live soon, and we want to hear from you! 1) Raise your hand to ask a question live-on-the-air or 2) Add your question to the Q&A chat box. Your friends on the phone can press \*9 on their telephone keypad to ask a question.

**10:10:35**- From Flor Mason: ¡Nuestras preguntas y respuestas se darán a conocer pronto y queremos saber de usted! 1) Levante la mano para hacer una pregunta en vivo en el aire o 2) Agregue su pregunta al cuadro de chat de preguntas y respuestas. Sus amigos en el teléfono pueden presionar \* 9 en el teclado de su teléfono para hacer una pregunta.

**10:12:12**- From Caren Fitzpatrick: What area of the black horse pike is being raised? What's the timeline of that? I do appreciate the multi-use plan of the area-including biking and walking.

**10:12:21**- From John Peterson: How do you replace the economic productivity of the gaming industry if we evolve away from it and tourism?

**10:12:29**- From Elizabeth Semple: Do you have examples of living bay plans in other areas? Do you have a compendium of nature-based solutions and what types of resilience they can realistically achieve?

**10:12:57** -From Flor Mason: For more information about the project, please visit the project webpage at: resilient.nj.gov/accr

If you need additional information, please can contact the project team at resilientaccr@dep.nj.gov

**10:13:19** - From Flor Mason: Para obtener más información sobre el proyecto, visite la página web del proyecto en: resilient.nj.gov/accr

Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

10:16:03 - From Kristin Shaw to Hosts and panelists: is somebody from CDM on?

**10:16:09** -From Flor Mason: Today's presentation will be available in Spanish in the coming days on the project website at resilient.nj.gov/accr. A Spanish interpreter is available to assist with questions from the public.

10:16:12 From Jaclyn Flor to Kristin Shaw (Direct Message): Bill Cesenek

**10:16:19** -From Flor Mason: La presentación de hoy estará disponible en español en los próximos días en el sitio web del proyecto en resilient.nj.gov/accr. Un intérprete de español está disponible para ayudar con las preguntas del público.

10:16:23- From Jaclyn Flor to Kristin Shaw (Direct Message): and Jenna Scott

**10:16:36**- From Kimberly McKenna: Surprised to see all of the hard structures proposed for oceanside shoreline protection. Was this coordinated with the USACE as they design and maintain the shoreline in Atlantic County?

**10:18:42**- From Joe Martucci: In 2019, CRDA awarded a variance to change a triplex to single family housing near the beach and they were in the midst of changing zoning regulations to allow for single family housing. How will that interact with one of the scenarios to zone the oceanside properties into more condos and townhomes?

**10:20:53**- From Jacques Howard to hosts and panelists: Need to create a regional trust fund, together with the Bay Keepers

**10:22:39**-From Kristin Shaw: The final poll is active for your responses. Please log into PollEv again to rank the action items that garnered a lot of interest throughout the meeting today. There will also be a short survey at the end to provide your feedback as well.

**10:23:32** -From Flor Mason: La encuesta final está activa para su respuesta. Inicie sesión en PollEv nuevamente para clasificar los elementos de acción que generaron mucho interés durante la reunión de hoy. También habrá una breve encuesta al final para proporcionar sus comentarios también.

**10:24:43** -From John Peterson: I have been unable to participate in any of the polling throughout the webinar.

**10:25:46 -** From Flor Mason: Thank you for attending the presentation this morning. For more information about the project, please visit the project webpage at:

resilient.nj.gov/accr for further information, you can contact the project team at resilientaccr@dep.nj.gov

**10:26:00** -From Flor Mason: Gracias por asistir a la presentación esta mañana. Para obtener más información sobre el proyecto, por favor visite la página web del proyecto en: resilient.nj.gov/accr Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

**10:26:37** -From Victoria Phillips to Hosts and panelists: Thank you. Well done and very informative!

10:26:47 - From John Doring: Thank you

10:28:46 - From David Heller to Hosts and panelists: Thank you. Very informative.

#### **Afternoon:**

**15:04:30** -From Flor Mason: Good afternoon and welcome! Today's presentation will be in English and is being recorded. The presentation will be available in Spanish in the coming days on the project website at resilient.nj.gov/accr. A Spanish interpreter will be available to assist with questions from the public during the meeting.

**15:04:41** -From Flor Mason: ¡Buenas tardes y bienvenido! La presentación de hoy será presentada en inglés y está siendo grabada. La presentación estará disponible en español en los próximos días en el sitio web del proyecto en resilient.ni.gov/accr

**15:05:02** -From Flor Mason: During the presentation today, you will have the opportunity to participate in survey poll questions. There are two easy ways to join the conversation with Poll Everywhere.

1-You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username

2-Go to PollEv.com/ResilientNJ to enter the poll via web browser

**15:05:20** -From Flor Mason: Durante la presentación de hoy, tendrá la oportunidad de participar en las preguntas de la encuesta. Hay dos formas sencillas de unirse a la conversación con Poll Everywhere.

- 1- Puede descargar la aplicación gratuita PollEverywhere App e ingresar "RESILIENTNJ" en el campo que dice "PollEv.com/username"
- 2- Vaya a PollEv.com/ResilientNJ para ingresar a la encuesta a través del navegador web

**15:06:09** -From Flor Mason: Un intérprete de habla español estará disponible para ayudar con las preguntas del público durante la reunión esata tarde

**15:06:41** -From Flor Mason: For more information about the project, please visit the project webpage at: resilient.nj.gov/accr

If you need additional information, please can contact the project team at resilientaccr@dep.nj.gov

**15:06:55** -From Flor Mason: Para obtener más información sobre el proyecto, visite la página web del proyecto en: resilient.nj.gov/accr

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**15:07:32** -From Bill Cesanek to Hosts and panelists: I joined the call using the link provided by Lauren, but I do not have video or microphone access.

**15:08:10** -From Jim Ulmer to Hosts and panelists: can you send a link to the poll via this chat?

**15:10:37** -From Flor Mason to Jim Ulmer and all panelists: During the presentation today, you will have the opportunity to participate in survey poll questions. There are two easy ways to join the conversation with Poll Everywhere.

1-You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username

2-Go to PollEv.com/ResilientNJ to enter the poll via web browser

**15:26:40** -From Flor Mason: During the presentation today, you will have the opportunity to participate in survey poll questions. There are two easy ways to join the conversation with Poll Everywhere.

1-You can download the free app PollEverywhere App and enter "RESILIENTNJ" into the field reading enter "PollEv.com/username

2-Go to PollEv.com/ResilientNJ to enter the poll via web browser

Durante la presentación de hoy, tendrá la oportunidad de participar en las preguntas de la encuesta. Hay dos formas sencillas de unirse a la conversación con Poll Everywhere.

- 1- Puede descargar la aplicación gratuita PollEverywhere App e ingresar "RESILIENTNJ" en el campo que dice "PollEv.com/username"
- 2- Vaya a PollEv.com/ResilientNJ para ingresar a la encuesta a través del navegador web
- 15:29:59 From Flor Mason: The poll for Regional Actions is now open
- **15:30:33** -From Flor Mason: La encuesta para Acciones Regionales está abierta y puede responder
- 15:36:14 From Flor Mason: The poll for Scenario 1 is now open
- **15:36:38** -From Flor Mason: La encuesta para el Escenario 1 está abierta y puede responder
- **15:39:46** -From Flor Mason: We will have a live Q&A at the end of the presentation. Questions asked during the meeting will be addressed during the Q&A. To participate: 1) Raise your hand to ask a question live-on-the-air or 2) Add your question to the Q&A chat box.
- **15:40:02** -From Flor Mason: Tendremos una sesión de preguntas y respuestas en vivo al final de la presentación. Las preguntas formuladas durante la reunión se abordarán durante la sesión de preguntas y respuestas. Para participar: 1) Levante la mano para hacer una pregunta en vivo o 2) Agregue su pregunta al cuadro de chat de preguntas y respuestas.
- 15:44:37 From Flor Mason: The poll for Scenario 2 is now open
- **15:45:06 -** From Flor Mason: La encuesta para el Escenario 2 está abierta y puede responder
- **15:47:43 -** From Vincent Maione to Hosts and panelists: Absecon is spelled wrong in your presentation. It should be ABSECON.
- **15:52:07 -**From Amy DiCarlantonio: Absolutely, thank you for catching our mistype. It will be corrected.
- 15:53:31 From Flor Mason: The poll for Scenario 3 is now open
- **15:54:01-** From Flor Mason: La encuesta para el Escenario 3 está abierta y puede responder
- **16:00:38** From Flor Mason: We will have a live Q&A at the end of the presentation. Questions asked during the meeting will be addressed during the Q&A. To

participate: 1) Raise your hand to ask a question live-on-the-air or 2) Add your question to the Q&A chat box.

**16:00:54**- From Flor Mason: Tendremos una sesión de preguntas y respuestas en vivo al final de la presentación. Las preguntas formuladas durante la reunión se abordarán durante la sesión de preguntas y respuestas. Para participar: 1) Levante la mano para hacer una pregunta en vivo o 2) Agregue su pregunta al cuadro de chat de preguntas y respuestas.

**16:07:13**-From Flor Mason: Our Q&A will go live soon and we want to hear from you! 1) Raise your hand to ask a question live-on-the-air or 2) Add your question to the Q&A chat box. Your friends on the phone can press \*9 on their telephone keypad to ask a question.

**16:07:29**- From Flor Mason: ¡Nuestras preguntas y respuestas se darán a conocer pronto y queremos saber de usted! 1) Levante la mano para hacer una pregunta en vivo en el aire o 2) Agregue su pregunta al cuadro de chat de preguntas y respuestas. Sus amigos en el teléfono pueden presionar \* 9 en el teclado de su teléfono para hacer una pregunta.

**16:07:47**- From Flor Mason: For more information about the project, please visit the project webpage at: resilient.nj.gov/accr

If you need additional information, please can contact the project team at resilientaccr@dep.nj.gov

**16:08:01 -**From Flor Mason: Para obtener más información sobre el proyecto, visite la página web del proyecto en: resilient.nj.gov/accr

Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

**16:10:41** From Vincent Maione to hosts and panelists: Vince, Representing Orsted, How would the proposed rezoning of Delta Basin impact the existing redevelopment zone that will be approved by AC? What exactly is a blue economy again?

**16:14:12** -From Larry Widman to hosts and panelists: Can we get a copy of the detailed plan rather than the summary?

**16:21:41** -From Flor Mason: The final poll is now open

**16:22:05** -From Flor Mason: La encuesta final está abierta y puede responder

**16:22:20** -From Flor Mason: For more information about the project, please visit the project webpage at: resilient.nj.gov/accr

If you need additional information, please can contact the project team at resilientaccr@dep.nj.gov

**16:22:32** -From Flor Mason: Para obtener más información sobre el proyecto, visite la página web del proyecto en: resilient.nj.gov/accr

Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

**16:22:50** -From Flor Mason: Thank you for attending the presentation this afternoon. For more information about the project, please visit the project webpage at: resilient.nj.gov/accr For further information, you can contact the project team at resilientaccr@dep.nj.gov

**16:23:01** -From Flor Mason: Gracias por asistir a la presentación esta tarde. Para obtener más información sobre el proyecto, por favor visite la página web del proyecto en: resilient.nj.gov/accr Si necesita información adicional, puede comunicarse con el equipo del proyecto en resilientaccr@dep.nj.gov

### ACCR PUBLIC MEETING SUMMARY REPORT

05.18.2022















### **Objective**

On May 18, 2022, at 9:00-10:00 AM, a virtual public meeting was held to discuss the preferred scenario for the Atlantic County Coastal Region (ACCR) Resilient NJ regional resilience and adaptation action plan. The NJ Department of Environmental Protection has launched a planning process to prepare for the impacts of climate change - including protection against hurricanes, flooding, and other hazards. At this third public meeting, attendees were asked to provide feedback for the preferred scenario that would ultimately enable the Atlantic County Coastal Region to prepare for, plan for, respond to, and adapt to our changing climate.

### **Meeting Notes**

Amy DiCarlantonio, WSP, began the meeting by introducing the team members and the organizations within the team. Amy also mentioned the steering committee members and how their input had helped guide the plan development.

Amy paused to introduce the agenda of the meeting. The agenda was structured as follows:

- Introductions & Welcome
- Resilience & Adaptation Preferred Scenario
   Presentation & Feedback Sessions
- Schedule
- Adjournment

Amy then moved onto discuss the Resilience and Adaptation Scenario Goals. She then began to discuss "What is a Resilience and Adaptation Scenario" and what actions should be included.

Amy mentioned how they had previously discussed the three different scenarios and what they included. This was focused on a mix and match of each scenario which led to what will be discussed today.

### This scenario is called the "Preferred Scenario" and includes:

- 1. Bay Management:
  - Absecon Bay Blue/Green Way to build recreational trails within the streets and a water trail throughout the back bays and Cap May blue network.

- Bayside and Shoreline protection continues to consider the USACE Back
   Bay Plan and the Great Egg Harbor Inlet SSB to protect the bayside from storm surge. Continuing the beach nourishment program will also continue along with a breakwaters study
- Dredge management plan addresses the need to develop bayside solutions, and this will address rising tides along with other advantages to this method.
- Living Bay Master Plan to provide a plan for maintenance and raise awareness of the back bay wetlands
- The Absecon Bay Keepers would be a non-profit that focuses on stewardship and working on behalf of the people.

### 2. Emergency Preparedness:

- o Elevating evacuation routes to increase the access on and off the island.
- Evaluate and improve preparedness actions. This can be focused on shelters,
   evacuations, outreach and education and social services.
- Translating all emergency preparedness materials into multiple languages to ensure everyone understands the messaging.

### 3. Housing/Land Use:

- Action Plan for housing is an adaptation action plan for Atlantic City and Pleasantville Housing Authority Communities and the Regions Senior Centers. It is focused on how to keep vulnerable communities active during emergency events
- Home Elevation Program & Policy Changes highlights the need for changes to the existing program
- Rezone Gardner's Basin and Delta Basin to allow for industrial / blue economy related land use

### 4. Infrastructure:

- Community Microgrid study focuses on where microgrids can be centered to support facilities that are critical assets at risk of flooding.
- Identify and expand existing parks as stormwater management parks

- Installation of Solar Panels refers to incentivizing the installation of solar panels and updating building codes to encourage solar panels. This is a short term to mid-term action.
- Living streets pilot program will be used as a performative network to mitigate downstream flash flood risks and facilitate infiltration.
- Power and Communications is focused on hardening all above ground utilities and burying when possible. This also includes installing new generators at all critical facilities.
- Pump stations will look to help stormwater management in the region. The first step is to determine where these locations would be, and this is a continued solution.
- Redevelopment study and vision plan for lower risks to diversify the local economy in low-risk areas.

Amy then discussed the overall timeline and how the project is coming to an end. The final phase is called implementation and how to further the actions described earlier and developing a plan for those as well.

### **Public Engagement Metrics**

The following tables summarize public engagement metrics for the Resilient NJ public meeting held on Wednesday, May 18, 2022, at 9:00 a.m. Average attendee engagement in the 60-minute meeting lasted for 50 minutes during the morning session.

In the morning (AM) meeting, there were 15 attendees, 7 of whom were project staff members in attendance. A detailed overview of all meeting attendees classified by stakeholder type and role is provided below:

### **Attendees**

First Name	Email	Stakeholder Type
Jim Rutala	jmrutala@comcast.net	Community member (Steering Committee Lead)
Edward Blanchard	Edward.blanchard@redcross.org	Nonprofit (public health)
Frances Brown	Brown_frances@aclink.org	Government (local)
Lee Widman	Leewidman@gmail.com	Community member
Jim Ulmer	Jim.Ulmer@yahoo.com	Community member
Matthew Grochowski	Matthew.e.grochowski@gmail.com	Government (local)

Matthew	matthew.baumgardner@dep.nj.gov	Government (state)
Baumgardner		
Kristin Taylor	ktaylor@lissol.com	Business

### Project team members present at the session included:

Name	Firm	Email
Lauren Plinka	WSP	Lauren.plinka@wsp.com
Amy DiCarlantonio	WSP	Amy.DiCarlantonio@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Kristin Shaw	WSP	Kristin.Shaw@wsp.com
Frances Stella Rios	DEP/ Interpreter	Frances_st00674@hotmail.com
Jordan	Exantus	Jordan.exantus@inspiregreen.com
Kyle	Wire	Kyle.Wire@chplanning.com

### **Interactive Feedback Session Element: Mural**

During the feedback sessions throughout the preferred scenario presentation the project team captured attendee feedback using an interactive virtual tool, Mural.



Mural is a digital whiteboarding tool, which was built to capture comments and visualize the discussion from the feedback session. The image captured from the meeting is below, a full resolution version of this graphic is included at the end of this report.

### Chat

**(00:43:53) Kristin Shaw:** Thank you for joining us this morning! Please feel free to share your questions and comments in the chat or by raising your hand!

(00:45:34) Edward Blanchard: What level of sea-level rise did you consider with mitigation efforts associated with coastal resilience?

(00:46:06) Edward Blanchard: https://maps.coastalresilience.org/newjersey/

(00:49:00) Lee: impact to Bader Field

**(00:50:49) Edward Blanchard:** Besides "standard" critical infrastructure (bridges, power plants, hospitals, etc.), were educational and childcare facilities considered in the mix, and were they included in mitigation planning?

(00:58:02) Edward Blanchard: Not to get too technical, but when considering adding generators to sites, did you consider fronting them with three-way transfer switches so that if/when the generator was to fail (and the main power was still out), a portable generator could be quickly attached via quick-connects to keep that site powered? For super-critical sites, like hospitals and water treatment plants, this gives Emergency Management the opportunity to quickly get these sites back up and running, using third-party resources such as generators from USACE.

(01:05:20) Edward Blanchard: Did you consider childcare sites as CIKR?

(01:06:56) Lee: What about Dune maintenance. It should be required for every town. I see a lot of bald spots on the Dunes. Diverse plants need to be re-added

(01:10:31) Edward Blanchard: When looking at living streets - please make sure CPTED components are still incorporated. Whether they are walkways, bikeways or even vehicle roadways, the concern is long open areas where pedestrians are gathering can still be risks for vehicle ramming attacks, accidental vehicle collisions with people, etc. Think NYC West Side Highway greenway area - and the Halloween attack a few years ago.

(01:15:55) Kristin Shaw: Thank you everyone for your questions!

(01:17:00) Edward Blanchard: Were childcare sites considered part of the critical infrastructure? Daycare, etc. not just schools.

(01:19:45) Kristin Shaw: Thank you everyone for joining us this morning! We will share meeting materials on the project website.

### **Transcript**

### (00:00:36:18-00:01:01) Amy DiCarlantonio:

Good morning, everyone. Welcome to The Atlantic County Coastal Region Resilient New Jersey Open House today. We want to welcome everyone and I'm going to hand it over to Lauren for some quick housekeeping tips and then we will get started. Thank you.

### (00:01:03:20-00:02:19:15) Lauren Plinka:

Thank you, Amy. Thank you. Frances, as Amy said, we're kind of going to wait for a few more people to jump on before we get started. Sit back for a moment and get comfortable. Grab your coffee. It's probably early where we all are. It's very dark here. Frances will be available for Spanish interpretation as needed throughout the presentation.

We'll repeat this again in a moment, but if you do have any questions or is there there's anything that you need translated, you can just go ahead and drop it in the chat, and we'll make sure that we address those questions as we go. There will be a couple of slides we will interpret at the beginning and then at the end as well.

Just go ahead and take a second to get comfortable while we wait for a few more people to join us this morning. Thanks again everyone for coming and being with us here today. We do appreciate all of the input and the information that we're sharing is very important.

We appreciate you taking the time to be here.

I think we're probably good and I think we're going to get started. With that again, make sure if you have any questions, you just drop them in the chat, and we'll be sure to address those as we go. I'm going to hand it back over to Amy and she'll kick it off for us.

### (00:02:20:24-00:03:42:00) Amy DiCarlantonio:

Thank you so much, Lauren. On behalf of the entire team, we want to welcome you this morning. Jonathan Carey and I are joining from the team. I'll be speaking to you today. We have a large team that's been working on the project for the last year and a half.

We want to thank all of our steering committee members from each of the municipalities who have provided a lot of time in developing this plan. We look forward to discussing what we have come up with in terms of the preferred scenario today, and that's as we're developing the final plan. We look for forward to talking and if there's any feedback or refinements as we go through the project, we're looking forward to hearing those and discussing those.

Our agenda today, as we just went through the welcome and introductions, we're going to go through the timeline and discuss where we are in the project. We'll discuss where we are already at with the risk assessment and the scenario planning, and then we'll go to closing remarks. I'll turn it over to Frances for one moment to translate.

### (00:04:07:02-: 05:39:12) Amy DiCarlantonio:

Thank you so much.

Today we're going to be focusing on the resilience adaptation and adaptation preferred scenario. At a high level, we want to go over where we've been in the project so far. So, we actually started the project in 2020 and today we're actually entering the final phase in the project right now.

We've had community and stakeholder engagement throughout the process. We've gone through an asset collection and risk assessment, and we're now at the point where over the last few months, we are coming up with various actions that are part of what we're calling "scenarios" to address flooding conditions in the future.

Today we're going to be discussing the preferred scenario with the actions that have been rising to the top, and we're going to plan to continue to develop and include in the action plan. We're really happy to report that the region won the recent Resilient New Jersey innovation competition award, as we presented each of the three scenarios this past winter, it was really exciting. We appreciate all of the feedback we've received so far that went into the development of the scenarios and we're really excited that there will be additional funding

that has become available to help further in some of the actions we'll be talking about today.

### (00:05:40:12-00:08:24:18) Amy DiCarlantonio:

To start off with, I want to discuss the resilience and adaptation scenario goals. The next several slides will be reviewing what we mean by "scenario." First, the resilience and adaptation scenario would respond to the following goals. There's the vision, this was part of the project, the visioning sessions: The region is very proud of its social fabric, diverse economy, and ecological assets.

That's weaved into each of the actions that we'll be talking about today. The goal is to include actions that respond to immediate flooding conditions and also the long term in 2070 and to protect natural resources and public access.

Again, to also address the needs of socially vulnerable populations Keep these scenario goals in mind as we go through each of the actions. This is what we're striving to achieve with each of the actions.

The resilience and adaptation scenarios are what is included in this scenario, it's actually a suite of actions. You can think of the actions as projects, and they work collectively to increase resiliency over time. It can be a range of different types of actions and that's what you see here on this slide.

It could be anything from: flood mitigation projects or capital improvement projects; to actual construction projects; additional analysis and plans for zoning and additional planning actions that we're recommending in the future. It's the combination of all of these is that we're looking at in this scenario and what we're calling the "preferred scenario."

Each of the actions will address one or more of the challenges such as: shoreline protection, access and transportation, stormwater management. You will see these categories as we go through the actions today. If you joined us a couple of months ago at our last public meeting, during the previous phase of this project, we developed three scenarios. I mentioned this a little bit earlier on the timeline slide. In each of the scenarios, this was the first step in thinking about what type of actions we would include in the plan. We have three scenarios. They were each a framework in thinking about different actions, different projects.

### (00:08:25:03-00:09:02:02) Amy DiCarlantonio:

Scenario One was a primarily public sector lead on key projects; Scenario Two was a mix of both state county municipalities, different partnerships in the implementation of the resiliency actions; and the third was, again, kind of looking at more of the local level. We had three scenarios; we had a mix of actions and really the ultimate goal was to mix and match some of the actions, and through all of our engagement that we went through over the past couple of months, we were able to see what really resonated with everyone and see which actions were rising to the top.

### (00:09:02:03-00:09:48:04) Amy DiCarlantonio:

That's what we're going to be discussing today. This slide is representing the "Preferred Scenario." This represents the suite of actions that will work together to increase resiliency over

time. We will provide an overview of each of these actions in the rest of the presentation, and we welcome feedback as we review each action.

Feel free to provide comments in the chat. We also will pause periodically to receive comments as we go through each of these actions. Please feel free to provide any comments in the chat as we go through or at each of the pauses we will be discussing. We welcome both English and Spanish and we're happy to discuss as we go through each of the actions.

### (00:09:49:14-00:10:24:11) Amy DiCarlantonio:

Now to start off with, we'll start by reviewing actions that have a region-wide focus. The Back Bays are very important in protecting the Atlantic County Coastal Region. Therefore, long-term maintenance of the Back Bay Marshes requires a coordinated approach. So, the Living Bay Plan is envisioned to provide a framework for maintenance and restoration activities, potentially streamline permit reviews, and also raising awareness for the importance of the Back Bay Wetlands to protect the region from storm surge.

### (00:10:26:07-00:11:33:11) Amy DiCarlantonio:

We have Sea King Bay Keepers as a companion to the Living Bay Plan, they would be a nonprofit focusing on the stewardship of the Sea King Bay through environmental education and advocacy. Some of the feedback we've received has been really good feedback on this action. As we've gone through engagement options, we would want to build upon organizations that already exist in the wider region. As we think about what this nonprofit could look like, we would want them to be a steward for stewardship of the Bay.

There are many languages spoken within the region, and this action would focus on translating preparedness materials into multiple languages to reach all the region's communities. This would ensure emergency preparedness materials represent the community and that the messaging is understood. We understand that this is more than translation. It's need for comprehension. This is one of the more important actions that have been rising to the top for the region-wide level.

### (00:11:35:11-00:13:30:03) Amy DiCarlantonio:

Next up: to evaluate and improve preparedness actions for socially vulnerable populations. We've had several focus group meetings with various groups within the region. Based on feedback we received from those meetings, there are several areas of disaster preparedness that can be improved. which revolve around four categories. Those categories are what you see here on the screen: shelters; evacuation outreach and education; social services and wellness.

We received a lot of direct feedback on where improvements can be made in terms of preparedness for the next large storm event. The Resilient New Jersey project here that we're talking about today, can raise attention to these improvements needed for socially vulnerable populations with entities such as emergency managers and the Red Cross, as our partner.

We look forward to detailing this out in the plan that will help elevate some of these needs including an action plan for housing. This actually is an adaptation action plan for housing authority communities within the region and region senior centers. In order to ensure continuity of service during a storm such as elevating equipment, solar paired with batteries for paving for stormwater management. Ultimately, it's looking at a combination of what could be potentially implemented in the next few years through renovations; and also looking at

longer-term strategies for potential redevelopment opportunities for the most vulnerable populations.

### (00:13:33:09-00:14:01:17) Amy DiCarlantonio:

Finally, through a lot of the feedback we've received - this is something that's focused region-wide is to emphasize the need to improve options for property owners to fund the upfront costs of home elevation. This action would highlight the need for solutions to challenges of the of the existing home elevation program. This ties directly to preserving neighborhoods in the region now.

### (00:14:02:07-00:14:24:07) Amy DiCarlantonio:

This will be highlighted as well, and I think we're going to pause at this point to receive to receive some feedback if there's any comments or discussion points or any refinements on some of those regionwide scenarios that we just touched upon. I'll turn it over to Lauren.

### (00:14:28:12-00:14:46:01) Lauren Plinka:

Thanks, Amy. We've got some questions in the chat. Keep those coming if they have any, and we'll make sure that we address them.

### (00:14:46:16-00:15:12:19) Kristin Shaw:

I do have the Mural pulled up. We were going to do a little bit of a white-boarding exercise. I just want to give everybody an opportunity to ask any questions or provide comments and any different assets than we can go ahead and include the comments here. We'll take this back to work through the input from the public, as well with the project team and think about what this looks like in the future. I want to pause here for a minute, Amy, or Jonathan - if there's anything you'd like me to jump into specifically that we could focus on, like the master plan or the action plan. We could kind of dive into those really quickly and then move forward to the presentation.

### (00:15:32:00-00:15:54:24) Kristin Shaw:

We have a question about sea level rise and what level of sea level rise was considered with mitigation efforts associated with coastal resilience, and then there's a link in here to a map. I don't know if we need to zoom in on any of these specific programs. So, Amy, I will let you respond to that and if we think that it matches any of these items, we can go ahead and put those notes in there with it.

### (00:16:00:06-00:16:48:18) Amy DiCarlantonio:

Yeah, and in the background, in our previous phase of the project, we were looking at this. It was taught during the risk assessment phase of the project. We're looking at several scenarios which include sea level rise from current day. We also looked at 2020, the year 2050, so somewhat of farther out, but a little more tangible in thinking about our lifetimes and the ultimate year that we were looking at for the target for a lot of these mitigations' actions. What we're talking about today is 2070, that included sea level rise but also increased precipitation as well.

### (00:16:49:05-00:16:53:19) Kristin Shaw:

Do we want to just move forward into the presentation?

### (00:16:53:20-00:17:16:20) Amy DiCarlantonio:

Sure. We can continue and as we, as we go through. Thank you.

### (00:17:18:18-00:17:27:13) Kristin Shaw:

Do we want to talk about the field and the impact, or do we want to go through that later? I think we might touch on that later in the presentation. If we see another comment come in, but we'll be pausing like this throughout the presentation as we go through the action. If you have any thoughts or questions as we go through, we can always capture them even if they're on some of the actions we discussed previously in the presentation.

### (00:17:27:18-00:18:00:08) Amy DiCarlantonio:

Yeah, we do actually. So, it's a really good point. Thank you for bringing it up. I just saw the comment come in about the impact Bader Field and yes, through the modeling that was done for this project with the it was both sea level and sea level rise, increase precipitation. We did see the impacts at the field, and we will be touching upon that a little bit farther into the presentation because there is an action that touches upon Bader Field and potentially how to elevate some of the land.

### (00:18:00:08-00:27:06:12) Kristin Shaw:

I will switch it back over to the presentation. As we as we continue, if there's any questions again, both English and Spanish, please don't hesitate to put those comments or questions in the chat or we can open it up as we pause at specific points through the through the presentation.

### (00:18:29:12-00:18:49:19) Amy DiCarlantonio:

The next category we're going to go over in the next few slides is *power and communication*. As I mentioned in the beginning, there's several key challenges that we're looking to address and there's a broad suite of those. We just went through the region-wide scenarios and now we are going to go through power and communications.

### (00:18:49:19-00:22:06:13) Amy DiCarlantonio:

We're touching upon some of the actions that we're looking to build upon in the preferred scenario. In the short-term and in the context of this project, that means roughly in the next five to 10 years. This action includes fortifying above-grade utility poles of underground utilities, and potentially undergrounding utilities, where possible. That is the first piece of the action.

Additionally, we're looking at new generators that should be installed in all critical facilities, such as: emergency operations centers, shelters, and schools. I think earlier on in the project, we got a lot of good feedback. We're focusing on some critical places, like firehouses that could have a need for generators that could provide power during storm events.

We did receive a lot of good feedback that this should be brought into all critical facilities, so that's something that we'll be looking at to include in the plan.

This action in terms of insulation of solar panels, looks at: incentivizing installation of solar panels on buildings and solar panels on parking lots; updating zoning and building codes to accommodate renewable energy; and expanding community solar on municipal land. Again, that's a lot to take in. but there's a kind of a broad suite of actions around renewable energy and specific solar that can be expanded and again, you can probably think about this action as short-term to midterm.

It could be some of these actions may be on the shorter term, the next five to 10 years and some of these could potentially be a little bit more in the midterm, so a little bit longer than ten years, as you expand the use of solar.

The two previous slides looked at shorter term actions which focuses on our lifetime. But in the longer term that means for future generations we also want to look for resiliency solutions that look at that target 2070 condition that we were referencing. This is this is an example of the long-term actions. Within the regulatory environment right now, what's permitted doesn't necessarily include microgrids, but this is something that's being studied throughout the country and is being implemented in certain areas.

This action revolves around identifying hubs for microgrids that would provide power in areas where there are critical facilities at risk of flooding during a storm event. These microgrids can be focused on schools, public facilities, casinos, hotels, and other sites that provide emergency services as support.

I think we're going to pause there as we went through a few of those power and communications topics, and we can see if there's any comments in the chat or any additional feedback.

### (00:22:08:06-00:22:24:01) Kristin Shaw:

I have one question: Besides standard critical infrastructure, bridges, power plants, hospitals, etc., where are educational and childcare facilities are considered? Were they included in mitigation planning?

### (00:22:24:01-00:22:58:05) Amy DiCarlantonio:

No, that's a that's a great a great comment and yes, they were included. What we did again in the previous phases in the project, we looked through what's called the 'risk assessment' and looked at a number of assets out the region. Educational facilities were included in community facilities. While we are looking at some of the most critical facilities that would likely be impacted by flooding, some of the schools did rise to the top through that assessment. So, we're definitely focusing in on those.

### (00:23:07:14-00:23:20:05) Kristin Shaw:

I'm going to try and pull up that maybe that previous slide to include and the whiteboarding so we can get a look at where those are located.

We have another question: What role will wind power play in this plan?

### (00:23:24:00-00:23:28:02) Amy DiCarlantonio:

I'm sorry, can you repeat that question? I just had a follow up.

### (00:23:28:06-00:23:31:14) Kristin Shaw:

What role will wind power play in this plan?

### (00:23:32:01-00:24:07:21) Amy DiCarlantonio:

Yes, actually, that's a very good question. That actually comes up a little bit farther in the presentation. We are looking at how the development that's occurring right now in offshore

wind in the region. We are looking at some of the facilities that are being built out for some of the offshore wind companies in the region, specifically in Atlantic City, and we're looking at how that ties together with resiliency and also how that ties together with economic development. We are going to be talking a little bit about that as we go further in the presentation.

### (00:24:16:16-00:24:22:08) Kristin Shaw:

Alright. I think that is all the questions for now. Do we want to keep going with the presentation?

### (00:24:22:08-00:30:23:09) Amy DiCarlantonio:

Sure, can we go one slide back and then I will introduce the next category? Thank you.

For the next category, we're going to be going over is *shoreline protection*. In this region, there are both "bayside" and "shoreline" protection actions that are included on this slide that you see.

This is kind of the broad overview of what we're looking at in zeroing in on for shoreline protection. First, is the recognition of the effective partnership with the Army Corps within the region. We'll continue to consider the Army Corps Back Bays Plan, which is a separate long-term project that looks at implementing a floodwall along a portion of the Back Bay and a storm surge barrier at the Great Egg Harbor Inlet.

Those are specific projects that are located in this region. There's actually a suite of projects farther out within the region, b again, that's a separate project. Within this project, we know there will be a recognition of that project is being studied. That is a longer-term project for the region. In the meantime, this region is looking for a comprehensive Bayside Solution, and that could certainly be part of the Army Corps project in the future.

Since that is on a longer timeline, the region will continue to look at a combination of tools, which is what you see here on this side to continue addressing the rising waters. I'll go through each of these actions quickly. On the Bayside, we have a Bayside Continuous Shoreline Protection Study. The longer-term strategic plan that does not necessarily supersede any municipal projects that are being talked about now in terms of different protection levels, but it looks to build upon some of those projects. This is kind of a longer-term vision where additional protection along the bayside could include a combination of raising streets and potentially incentivizing private property to be raised in certain areas.

You can kind of just see a sketch here on the screen. It is a stitchwork between where there could be areas where specific properties could be raised, or likewise some of the roads could be raised for additional protection. This is a study to see what the existing protection is today and what's being planned and how that could all work together.

This action, the Green Bay Blue Greenway, this action is about how do we build multi-benefits to shoreline protection, so we were just talking about raising roadways along the bay or near the bay on the previous slide. This action really is twofold: it would propose to build a new recreational trail of greenway that's potentially along the Bayside protection like we were just talking about, and it would weave in and out of the streets, parallel to the Bay, to connect to specific access points on the bay.

This could also run along the Blackhorse Pike Inlet and connect to existing trails and Pleasantville and Northfield for a larger network and then likewise within the water. This action would propose a network of interconnected kayak and canoe trails. That would be called a "Blueway" and can connect the Atlantic County back bays and even potentially connect to the existing Cape May County Blueway for a larger regional South Jersey Blueway network.

Kind of tying together them again and thinking about multi-benefits, and not just talking about building barriers or sea level walls, those sorts of things, but how do you build protection for the community but also provide some additional benefits as well?

This action serves to increase recreation and community access to the back bays and to elevate awareness of the ecological importance of the bays. Going back to the vision and what we were talking about for the goals of this project - connection to the water was a key part of the vision for the region.

Beach nourishment, this is on the oceanside, this action proposes to continue the successful beach nourishment program, but with a gradual elevation increase to address additional increase in height of storm surge that's predicted over time. I think this this action is pretty straightforward, on the next slide and then with the offshore breakwater study, this is an example of a longer-term action.

We are thinking potentially a few decades out and thinking about multiple generations – we will explore the option of offshore breakwaters that absorb wave energy, which reduces beach erosion. Further discussion with federal and state partners is certainly needed on this idea. The idea is to provide a kind of a study looking at specific areas within the region where could that be targeted where it would be most appropriate.

There are also different types of breakwaters. There's even an example living breakwaters as a project right now on Staten Island, which will install oysters within the breakwater. We will want to create a living aquatic habitat so there's a there's a lot of options. So again, kind of exploring longer term what would help with beach erosion.

Kristin and Lauren, I think we'll pause there for any comments and then we can go on.

### (00:30:24:21-00:30:54:01) Lauren Plinka:

It's looks like we have one new comment in the chat. This one, it says not to get too technical: When considering adding generators to sites, did you consider fronting them with three-way transfer switches so that if again, the generator was to fail and the main power was still out, a portable generator could be quickly attached via a quick-connect to keep that site powered for supercritical sites like hospitals and water treatment plants? This gives emergency management the opportunity to quickly get these sites back up and running using third-party resources such as generator.

### (00:30:54:09-00:31:59:19Amy DiCarlantonio:

That's a great comment and that's actually kind of like the next level of detail that we are looking to include in the plan as we're developing it out. What we will be doing is taking the actions that we are focusing on here and taking any additional refinements or recommendations such as that comment to be building out more specifically what those recommendations are.

The conversation has come up, I will say, with the different types of generators, also thinking about generators that are available. We were talking about in this comment and what's available today, what's appropriate, how do we also potentially, you know, connect farther down the line? In thinking about that longer term, multigenerational, what's going to serve the community longer term, too, and what type of connections with the generators could be possible.

### (00:32:04:17-00:32:07:00) Lauren Plinka:

Thank you, Amy. That's the only question in the chat for now.

### (00:32:09:17-00:36:18:08) Amy DiCarlantonio:

Just pause for one moment if there's any questions, any comments, and any detail like that is fantastic as well because it helps us refine and be specific with our recommendations in the plan.

Well, we can continue with the presentation. Our next topic is stormwater management.

Another challenge again, like I mentioned, this project is looking at sea level rise. It's also looking at increased precipitation events that are forecasted in the future. Again from 2050 to 2070 various scenarios. The next action that we will be talking about is pump stations.

In terms of stormwater management, the first short-term action is to evaluate and develop new pump stations to handle precipitation events. What you're seeing here on this slide is a sketch where we've evaluated where some of those locations would be most advantageous for the region. This is continuing a solution that's already in place in the region, expanding that out on the shorter term.

In combination with that, there was a lot of engagement was brought up around the need to elevate evacuation routes. Again, this can be seen as a companion to constructing pump stations, but there's still that need to elevate key evacuation routes as predicted to be most impacted by flooding in 2070. This will would increase the access on and off the islands, looking at what are some of the key evacuation routes and where can some of those roads be roads be raised.

The living streets feasibility study and pilot program shows there is also the need to evaluate additional longer-term options for stormwater management. One of these potential options is looking at a combination of increasing green infrastructure and porous pavement in the roadway to infiltrate or absorb stormwater to mitigate downstream flash flood risks. Like I just mentioned, this is this is something longer term.

As a first step, this is envisioned to be a feasibility study to identify the appropriate location for a pilot program within the region to test the concept and see how well it performs. This is kind of at the study level, seeing if there's an ideal location to test it out and see how it performs. But this is something again, potentially longer term that could help with stormwater management.

Another longer-term option is to identify existing parks and potentially expand parks to infiltrate or absorb the stormwater during rain events. This potentially could be linked to pump stations as well, bringing that water to infiltrate at the locations of the parks. Either looking at some of the existing parks or looking at where there's some parks that could be expanded. That's something that can be looked at longer term. Then I think we can pause for one more moment on those actions if there's any comments or questions.

### (00:36:19:13-00:36:30:15) Lauren Plinka:

We do have a couple more comments in the chat. The first one is: Do you consider childcare sites as critical infrastructure and key resources?

### (00:36:30:15-00:36:54:15) Amy DiCarlantonio:

Yes, some childcare sites did come up in the asset inventory as well. But that's a good a very good comment and something that we can double check as we build out the plan because we are targeting some specific assets that are predicted to be most impacted and to double check both along with the stores and the childcare sites.

### (00:37:00:15-00:37:13:07) Lauren Plinka:

We have one other question: What about doing maintenance? It should be required for every town I see a lot of bald spots on the dunes. Diverse plants need to be re-added now.

### (00:37:13:10-00:38:42:01) Amy DiCarlantonio:

Thank you for that comment. That's a very good comment. I think that ties most into the beach nourishment action that we were talking about for the shoreline protection. And yes, our understanding is that it is a requirement. It is an ongoing project, I should say, within each of the communities and so, the dunes are elevated periodically. There's a certain number of years associated with that, that they are replenished periodically.

In terms of the planting and something to add in to when we're being specific and adding this into the plan, but we are looking to proposing continuing that beach nourishment, that periodic replenishment of the dunes, but making sure those any bald spots at but making sure the heights are appropriate to meet storm surge levels in the future.

It would likely be some of the dunes, we might have to change some of the heights then that would making sure some of those heights can still meet the storm surge, I saw another comment come in I believe about living streets which is great.

### (00:38:43:06-00:39:10:17) Lauren Plinka:

Yes, there's one that asks: When looking at living streets please make sure safety components are still incorporated, whether they are walkways, bikeways or even vehicle roadways - as the concern is, long, open areas where pedestrians are gathering can still be risks for vehicle ramming attacks, accidental vehicle collisions with people, et cetera. Think NYC West Side Highway Greenway area and the Halloween attack a few years ago.

### (00:39:10:23-00:40:10:07) Amy DiCarlantonio:

Yes, I remember that. The living streets, in terms of the design of the streets, there's still the flexibility to design the right-of-way in the most appropriate way. Of course, thinking about safety for pedestrians or, you know, any specific events like that were just mentioned. So yeah, there's still, you know, n I guess there would not necessarily have to change the right-of-way design and change like the width or, you know, the pedestrian and the approach to the pedestrian design itself.

We can certainly take in any of those safety components in the design. It's actually the making sure that there is enough planting for infiltration of the stormwater and looking at a different

type, of course, pavement basically in the right of way to help with the stormwater management component.

### (00:40:18:05-00:40:20:15) Lauren Plinka:

Thank you, Amy. I think we're all caught up on the chat right now.

### (00:40:24:09-00:42:29:03) Amy DiCarlantonio:

Great. We have a few more slides. We can jump to the final few slides and then we can pause again at the end. Thank you. This next set of slides looks at economic development. I know we there was a comment before about offshore wind, so that actually dovetails with some of what we'll be talking about here.

One of the first actions is about looking closer at Gardner's Basin and Delta based on potential rezoning or looking at a master plan for portions of the basin. This looks at the opportunity to leverage two offshore wind operations and maintenance centers and a wind training school that's under construction and leveraging that opportunity with additional research and development facilities, corporate offices for wind related companies, and potential international conferences for workforce development efforts.

Kind of brainstorming, what are some of those opportunities around this offshore wind development that is occurring so some of the wider range of uses that could be looked at to add additional commercial or maritime uses within the basin?

Looking closer at what this area can be, but also about what can be accomplished, but also in preserving the existing neighborhoods in the area while accomplishing looking at some additional development in portions of the basin next.

The dredge management plan, this kind of touches upon Bader Field, which was brought up earlier too. So, this action ties into the need to develop comprehensive bayside solutions. We were talking about this earlier in the presentation. The need for a bayside solution that addresses rising waters and storm surges, and this is another component of bayside protection.

### (00:42:29:03-00:43:50:07) Amy DiCarlantonio:

There's multi benefits when thinking about uses of dredge materials for wetland restoration and elevation development or redevelopments sites. What you see here is Bader Field is one example of those locations. The overall action here is coming up with a coordinated program for four uses of dredge materials in the region.

This next section is about a redevelopment study and vision plan for lower-risk areas. This can be a longer-term action, looking at areas that are less vulnerable as an opportunity to potentially redevelop or focus development on the future. This can build upon the strengths of each municipality and continue to diversify the economy as well.

This could potentially be a longer-term action but looking at some of the areas that are less vulnerable. Those could be targeted areas for redevelopment or increased development in the future. With those few slides, I will pause for a moment for any additional comments or questions before we wrap up. I'll just check in on Lauren if there's anything else in the chat.

### (00:44:09:24-00:44:15:10) Lauren Plinka:

Yes, there are no more chat questions at the moment, but if you do have any, please feel free to drop those in now.

### (00:44:30:21-00:46:22:23) Amy DiCarlantonio:

Alright, if you have any questions, feel free to continue to put those into the chat. I'm just going to touch upon the timeline again as to wrap-up the conversation for today. As a reminder, we're in the final phase of the project, we will be compiling the original resilience and adaptation plan over the next couple of months.

We welcome any feedback or ideas you may have. If there's additional comments that you may have over the next month or so as we compile the plan, we can certainly incorporate those. We also have one final phase; it is what you'll see in here on the screen. It's called *implementation* and that looks at taking some of the action you've heard about today and furthering them at the planning level, which includes potentially looking at potential sources of additional funding.

This asks us to consider how we further those explore those actions, and ask: What are those next steps? We're excited about looking at targeting some of the specific actions we talked about today and furthering those over the next few months as well.

I want to remind everyone; we have our email. We also have a regional website so feel free to reach out with any additional comments or feedback. Like I mentioned, we are developing the plan over the next couple of months, so we would welcome any additional feedback you may have. We will be posting a lot of the materials we've been producing throughout the various phases of the project. Feel free to go onto the website and view each of those materials too. So, I know there was a lot of questions about the risk assessment questions of those sorts and as we're finalizing those pieces of the project, those are all going to be posted on the website for viewing too.

### (00:46:24:10-00:46:30:19) Amy DiCarlantonio:

I'll just pause there; I think there may be maybe a couple more comments before we close out.

### (00:46:32:01-00:46:39:24) Lauren Plinka:

There is one more comment in there: Were childcare sites considered part of the critical infrastructure, daycare, et cetera, not just schools?

### (00:46:40:14-00:47:10:14) Amy DiCarlantonio:

Yes. So, I think I think we mentioned that a little bit earlier, and that's something we're going to double check. I believe, yes, childcare sites were one of the areas that were centered along with the schools but that's something we can double check when we develop that. Critical facilities kind of narrowed down the list. It was based on the sites that would be most potentially impacted by the 2070 flooding conditions.

### (00:47:17:04-00:47:19:16) Lauren Plinka:

Thank you, Amy. That's all that's in there right now.

### (00:47:25:12-00:47:37:24) Amy DiCarlantonio:

I'll just open it up to Jonathan and Kristin and other team members, if there's any final points or comments that we've heard about today as we move forward with developing the plan that we can address.

### (00:47:38:02-00:49:07:06) Jonathan Carey:

Thanks, Amy. I just want to say thanks, everyone, for joining us. We appreciate that. There's a lot of data in this project, so we're kind of looking up things on the fly. I think somebody asked about the level of sea level rise that we plan to, and as Amy said, it's out to 2070. To give you a number we used for 2017, the projection is 2.4 feet of sea level rise and then we scaled that linearly for 2050 and for 2030 down to today. We could step up to 2070, 2.4 feet and develop actions that could protect you in the interim.

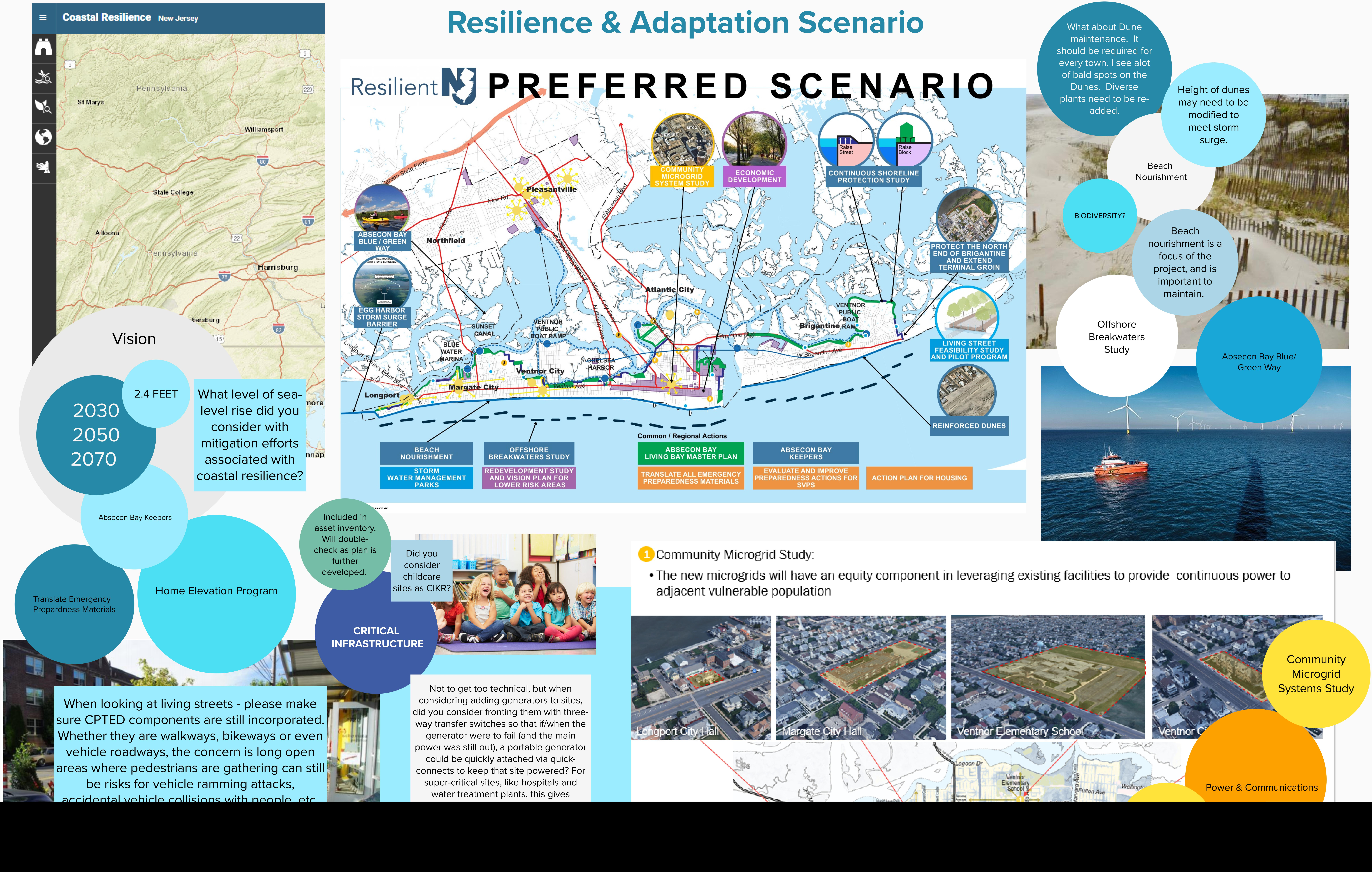
Then I did check regarding daycare. So, the way the project defined assets, we just have a whole bunch of assets and then there's the traditional critical facilities, which I think is what one commenter was focusing on versus those that are more community oriented, and we include both schools and daycare in the community-oriented facilities, but it doesn't mean that we're proposing they receive a lesser level of protection. The way the project methodology is set up. We're focusing on protecting everything that was identified as critical as long as it's reasonable to be protected.

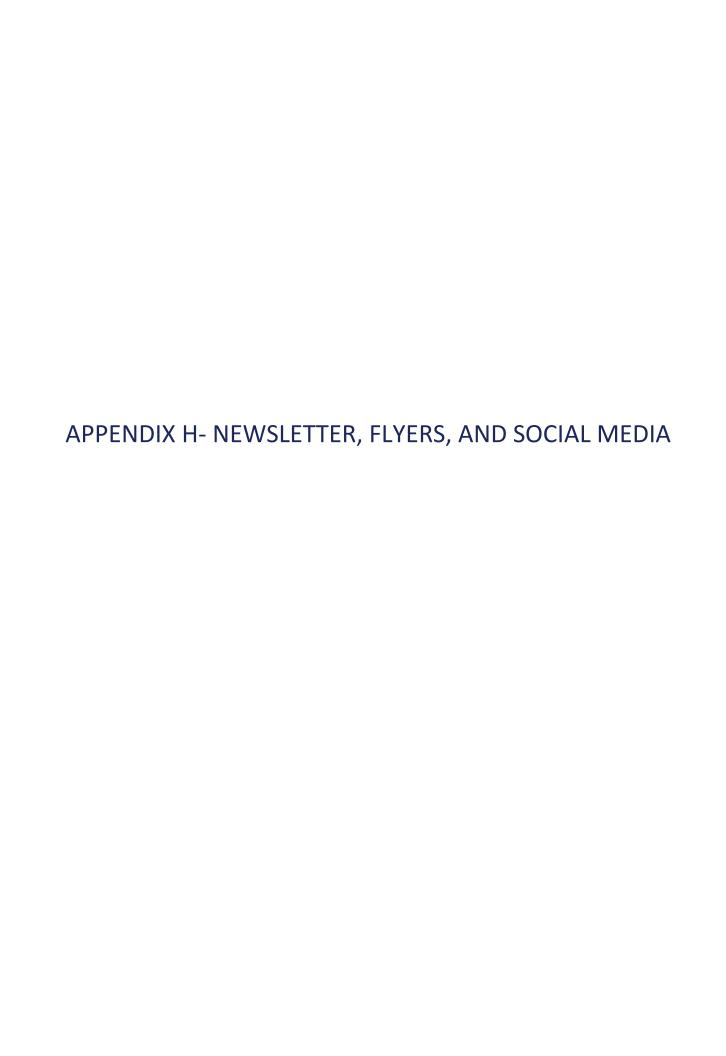
### (00:49:07:13-00:49:45:06) Amy DiCarlantonio:

Thank you so much, Jonathan. I think with that, if there's no additional comments or questions, we want to again, thank you so much for joining this morning. With that, we will have a recording of this session posted on the website. We welcome any additional comments to our email or other platforms as you think of them. If there are comments or additional feedback on the actions or things you've heard today or if there's any questions, we are happy to answer. Thank you for joining and we hope you have a great rest of the day. Thank you.

### (00:49:48:06-00:49:48:20) Jonathan Carey:

Thanks, everyone.

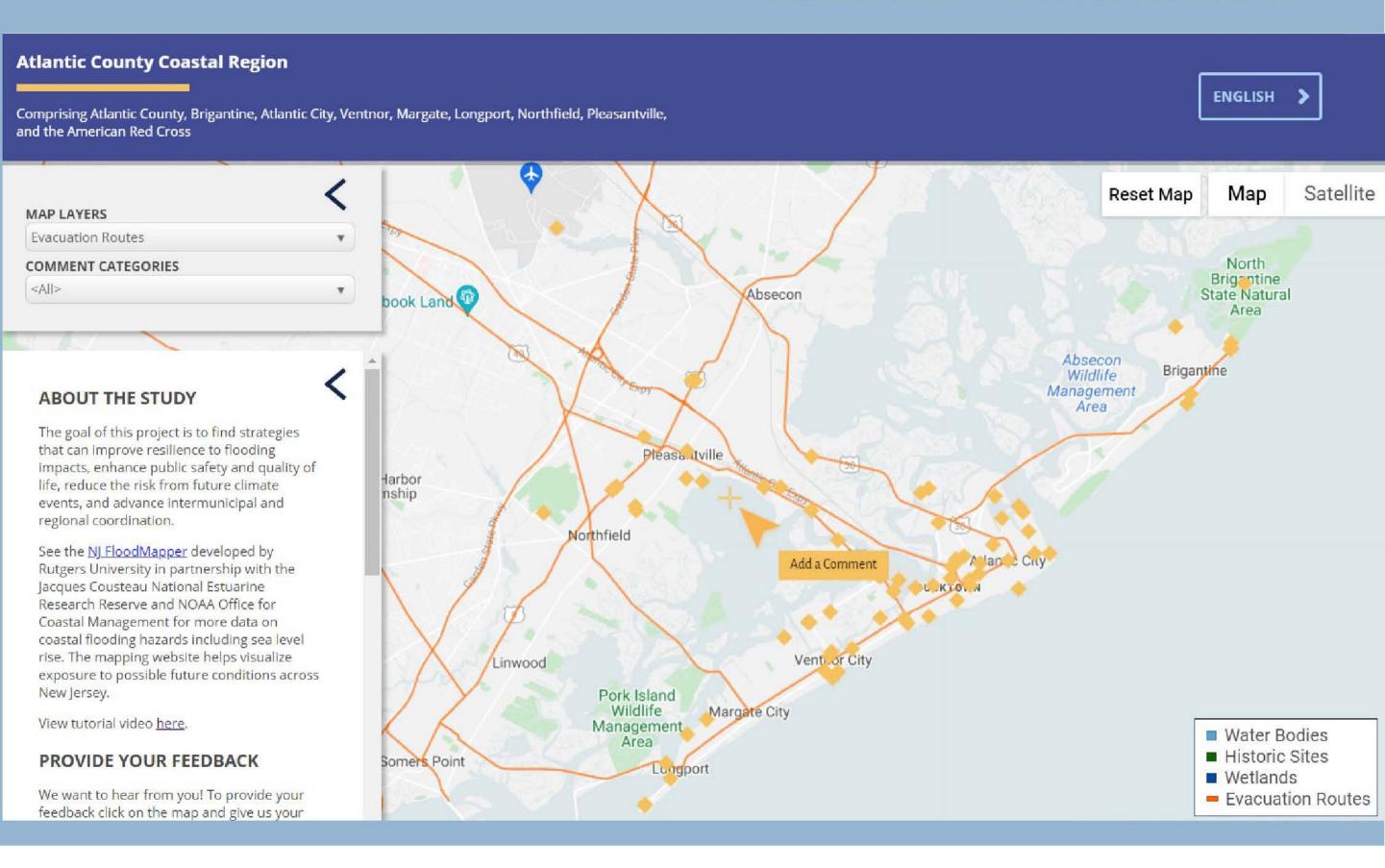




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Visite nuestra herramienta de mapas en línea para proporcionar su opinión sobre qué áreas de la región son vulnerables a las inundaciones y dónde están los activos críticos en su comunidad









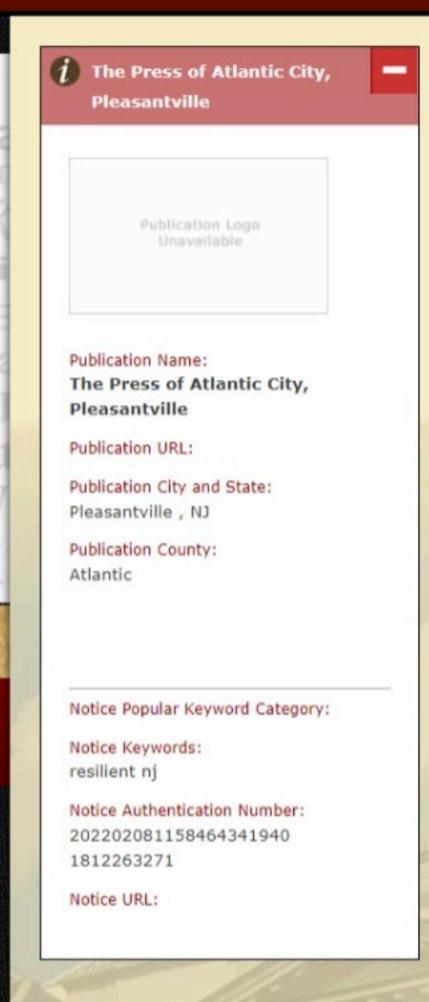


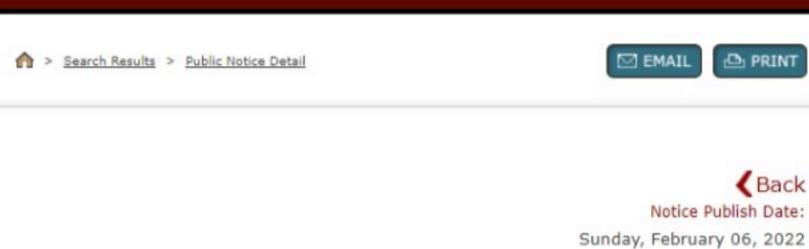
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### **Notice Content**

NOTICE OF ATLANTIC COUNTY COASTAL REGION RESILIENT NJ OPEN HOUSE Join us for the virtual open house on February 10, 2022 at 9:00-10:30 AM and/or 6:00-7:30 PM to discuss the Resilient NJ regional resilience and adaptation action plan. The New Jersey Department of Environmental Protection has launched a planning process to prepare for the impacts of climate change - including protection against hurricanes, flooding, and other hazards. At this second round of public meetings we are asking for your help in ranking scenarios and selecting projects that will enable the Atlantic County Coastal Region to prepare for, plan for, respond to, and adapt to our changing climate. Your participation will help inform how the region can best tackle current challenges while looking to the future. Register for the morning session at https://tinyurl.com/accr9AM. Register for the evening session at https://tinyurl.com/accr6PM. Once you register, Zoom information will be provided. Learn more about the project at resilient.nj.gov/accr. Contact the project team at resilientaccr@dep.nj.gov. Printer Fee: \$30.40 Pub Dates: February 6 & 7, 2022 Order #: 0000181659



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### NJ Resiliente Casa Abierta Virtual





Lo invitamos a una conversación interactiva sobre el cambio climático, incluyendo la protección contra huracanes, inundaciones y otros peligros. En esta segunda ronda de reuniones públicas, le pedimos su ayuda para clasificar escenarios y seleccionar proyectos que permitan a la Región Costera del Condado del Atlántico a prepararse, planificar, responder y adaptarse a nuestro cambio climático. Su participación ayudará a informar cómo la región puede enfrentar mejor los desafíos actuales mientras mira hacia el futuro.













## Resilient NJ Virtual Open House





We invite you to an interactive conversation about climate change - including protection against hurricanes, flooding, and other hazards. At this second round of public meetings, we are asking for your help in ranking scenarios and selecting projects that will enable the Atlantic County Coastal Region to prepare for, plan for, respond to, and adapt to our changing climate. Your participation will help inform how the region can best tackle current challenges while looking to the future.













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- **10 de febrero de 2022**
- Dos sesiones 9:00-10:30am y 6:00-7:30pm
- Reunión Zoom | Regístrese en tinyurl.com/accr9AM tinyurl.com/accr6PM











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# Resilient NJ Virtual Open House

We invite you to an interactive conversation about climate change - including protection against hurricanes, flooding, and other hazards. At this second round of public meetings, we are asking for your help in ranking scenarios and selecting projects that will enable the Atlantic County Coastal Region to prepare for, plan for, respond to, and adapt to our changing climate. Your participation will help inform how the region can best tackle current challenges while looking to the future.

- February 10, 2022
- Two sessions 9:00-10:30am and 6:00-7:30pm
- Zoom | Register at tinyurl.com/accr9AM tinyurl.com/accr6PM







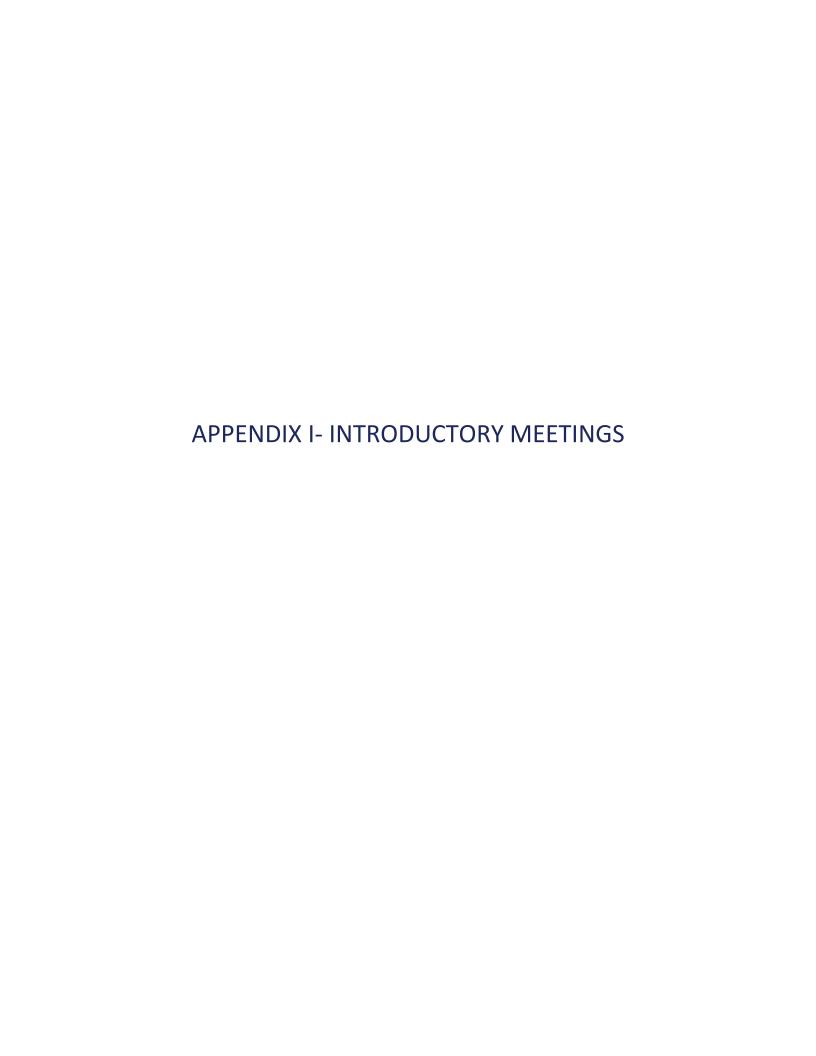








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### American Red Cross - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Thursday, January 7, 2021

TO: All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

SUBJECT: American Red Cross – Engagement Plan Review – Resilient NJ

A meeting was held January 7, 2021 at 1:30 PM with Dr. Rodric Bowman of the American Red Cross and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Dr. Rodric	ARC	Rodric.bowman@redcross.org
Bowman		
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan went through each section of the plan.
  - b. We then went through the following questions in terms of socially vulnerable populations since the American Red Cross is representing all communities on the Regional Team:
    - i. Is the community you are part of or are representing reflected in this plan? In what ways might the representation of your community be improved in the plan?
    - ii. Are the strategies outlined in this plan consistent with strategies you have seen work well in your community? What might be missing?
    - iii. Are there local individuals, groups or informal efforts and entities (such as mutual aid groups) that would be important to include?
    - iv. Are there any aspects of this plan that stand out to you as particularly effective or particularly needing improvement?
  - c. Dr. Bowman explained that he was meeting later that day with the rest of his American Red Cross Team and would provide feedback within the Engagement Plan.
  - d. Dr. Bowman suggested including the Tri-County COAD in the CAC.
  - e. He also suggesting adding Paul Gass from the American Red Cross as a contact. (we will confirm with Dr. Bowman as to whether Paul Gass should be a Steering Committee contact or CAC contact).

- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Dr. Rod Bowman stated that at a high-level overview he thought the CAC and Focus Groups looked good. He did recommend adding the Tri-County COAD.
- 3. Review of the name of the Region for the upcoming website:
  - a. Dr. Bowman is going to get back to the Engagement Team with additional feedback but his initial thoughts were that the name should be more generic to include additional areas and not just Ventnor.

### Action Items:

- 1. Dr. Bowman to get back to Engagement Team with feedback from his team. Complete. The American Red Cross provided the following comments on January 8, 2021:
  - a. Identifying how many focus groups and what they are is not very clear (Page 4) we managed to work it out and articulate that in one of the comments, but it should be clearer. When it goes into further detail on focus groups in d-I (Page 8) it does not align with the diagram on Page 9 badly worded?
  - b. Need to ensure use of our correct logo on the monthly newsletter (page 15) small but important, I think!
  - c. Page 16 para vi. School Issued Laptops not sure who mentioned this or what they had in mind, so perhaps consider taking it out unless there is a strong intent behind this?
  - d. Multiple comments are within the document that the engagement team will issue in our point by point responses.
- 2. Engagement Team to supply Dr. Bowman with a list of talking points and the URL to Splash Page for his feedback.
- 3. The Engagement Team will provide point by point responses to the American Red Cross Comments.













### Atlantic County - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Tuesday January 13, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Atlantic County – Engagement Plan Review – Resilient NJ

A meeting was held January 12, 2021 at 10:00 AM with John Peterson of Atlantic County and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
John Peterson	Atlantic County	Peterson_john@aclink.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
William Cesanek	CDM Smith	CesanekWE@cdmsith.com
Eric Fang	Perkins Eastman	e.fang@perkinseastman.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - b. Mr. Peterson mentioned that he prefers using a word like "impact" over the word "stressor" and requested that we revise it in the plan.
  - c. Overall Mr. Peterson thought the Engagement Plan did a good job in defining who should be on the Steering Committee and TAC. He did feel that it was an ambitious list and wished us luck in contacting that many people. He expressed his concerns with funding the action plan items and stated we should focus on queuing up projects that are either more likely to receive funding or incremental. He used examples of unrealistic projects like raising all County roads that would not only have unrealistic cost implications but also not be realistic due to adverse effects on abutting roadway networks and infrastructure. He asked that we use reason when weighing public and advisory committee feedback and that if the actions are attainable the plan will be used and not just placed on a shelf. He said he can give us many examples in his office of plans that ended up on a shelf and not utilized. He also felt that Economic Development should be included in the Engagement Plan.

- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Mr. Peterson stressed the importance of including and engaging elected officials because they are of value and importance when it comes to funding the action plan. He also stressed the importance of working together with other municipalities. He advised that Matthew Duffy is no longer the GIS Specialist as he was replaced by Sarah Taylor-Deak and that the new Mayor of Pleasantville is now Judy Ward. Mr. Peterson suggested adding former Mayor of Brigantine, Dr. Phil Guenther, to the Environmental Focus Group. He also suggested adding Bill Reiner from Public Works and Tom Cannon from the Atlantic City Housing Authority to the CAC. Mr. Peterson will continue to review the CAC list and get back to us with contact information for anyone not included in the lists.
- 3. Review of the name of the Region for the upcoming website:
  - a. Mr. Peterson agreed that all communities should be encompassed in the name of the project and that Ventnor did not include all communities.
- 4. Review of how communities in this Region work together.
  - a. Eric Fang (Perkins Eastman) and Bill Cesanek (CDM Smith) asked John what his experience was like working with other municipalities.
  - b. John stated that there is a good relationship with the communities and that it is important to work together with other municipalities on the plan in order for it to achieve the best results.
  - c. John explained that the biggest challenge for the municipalities is funding. Many of these municipalities do not have inhouse engineers or planners, many use consultants that need a Resolution of approval to approve the consultant fees to get involved. If they do not have the funding then we may see less involvement as many of the inhouse staff wear multiple hats and are stretched thin. There is certainly the willingness to be involved, it would more be a matter of time and funding.

### **Action Items:**

- 1. Mr. Peterson to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Please note after the call that other communities are leaning towards it being the same day each month. So far the fourth Wednesday of each month appears to work for many.













### Margate- Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Thursday, January 14, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Margate – Engagement Plan Review – Resilient NJ

A meeting was held January 12, 2021 at 2 PM with Roger McLarnon of Margate and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Roger McLarnon	Margate	Mclarnon_roger@margate-nj.com
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - b. Mr. McLarnon asked where we are at in the Plan Matrix and Jaclyn took him through the Matrix and explained where we are at right now.
  - c. Mr. McLarnon stressed the importance of having an action plan with other communities and sharing it on the county level. Alyssa, WSP, explained the strategies we will use to determine assets and risk assessment and how that will help us to define the action plan. Mr. McLarnon also brought up that COVID is a factor now that will eventually go away but it's important to keep the pandemic in our plans as a similar event could take place in the future. Mr. McLarnon thought we had a good start with the Engagement Plan and that all communities seemed to be reflected in the plan. He advised us to keep the plan simple as a challenge might be getting all communities to work together and a simpler plan may help to facilitate that.
  - d. Mr. McLarnon used the example of Debris Management after Sandy and how each town had to have separate debris management areas and contracts, and that there may be projects and actions where communities can work together on a Regional and County level after these storm events.

- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Mr. McLarnon advised that Margate has a small, year-round community and is inundated with visitors during the summer months so it is important to have members of the Homeowner's Association in our Focus Groups and CAC. He also advised us to add Dan Adams, Fire Chief, to the CAC. The three commissioners for Margate are Mayor Michael Becker, John Amodeo and Michael Becker. He advised us that John Amodeo is the most active of the three. We will include the commissioners in the CAC moving forward while keeping in mind Sunshine Laws. Mr. McLarnon would also like to be involved in the CAC.
- 3. Review of the name of the Region for the upcoming website:
  - a. Mr. McLarnon agreed that all communities should be encompassed in the name of the project and that Ventnor did not include all communities. He suggested something similar to "Atlantic County Coastal Communities".

### **Action Items:**

- 1. Mr. McLarnon to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Please note after the call that other communities are leaning towards it being the same day each month. So far the fourth Wednesday of each month appears to work for many.













### Atlantic City - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Thursday, January 14, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Atlantic City – Engagement Plan Review – Resilient NJ

A meeting was held January 12, 2021 at 3:00 PM with Barbara Woolley-Dillon and Jacques Howard of Atlantic City and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Barbara Woolley-Dillon	Atlantic City	BWoolley-Dillon@cityofatlanticcity.org
Jacques Howard	Atlantic City	JHoward@cityofatlanticcity.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jonathan Carey	WSP	Jonathan.Carey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - b. Overall Ms. Woolley-Dillon and Mr. Howard thought the Engagement Plan did a good job in defining who should be on the Steering Committee and TAC but also had a few suggestions of team members to add. Their team is going to review the Engagement Plan further tomorrow and get back to us with additional feedback.
- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Ms. Woolley-Dillon and Mr. Howard suggested making sure that civic organizations as well as neighborhood associations are included in the CAC and Focus Groups. They suggested including Tom Cannon from the Atlantic City Housing Authority to the CAC. They also suggested adding members from the 600 North Beach Resident's Association, which has a diverse population, to Focus Groups. Ms. Woolley-Dillon and Mr. Howard advised us to check with The Executive Council, run by Mike Epps, which includes Stockton University, Atlantic Cape Community College, AtlantiCare, Casino Executives as well as Special Interest Groups. They advised to add Ernest Coursey, Commissioner, Councilwoman Latoya

Dunston, and Crystal Lewis, who is the Assistant to the Director of Public Works to the CAC. They advised that Police Chief Henry White has retired and Deputy Chief James Sarkos will be in charge until a permanent replacement is selected. For Focus Groups they advised adding Rosa Farias and Matt Dougherty from the CDRA. Ms. Woolley-Dillon and Mr. Howard advised that Atlantic City has a large and growing Bangladeshian Community and recommended adding Councilman MD Hossain Morshed to the Focus Groups in order to have that community represented.

- 3. Review of the name of the Region for the upcoming website:
  - a. Ms. Woolley-Dillon and Mr. Howard agreed that Ventnor was not a good representation of all communities involved and suggested "Southern Coastal Communities" or Atlantic County Communities" as possible replacements.

### **Action Items:**

- 1. Ms. Woolley-Dillon and Mr. Howard to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Ms. Woolley-Dillon and Mr. Howard both said that Wednesday, January 27, 2021 works for them. They suggested using the same day each month, such as the 4<sup>th</sup> Wednesday of the month.













# Ventnor - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Thursday, January 14, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Ventnor – Engagement Plan Review – Resilient NJ

A meeting was held January 12, 2021 at 4:00 PM with Ed Stinson of Ventnor and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Ed Stinson	Ventnor	estinson@ventnorcity.org
Alyssa Curran	WSP	Alyssa.Curran@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - b. Mr. Stinson thought that the Engagement Plan looks good and is excited for the action items to take place later on in planning. Mr. Stinson expressed that we need to make sure we are looking at assets to assess gaps and risks. Alyssa, WSP, explained the strategies we will use to determine assets and risk assessment and how that will help us to define the action plan. Mr. Stinson asked if we are looking at local policy ordinances and whether or not local policy ordinances will be a consideration in the plan and Alyssa confirmed that yes, we are looking into local policy ordinances and that actions could be policies, projects, or many other things.
  - c. Mr. Stinson expressed that the planning aspects in the first few meetings are less of his interest, but that he is really looking forward to when we finally get to the projects and he has many infrastructure resiliency projects that he is looking forward to vetting with the other communities. He brought up the example of roadway flooding on evacuation routes and how he has potential infrastructure solutions to fix it in Ventnor, but unless it is also addressed in other communities like Atlantic City, the project would not address the full problem. He also used the example of raising bulkheads, and how all the communities

would have to work together as it does not work if every community is adopting different standards.

- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Mr. Stinson advised us that the Ventnor Community has its own Steering Committee that is Community Based Groups that could be used for the CAC or Focus Groups. He advised us to make sure Commissioner Tim Kreble, Commissioner Michael Cahill and Commissioner Donna Peterson are on the CAC. Mr. Stinson will get back to us on which Commissioners are best to include.
- 3. Review of the name of the Region for the upcoming website:
  - a. Although Ventnor would be honored to be named on the project, Mr. Stinson felt that it would be more inclusive to have a name that included everyone. Some suggestions were "Absecon Island Coastal Communities" or "Atlantic County Coastal Communities".

### **Action Items:**

- 1. Mr. Stinson to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Mr. Stinson indicated that January 27, 2021 works for him for the first Steering Committee meeting. He said 10 AM worked well, but other times worked as well.













# Longport - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Thursday, January 15, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Longport – Engagement Plan Review – Resilient NJ

A meeting was held January 13, 2021 at 10:00 AM with Bruce Funk of Longport and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email
Bruce Funk	Longport	zoning@longport-nj.us
Jonathan Carrey	WSP	Jonathan.Carrey@wsp.com
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - b. Mr. Funk thought the Engagement Plan was a good start. He wants to make sure that we look at a regional approach to improvements at the county level so individual communities are not competing for funding. He feels that in the long run regionalization is the best approach to resiliency. Mr. Funk felt we should address critical facilities and infrastructure and keep in mind that the residential population that does not always evacuate when an emergency happens. So, we need to consider and address preparedness.
  - c. Ms. Flor mentioned that the American Red Cross had shared some great preparedness tools and it sounds like the tools that Longport put together and the tools that the American Red Cross put together could work well together. We will make sure to introduce Paul Gass, American Red Cross to Mr. Funk so they can compare notes. Mr. Funk explained that he had put together give away bags for preparedness and unfortunately people dumped out the preparedness information to use the bag, therefore he found that people do not always read the material. At the end of the day, many people do not focus on preparedness. He used the example of this pandemic and how everyone ran out to buy alcohol and paper

- products, yet no one was thinking about the key preparedness items that they should be purchasing.
- d. He also expressed that the message we are delivering should be consistent throughout all communities. He recognized debris management is a challenge as evidenced during Superstorm Sandy. He felt that all communities would benefit from a Regional Emergency Communication Plan. He felt it was important that all towns are communicating the same message to their communities.
- e. Mr. Funk expressed that one of the biggest challenges is going to be local solutions vs. regional.
- f. Mr. Funk advised us that Longport has a large Senior Citizen population which would be their only socially disadvantaged population.
- g. Mr. Funk said that critical facilities were extremely important and stated how many fire and police stations are below the flood elevation. He said rather than raise all of them, maybe look into opportunities for some shared facilities.
- h. Mr. Funk encouraged us to talk to LBI and how they organized shared services for critical facilities. He said perhaps one community is responsible for fire response, another police, and another public works for example.
- i. He provided some notes after the meeting that included:
  - i. That in terms of Coastal Resiliency he'd like to see some actions that focus on disaster preparation, disaster outreach, disaster response, disaster recovery, economic recovery, utility vulnerability, and align all with funding.
  - ii. He mentioned that Longport's needs are probably the same as all coastal communities:
    - i. Get homes out of harm's way (we have been doing that since 2008 approximately 1/3 of older housing stock, demolished rebuilt to higher regulatory standards) Longport unique when someone buys a property majority of sales end up being demo/rebuild
    - ii. Get critical facilities out of harm's way costly been pushing that button for years not making head way – funding to do the projects would be the ice-breaker
    - iii. Get utilities out of harm's way elevate or protect well houses x 2 & 1 pumping station. Electric is key most major storms power outages are common AC electric has not moved on underground distribution lines. About 10 years ago he priced out entire Longport underground; he found that it was approx. \$30 million or \$18,000 per dwelling unit. If we had to pay upfront not workable, but a surcharge of \$100 per month on each bill or \$1,000 per year 20 years is doable. He is wondering if federal funding available for coastal communities. For example, underground electric on Absecon Island in his opinion would be a great resilient plan.
    - iv. Prepare residents for disasters and to be self-sufficient we do that annually via outreach but do they read & prepare. When told of an upcoming emergency/storm, only then do most react.
    - v. After an emergency/evacuation Residents want back asap. That does present issues for cleanup/making town safe. However, human nature says if my home was damaged, I would want my contractor there ASAP to stabilize/protect my home.

- vi. How to handle the community, if only part of town damage but debris/sand still being removed, people get in the way, slow down recovery prep them that the delay is crucial for recovery via outreach projects.
- iii. In Mr. Funk's notes, he shared his answers relative to Longport to many of the key questions that we will be reviewing through the engagement process:
  - i. What are the assets in the Region that we need to protect?
    - The beach, critical facilities, infrastructure, water supply, sewage/pumping capabilities (ACUA pumping station vulnerability, electric)
  - ii. What are the areas of risk?
    - a) The entire town, bay front beach front homes, seven areas of Longport experience nuisance flooding typical during Nor'easters
  - iii. What are the social and structural impacts and the needs of these communities after a disaster?
    - a) Sandy people wanted back asap, but we had debris removal, sand,
       & many rubber "neckers" getting in the way
    - b) COVID up to date communication was critical. Key to all past events is communication, before, during & after and on the most part the message should be/must be the same regionally.
  - iv. What already has been planned to address these impacts and these needs?
    - Stockton nuisance flood report turn into action and early warning plan so residents can move their cars.
  - v. Where are the gaps?
    - a) Communication people don't give a damn
  - vi. Where does the Region want to be in the future?
    - a) Pick a date 2075 how do you perceive your community in 50 years? Under water, flooding at high tide, power outages a common occurrence, no beach to go to because at high tide? It's likely not there.
    - b) Can each municipality afford to have its own PD, Fire, EMS, Public Works, Courts, Schools, etc.? If they do –then those facilities have to be elevated which is costly.
    - c) Real estate is too valuable, but if nuisance flooding is at every high tide, then it's a problem, values will tumble – communities will lose tax revenue & services will begin to fall apart
  - vii. What scenarios do these communities favor to get there?
    - a) They want everything, but do not want to give up power
  - viii. What actions should we implement for a more resilient future?
    - a) Regionalization
- iv. In Mr. Funk's notes he also commented on the stressors and challenges in the Region.
  - Regionalization/combined services is a bad word local municipalities have to be told/or mandated by law to combine services or have all state & federal funding for projects tied to combing services
  - ii. Afraid of change
  - iii. Afraid of loss of control/power

- v. In Mr. Funk's notes he said that in conclusion:
  - i. Regionalization of services is the best way to go economically. That will allow communities to make the best cost-effective decisions when planning resiliency projects for their critical facilities and infrastructure.
  - ii. He likes the idea of trade off/horse trading between communities I will have your community provide our community this service, if you allow our community to provide your community this service. Its a win-win.
  - iii. Better yet If all Federal & State funding for resiliency projects were tied into regional cooperation and sharing of services, he feels that the economics involved would dictate the pathway.
- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Mr. Funk advised us that Frank Culmone who is the Chief of Police may be willing to help to spread any communication through his weekly blog. He suggested adding the High-Rise Association, a local builder and a local real estate agent to the Housing Focus Groups along with the Green Team to the Environmental Focus Groups. Mr. Funk advised us to add Dan Lawlor and James Leeds who are Commissioners in Longport and Fire Chief Levon Clayton to the CAC and possibly the Chairman of the Planning Board to either the CAC of Focus Groups. He also advised us that the Borough Engineer has changed and he will get us the contact information. He also mentioned summer residents, restaurant owners, and service industry.
  - b. In Mr. Funk's notes he mentioned that the Longport Local Focus Group should include restaurants, builders, realtors, service industry, two high rise associations, local & non-resident participation, and the two church groups. He would encourage the Local Focus group to pick a person to represent Longport in the Regional Focus Group.
- 3. Review of the name of the Region for the upcoming website:
  - a. Mr. Funk felt a name that was more inclusive of all communities would be better than just Ventnor. He liked the name "Atlantic County Resiliency Team".

### **Action Items:**

- 1. Mr. Funk to get back to Engagement Team with feedback. **Complete. Mr. Funk sent us his comments on January 13, 2021.**
- 2. Mr. Funk to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 3. The Engagement Team to follow up with meeting day and time for last week of January. We reviewed January 27, 2020 and that seemed to work for Mr. Funk. The goal will be to keep the meeting that same day of the month, if possible, for the duration of the project. So, the fourth Wednesday of the month.













# Ventnor - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Friday, January 15, 2021

**TO:** All Meeting Attendees

**FROM:** Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Pleasantville – Engagement Plan Review – Resilient NJ

A meeting was held January 14, 2021 at 10 AM with Shurlana Stewart of Pleasantville and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email	
Shurlana Stewart	Pleasantville	sstewart@pleasantvillenj.us	
Alyssa Curran	WSP	Alyssa.Curran@wsp.com	
Jonathan Carey	WSP	Jonathan.Carey@wsp.com	
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com	

The following was discussed at the meeting:

#### 1. Review of Engagement Plan:

- a. Ms. Stewart introduced herself as the Flood Plain Manager and Planning and Zoning Secretary. We will add Ms. Stewart to the Steering Committee as Kevin Cain will be retiring soon. Mr. Cain will still give guidance as needed.
- b. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan. Alyssa Curran, WSP, explained project funding, assessment of assets, methodology and the development of the plan.
- c. Ms. Stewart questioned if the Resiliency Plan was in conjunction with the New Jersey Sustainability Plans. Alyssa Curran advised that our plan is focused more on flood resiliency but we are working to make sure any applicable pieces of the plan are interconnected with the Green Team. It was clarified that the plan will also cover actions that assist in other types of Resiliency so it helps the region as a whole become more resilient regardless of the type of disaster. Ms. Stewart clarified is the chairperson for the Pleasantville Green Team. Ms. Stewart felt the plan was on target with the city's goals. She also mentioned that Pleasantville has a lot of residents who work in surrounding city's so it is important to make sure surrounding communities plans are in-line with those of Pleasantville.

- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Ms. Stewart advised us that Mayor Judy Ward replaced Jesse Tweedle. She will get back to us on two council members to include in the CAC. She is going to check with the administrator to see if Laura Neumann should be left on the CAC as the City Engineer since she is not in-house but rather a consultant. Ms. Stewart advised us to add Debra Washington who is the Recreation Director of Pleasantville and the Pleasantville Housing Authority to the CAC. She advised us to add Jacqueline Amado-Belton from the Green Team to the Environmental Focus Groups.
- 3. Review of the name of the Region for the upcoming website:
  - a. Ms. Stewart thought the name should be inclusive of the entire region not just Ventnor. She like the suggestions of "Atlantic County Coastal Communities" and "Absecon Island Coastal Communities"

### **Action Items:**

- 1. Ms. Stewart to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Ms. Stewart indicated that January 27, 2021 works for her for the first Steering Committee meeting. She said 10 AM worked well, but other times worked as well.













# Northfield - Engagement Plan Review - Resilient NJ

### **MEETING MINUTES**

**DATE:** Friday, January 15, 2021

**TO:** All Meeting Attendees

FROM: Jaclyn J. Flor, PE, PP, CME, ENGenuity Infrastructure

**SUBJECT:** Northfield – Engagement Plan Review – Resilient NJ

A meeting was held January 14, 2021 at 2:30 PM with Tim Joo of Northfield and members of the Engagement Team to discuss the Engagement Plan for the NJ Resiliency Planning Project. The meeting was held via Microsoft Teams. The following were in attendance:

Name	Organization	Email	
Tim Joo	Northfield	tjoo@cityofnorthfield.org	
Jonathan Carey	WSP	Jonathan.Carey@wsp.com	
Jaclyn Flor	ENGenuity Infrastructure	jlflor@engenuitynj.com	
Amanda Schermond	ENGenuity Infrastructure	aschermond@engenuitynj.com	

The following was discussed at the meeting:

- 1. Review of Engagement Plan:
  - a. Jaclyn Flor, ENGenuity went through a high-level review of the Engagement Plan, went through each section of the plan.
  - Mr. Joo told us that he has been in Atlantic County for 10 years and prior to that he was in Burlington County which has a cohesive County level plan that he would prefer in Atlantic County.
  - c. Mr. Joo advised us that the dispatch for Northfield's EMS is shared with Egg Harbor Township. They share the same physical space but are on different frequencies.
  - d. Mr. Joo asked if the primary function of the Engagement Plan was floodplain management. Jaclyn Flor and Jonathan Carey explained that the funding source was initially focused on flood resilience, however NJDEP has stated that the plan is should be versatile and serve for resiliency in multiple types of disasters. Actions may relate to economic, emergency management, pandemic, flooding, communication, policy, etc. Jonathan Carey, WSP, explained how during 2021 we will focus on coming up with the plan and in 2022 we will focus on implementing the plan.
  - e. Mr. Joo also asked how our plan differs from a Hazard Mitigation Plan and Jaclyn Flor explained that we will be reviewing Hazard Mitigation Plans in our planning context and will

- be looking at the assets identified, recommended projects, and actions. We will be reviewing those actions and building upon same in this project. The goal is actions that provide a regional benefit.
- f. Mr. Joo expressed the challenges of getting all of the local departments to work together and feels it is important to start small and then grow the plan as we work together with other municipalities.
- g. Mr. Joo also explained that when looking at shared services the wage has to make sense. He told us of a recent example where several towns tried to go on County dispatch and the challenge was that dispatchers making over \$40k a year were being asked to start over at an entry wage at the County and make \$26k a year. He noted that the wage is what stopped the shared service from moving forward. It never happened as a result.
- h. Mr. Joo explained that when the neighboring communities of Longport and Margate are evacuated that the bridge they use to leave and for re-entry goes directly through Northfield. This is something to keep in mind when working with neighboring towns, that they may depend on one another for access.
- i. Mr. Joo noted that power outages are a common issue but that there is very little flooding in Northfield. He noted that Northfield is not actually coastal if you look at a map the marshland is in other municipalities and their borders do not touch the coast.
- 2. Review of Community Advisory Committee and Focus Group members:
  - a. Mr. Joo advised us to add Greg Dewees, who is a Councilman, to the CAC. He is going to check with Greg to see what other Council Members should be added. Mr. Joo is going to research whether or not Northfield has a business association that should be added to the CAC. He wants to make sure retailers on Tilton Road are included and able to give feedback in Focus Groups. Mr. Joo advised there is a local church that he would like to get involved with Donation Management. He will look into getting us contact information for the church. He also mentioned there is a shelter in Linwood/Somer's Point that houses over 200 people when there is an evacuation from Northfield. Mr. Joo recommended adding someone from the Recreation Board to the CAC or Focus Groups. He will get back to us with contact information.
- 3. Review of the name of the Region for the upcoming website:
  - a. Mr. Joo agreed that the name should be cohesive of all communities involved in the plan but as Northfield is not technically a coastal community anything with the word "coastal" in the title might not resonate with some members. He was not opposed to something like Atlantic County Coastal Region.

### **Action Items:**

- 1. Mr. Joo to get back to Engagement Team with any contact information for the TAC, CAC and Focus Groups
- 2. The Engagement Team to follow up with meeting day and time for last week of January. Mr. Joo said that Wednesday, January 27, 2021 works for him but he is only available in the morning of that day. It has been suggested to use the same day each month, such as the 4<sup>th</sup> Wednesday of the month.

Appendix C—Asset Collection and Risk Assessment Report

# ATLANTIC COUNTY COASTAL REGION

ASSET INVENTORY AND RISK ASSESSMENT REPORT





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- A FLOOD MODEL UPDATES
- **B** FLOOD CONDITION MAPS
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- C-1 Non-Housing Asset Counts
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# 1 INTRODUCTION

Resilient NJ builds on the existing efforts and capabilities within the state to create and implement innovative regional planning resilience solutions to address current and future flood-related hazards, environmental resource protection, and to promote sustainable/smart growth development in both riverine and coastal communities.

The purpose of this risk assessment for Atlantic County Coastal Region (ACCR) is to identify the importance and vulnerability of critical assets in the region, using the inventory of assets compiled during the initial Project Context phase of work. Critical assets are those that play a significant role in the community functions of the region, from among the many health and safety, economic, educational, and social and recreational activities that compose actively functioning towns. The risk assessment builds upon the Planning Context analysis and the Community Engagement interactions that inventoried and cataloged the assets of the region, from government services to infrastructure systems, education, and housing.

The graphic below (Figure 1-1) shows the general asset categorization suggested by NJDEP in their 2020 Climate Resilience and Adaptation Guide. This general categorization was adjusted after the resources and assets were inventoried and evaluated for the ACCR (the updated Categories of Asset Types is presented in Section 3.1.1).

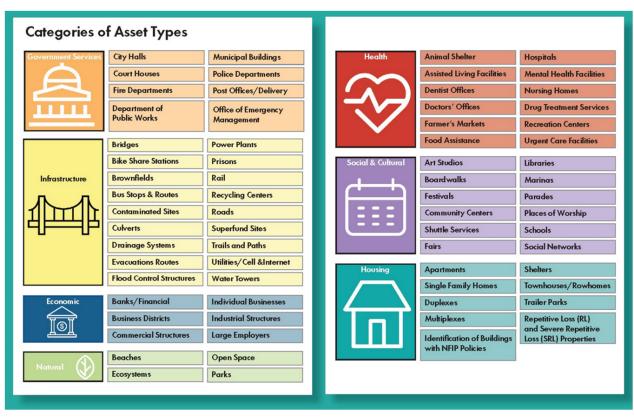


Figure 1-1: Categories of Asset Types

Potential resilience actions and projects are examined in the Scenario Planning task (which sequentially follows this risk assessment in terms of workflow). The connection to the Scenario Planning task is illustrated in Figure 1-2.



Figure 1-2: Connection from Risk Assessment to Scenario Development

Three main steps compose the process for assessing risk for critical assets:

- Identify, classify, and map assets and the relative importance of their functions and roles locally and
  in the ACCR.
- Prioritize the most critical and vulnerable assets in the project area from the perspectives of:
  - o facilitating public health and safety after a major extreme weather event (including evacuation and emergency response),
  - o facilitating "as-soon-as-possible" recovery from an extreme weather event, including restoration of public safety (e.g., police, health and fire), restoring social functions (such as education, recreation, and social services), business and commerce, and safe habitation.
- Explore and illuminate the relationships between and among critical assets, including geographic proximity, to help evaluate the potential for implementing actions and projects that would improve their resilience and protect (or provide alternatives to) their functions on an area-wide basis.

The Resilient NJ Risk Assessment methodology provided by the New Jersey Department of Environmental Protection (NJDEP)<sup>1</sup> characterizes an Asset as follows:

"Assets are features within a community that are valued. These can include facilities, populations, processes, services, functions, institutions, or networks that are essential to day-to-day life, rapid disaster recovery, and long-term resilience of communities. They are the places, people, events, processes, and

<sup>&</sup>lt;sup>1</sup> New Jersey Department of Environmental Protection (NJDEP), "Resilient New Jersey Risk Assessment Methodology," January 16, 2020.

things that define communities. Assets may or may not be a physical structure; however, all assets should be assigned a location for the purpose of the Risk Assessment. For the Resilient NJ program, Consultant Teams will work with the communities to identify these assets."

Two key methods are used to assess the vulnerability of, and damage potential to, assets. The first method is to estimate the risk of economic impacts from flooding, using a tool that is available from the Federal Emergency Management Agency (FEMA) and applied throughout the project area. This tool is known as Hazus, and it uses flood model results depicting future flood conditions as applied to the built environment. Two current and four future flood conditions have been developed by NJDEP for use in performing the Hazus analysis. For this project, Hazus was set up to use information about building locations and building attributes to estimate damage values resulting from the different flood conditions. The output of the Hazus analysis provides information about the degree and extent of economic damage to homes, businesses, commercial and government structures, and other elements of the built environment. The results of the Hazus analysis are principally expressed in terms of total economic impact, in dollars.

The second set of methods are Non-Hazus analyses, which estimate flood impacts where application of the Hazus model is not the best metric for estimating impact. The Non-Hazus analyses are used to prioritize assets based on their flood vulnerability and the consequence of their loss, and also apply to asset types that are not effectively measured using Hazus. Examples of the types of assets that are evaluated for impacts using Non-Hazus methods includes locations where multiple public safety and infrastructure assets occupy the same site, or where there is no information readily available about the built facilities on a site, such as parks and public building complexes and infrastructure facilities.

Non-Hazus analyses are also useful for linear facilities, such as roads, railroads, and transportation system elements that occupy many sites as they cross the landscape. Other examples of facilities that can be evaluated using Non-Hazus methods include linear features not tied to specific parcel boundaries such as the electric grid, marinas (also because they are not parcel-based), and features with multi-dimensional functionality, such as infrastructure operated by the Atlantic County Utilities Authority (which performs wastewater treatment, recycling, electric generation, and other functions that can be co-dependent), and major highways/roads (which need to function as uninterrupted evacuation routes, and have critical value much greater than their economic value or cost to repair). This report refers to such assets as Non-Hazus assets.

It is important to note that Hazus calculates impacts to assets in monetary terms and does not include metrics for non-monetary function and importance. The Non-Hazus methods assess consequence of loss as a secondary method to better estimate the importance of protecting key assets based on their importance to evacuation and community recovery, such as evacuation routes, public safety, and restoring community function.

The overall risk assessment discusses how the ACCR towns and assets would be impacted under various extreme weather/flood events. Also, because the analysis of assets occurs using a geographic information system, the physical proximity and interrelationship among assets can be assessed in identifying relevant and effective resilience actions, such as berms, pumps, elevation, alternate power provision, and waterproofing.

The product of the risk assessment is the identification of critical assets, and clusters of critical assets, that need to be considered for improved resilience.

The risk assessment results serve as an input to the scenario development task, whereby sets of resilience actions are identified that reduce risk and exposure of assets to risk. Actions identified are also assessed as to whether they are implementable, cost effective, and promote environmental and ecological enhancement, while facilitating appropriate adaptation to climate change over time. (See the ACCR Regional Resilience and Adaptation Action Plan for a description of the scenarios developed for ACCR.)

# 2 FLOODING CONDITIONS

This risk assessment considers the effects of flood conditions on critical ACCR assets. A range of flood conditions were used. These flood conditions were modeled, and the resulting flood maps were used for an economic analysis and identifying assets that are at high risk and necessitate planning for further protection.

All elevations are in the NAVD88 datum, unless otherwise stated.

# 2.1 CURRENT AND FUTURE FLOOD CONDITIONS

The Resilient NJ program<sup>2</sup> provided six initial flood conditions (two current and four future), listed in Table 2-1. These flood conditions include combinations of sea level rise, increased rainfall, and storm surge and are further detailed in the Resilient NJ Floodplain Mapping Methodology.<sup>3</sup>

Type \*

a. MHHW + 2% annual chance, 2-hour storm rainfall
b. MHHW + 1% annual chance, 24-hour storm rainfall
c. MHHW + SLR 2070 (2.4 feet)
d. MHHW + SLR 2070 (2.4 feet) + (2% annual chance, 2-hour storm rainfall + 10% increase in rainfall)

Future
e. MHHW + SLR 2070 (2.4 feet) + (1% annual chance, 24-hour storm rainfall + 10% increase in rainfall)

f. MHHW + SLR 2070 (2.4 feet) + Superstorm Sandy in 2070 storm surge (High Water Mark = 8.3 feet)

Table 2-1: Flooding Conditions for Risk Assessment<sup>4</sup>

The two current flood conditions show existing conditions for two rainfall conditions. The 1% annual chance, 24-hour storm event is the design storm event used in FEMA flood mapping. The 2% annual chance, 2-hour storm event was selected to include a short-duration, high-intensity storm.

The four future flood conditions consider sea level rise (SLR) in 2070, using 2.4 feet, which is based on the central estimate of the 2019 Rutgers University's Science and Technical Advisory Panel (STAP)

4

SLR = Sea Level Rise

<sup>&</sup>lt;sup>2</sup> NJDEP, "Risk Assessment Methodology," January 16, 2020.

<sup>&</sup>lt;sup>3</sup> NJDEP, "Resilient New Jersey Floodplain Mapping Methodology," February 14, 2020.

<sup>&</sup>lt;sup>4</sup> NJDEP "Risk Assessment Methodology," January 16, 2020, Table 1.

report.<sup>5</sup> These four flood conditions include the increase in sea level rise alone, sea level rise plus the two precipitation conditions, and sea level rise plus the storm surge that occurred from the historic Superstorm Sandy of October 2012.

# 2.2 REVIEW OF WATERSHED MODEL

Computer-based models of watershed hydrology in the ACCR were used to understand the effects of flooding on critical assets. Regional watershed models were developed for the six flood conditions and provided by NJDEP. Hydrologic models were created in the Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) and hydraulic models were created in the Hydrologic Engineering Center's River Analysis System (HEC-RAS). The ACCR project area includes sections from both the Great Egg Harbor and Mullica Toms watersheds.

The HEC-RAS models are a coarse resolution and are intended for the planning purposes of the Resilient NJ project to demonstrate flood trends and identify areas of risk. The models use a tide boundary with a constant value of the Mean Higher High Water (MHHW) datum from the National Oceanic and Atmospheric Administration (NOAA) Atlantic City tide gauge on Steel Pier (Station 8534720).

Upon further review, the HEC-RAS models included the following issues and were updated accordingly for all Resilient NJ regions with approval from NJDEP. These changes are detailed in the technical memo in Appendix A.

- 1. **Issue:** Model meshes did not include breaklines (lines that follow high-ground or linear features), which would lead to ponding that are not necessarily reflected in the model.
  - **Update:** New model meshes were developed, which included breaklines along major highways, freeways, and railways.
- 2. **Issue:** The Superstorm Sandy event used a highwater elevation of 8.3 feet that was based on an average for the entire NJ coastline, rather than highwater marks specific to the region.
  - **Update:** Only highwater marks specific to the region were considered in averaging a highwater elevation for the region. The new average highwater elevation for the ACCR is 7.6 feet. It should be noted that this average highwater elevation is 0.8 feet lower than the highest highwater mark recorded in the ACCR, which was 8.4 feet at the southwest tip of Absecon Island.
- 3. **Issue:** The Superstorm Sandy event used a highwater mark in addition to MHHW and sea level rise. The highwater mark is based on surveyed highwater marks post-storm event, which would already include the tide level at the time of the storm. Adding MHHW to the storm tide double-counts the tide level and leads to modeling a higher water level than intended.

**Update:** The new tide boundary for the Superstorm Sandy event only incorporates sea level rise and the highwater mark. The new tide boundary water level for the ACCR is 10 feet.

Additionally, the digital elevation model (DEM) used in the original models was edited for hydrological connectivity. However, these edited terrain files increase the land elevations by significant levels, leading to falsely high elevations. For the Atlantic County Coastal Region, the "raw" original terrain files were used in the updated models to best represent the hydraulics and water flow on the existing terrain.

The updated models and model results were then provided for the analysis used in the risk assessment.

5

<sup>&</sup>lt;sup>5</sup> Rutgers University, "New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel," November 2019.

# 2.3 FLOODING CONDITIONS FROM INTERMEDIATE YEARS

Additional flooding conditions were run and analyzed in response to feedback from the ACCR Steering Committee and other stakeholders who found use of 2070 only for "future" conditions difficult for incremental climate resilience planning purposes. Analysis of projections out to 2030 and 2050 was incorporated to help follow one storm event from present day through to 2030, 2050, and 2070 to assess flood condition differences over time. This will aid in developing actions that have adaptive capacity over time.

Sea level rise for 2030 and 2050 were based on the central estimate of the 2019 Rutgers University's Science and Technical Advisory Panel (STAP) report,<sup>6</sup> which is the same as the original 2070 projection. The increase in precipitation was interpolated linearly from present day to 2070, with a 2050 increase that is in range of estimates from the 2020 New Jersey Scientific Report on Climate Change.<sup>7</sup> Given the NJDEP released studies<sup>8</sup> that show that precipitation is already 2.5% to 10% higher than the existing data used from 1999, and that by 2100 precipitation is likely to increase by more than 20% from the 1999 baseline, the 10% increase in precipitation by 2070 is in the lower range of estimates.

The comprehensive list of flood conditions used for the analysis is shown in Table 2-2.

Sea Level Storm **DEP Original Precipitation Precipitation** Year Rise Surge Flood Condition **Event** Increase (Feet) (Feet) Present Day 2% 2-hr а Present Day 1% 24-hr b 2030 N/A 8.0 2050 1.4 N/A N/A 2070 2.4 С 2030 8.0 2% 2-hr 2% 2030 8.0 1% 24-hr 2% 2050 1.4 2% 2-hr 6% 2050 1.4 1% 24-hr 6% 2070 2.4 2% 2-hr 10% d 2070 2.4 1% 24-hr 10% е 2.4 f 2070 N/A 7.6

**Table 2-2: Flood Conditions** 

<sup>&</sup>lt;sup>6</sup> Rutgers University, "New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel," November 2019.

<sup>&</sup>lt;sup>7</sup> NJDEP, "New Jersey Scientific Report on Climate Change," June 30, 2020.

<sup>&</sup>lt;sup>8</sup> NJDEP, "New Jersey-Specific Studies Confirm Rainfall is Intensifying because of Climate Change," November 18, 2020. https://www.nj.gov/dep/newsrel/2021/21\_0038.htm

To help visualize some of the flood conditions, Figure 2-1 and Figure 2-2 are provided below. Figure 2-1 shows how the water levels associated with the 1% 24-hr storm are projected to change as we move from present-day to 2070, and Figure 2-2 plots selected flood condition water levels against other key elevations (FEMA recurrence interval water levels and flood protection dune elevations). While the FEMA recurrence interval water levels were not incorporated in the flood conditions for this planning effort, Figure 2-2 provides context about how the FEMA water levels compare with those used for the flood condition modeling. In both figures the land surface is shown at elevation 4.39 feet; according to the Atlantic County Hazard Mitigation Plan, this is the elevation where moderate tidal flooding starts to occur.

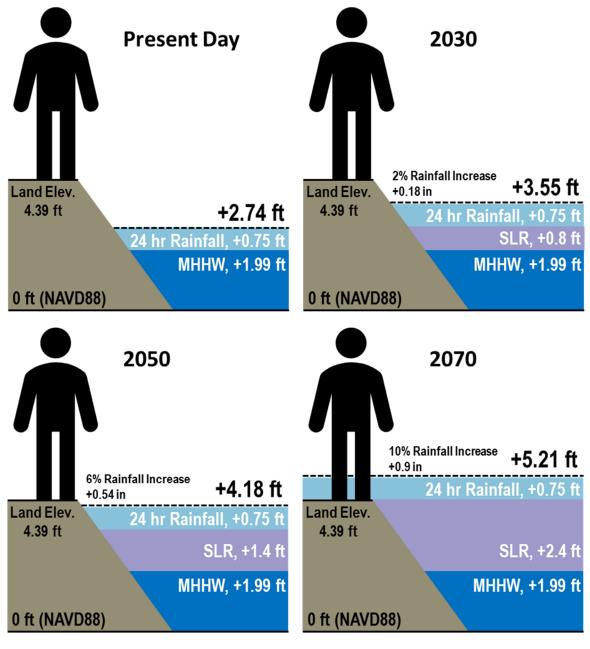
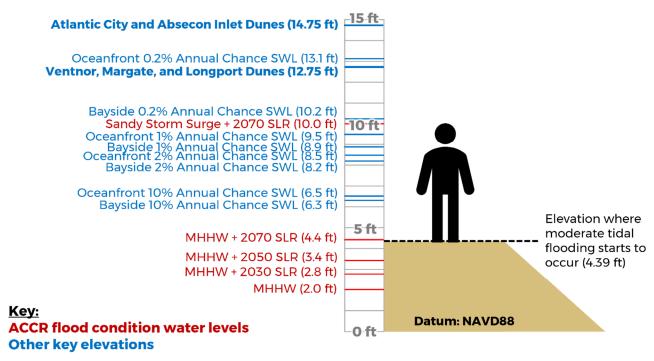


Figure 2-1: Progression of 1% 24-hr Storm from Present Day to 2070



Note: SWL = FEMA total stillwater elevation, which includes wave set up but not wave heights. Wave setup is the increase in mean water level above the still water level due to waves, which is typically on the order of 10-20% of the breaking wave height.

Figure 2-2: Selected Flooding Condition Water Levels Compared Against Other Key Elevations

The flood results were then used for the risk assessment and asset prioritization, as well as informing future flood risks for scenario development. Flood maps are shown in Appendix B.

# 3 ASSETS

Creating scenarios to improve the future resilience of the Atlantic County Coastal Region requires that assets that are key to the culture, vision, and identity of the region first be identified and prioritized, in terms of improving their resilience. Through an analysis of existing infrastructure, public safety facilities, and stakeholder engagement input, assets were identified and prioritized, to include both critical facilities and buildings, such as health centers including AtlantiCare, and cultural touchstones in the region, such as Lucy the Elephant.



Image: Located in Margate, NJ, Lucy the Elephant, a six-story elephant-shaped building, is one of the country's oldest roadside attractions. Source: Acroterion, CC BY-SA 4.0, via Wikimedia Commons

# 3.1 ASSET IDENTIFICATION

### 3.1.1 DESKTOP ANALYSIS

Robust desktop analysis was conducted in coordination with stakeholders to identify and prepare an asset inventory of all the essential assets in the region such as critical facilities and key resources, natural resource areas, businesses, and residences. Informed by the stakeholder, Steering Committee, and public engagement process, both qualitative and quantitative approaches were applied to collect the region's asset data from various publicly available data and GIS sources. Table 3-1 identifies key GIS data collection sources.

Table 3-1: GIS Sources

GIS Sources	Data Providers/Agencies
<ul> <li>The Atlantic County Office of Geographic Information Systems</li> <li>NJGIN Open data</li> <li>NJ Flood Mapper</li> <li>Climate Central</li> <li>NJDEP Open Data - Bureau of GIS</li> </ul>	<ul> <li>United States Environnemental Protection Agency (EPA)</li> <li>National Oceanic and Atmospheric Administration (NOAA)</li> <li>Occupational Health and Safety (OHS) OHS</li> <li>FEMA</li> <li>Rutgers</li> <li>New Jersey Department of Transportation (NJDOT)</li> </ul>

GIS Sources	Data Providers/Agencies	
	<ul> <li>State of New Jersey Department of Environmental Protection (NJDEP), Division of Fish and Wildlife (DFW), Endangered and Nongame Species Program (ENSP)</li> </ul>	
	<ul> <li>New Jersey Department of Environmental Protection, New Jersey Geological Survey</li> </ul>	
	<ul> <li>New Jersey Department of Environmental Protection (NJDEP), Division of Fish and Wildlife (DFW), Office of Fish and Wildlife Information Systems</li> </ul>	
	NJDEP Bureau of Energy & Sustainability	
	<ul> <li>NJDEP, Division of Water Monitoring and Standards (DWMS), Bureau of Environmental Analysis, Restoration and Standards (BEARS)</li> </ul>	
	<ul> <li>New Jersey Department of Environmental Protection (NJDEP), Division of Fish and Wildlife (DFW), Office of Fish and Wildlife Information Systems</li> </ul>	
	<ul> <li>NJ Department of Environmental Protection (NJDEP), Division of Information Technology (DOIT), Bureau of Geographic Information Systems (BGIS)</li> </ul>	
	• NJGWS	
	U.S. Geological Survey (USGS)	

To review the data gathered during desktop analysis, a data gap analysis was conducted and reviewed by the Technical and Steering Committees. The gap analysis identified the need for additional data to enhance our existing understanding of the vulnerabilities of the region. The data collection and desktop analysis task were integrated into stakeholder engagement to ensure all significant assets, planned projects, resilience/sustainable activities were identified. Table 3-2 identifies different modes of data collection used to prepare the asset inventory and asset geodatabase. Section 3.1.2 details the asset identification through the stakeholder engagement process.

**Table 3-2: Modes of Data Collection** 

Source	Description
Direct engagement with municipalities and Steering Committee	Quarterly, monthly, and biannual meetings with various stakeholder groups
GIS Database	Crowdsource mapping tool (English/Spanish) on which stakeholders can map information
Data identified in Planning Context	Existing reports and studies
Web based engagement with community	Online surveys tied to direct engagement, available via the website

### **DEVELOPMENT OF ASSET DATABASE**

Information about all individual assets is stored in a geodatabase format and include standard profile characteristics such as asset type, asset location, and asset overlay. Understanding that developing an

inventory of all physical assets is a critical first step, it is also important to prepare a geodatabase of intangible assets such as social, cultural, and economic resources that affect day-to-day life in the ACCR. Based on stakeholder engagement, outreach and feedback, the asset inventory is organized into eight asset categories: Transportation, Social Infrastructure, Economic, Government Services, Utility Infrastructure, Natural and Cultural Environment, Housing, and Resilience/Sustainable Projects. These asset categories reflect assets that are considered important and matter most to the ACCR community. As mentioned in the Introduction, the asset categories were adjusted for the ACCR and consequently differ slightly from those suggested by NJDEP (shown in Figure 1-1). For example, it was important to highlight infrastructure as three categories: Transportation, Social infrastructure (e.g., this category was identified as important through several Focus Group discussions with socially vulnerable populations), and Utility Infrastructure. In addition, the Natural and Cultural assets are closely linked in the ACCR and Resilience/Sustainable Projects were deemed important to highlight.

These asset categories are sub-divided into asset types as described in Figure 3-1. Figure 3-2 and Figure 3-3 show the number of assets in each category in the ACCR, according to the asset inventory that was last updated on December 21, 2021. Housing is excluded in Figure 3-3 to better visualize the percentages of non-housing assets. The data from Figure 3-2 and Figure 3-3 is tabulated in Table 3-3. For a more detailed breakdown of the number of assets by asset types, refer to Appendix C-1.

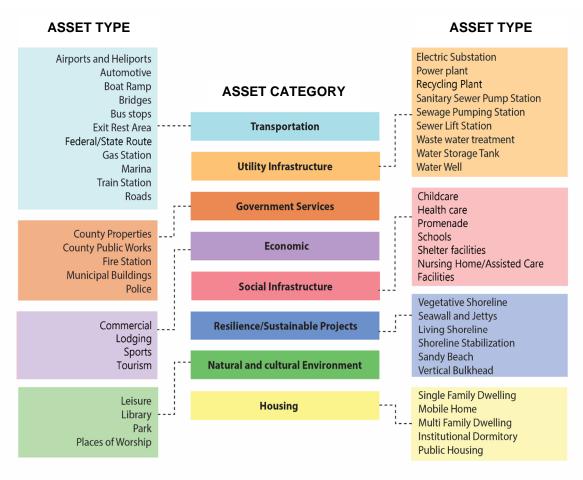


Figure 3-1: Asset Categories and Types

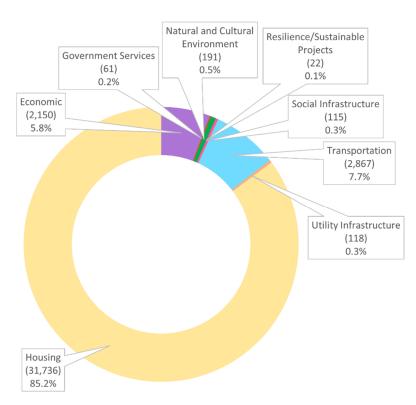


Figure 3-2: Counts and Percentages of Asset Categories in the Atlantic County Coastal Region

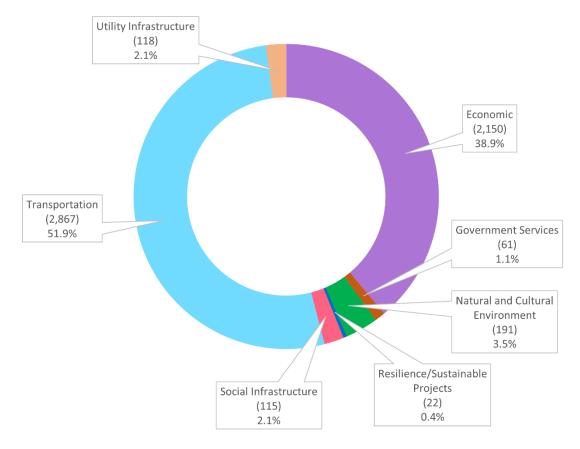


Figure 3-3: Counts and Percentages of Asset Categories in the Atlantic County Coastal Region (without housing)

**Table 3-3: Asset Counts in the Atlantic County Coastal Region** 

Asset Category	Count
Economic	2,150
Government Services	61
Housing	31,736
Natural and Cultural Environment	191
Resilience/Sustainability Projects	22
Social Infrastructure	115
Transportation	2,867
Utility Infrastructure	118
TOTAL	37,260

### 3.1.2 STAKEHOLDER ENGAGEMENT ON ASSET IDENTIFICATION

A detailed asset inventory was assembled for the ACCR Resilience project. Information about the type of asset, the location, the flood vulnerability under NJDEP flood conditions, and relevant information about the consequence of its loss was compiled and then mapped using GIS. Information about approximately 35,000 assets was compiled, including locations of individual homes, road segments, bus stops, local schools, and police facilities. As the analysis began to focus on assets most critical to community safety and function, and assets most vulnerable in terms of NJDEP-sourced flood mapping, but recognizing the need to prioritize local, state, and federal investments in resilience, the need for a "most critical and vulnerable" list of assets began to emerge.

While the compilation of an asset inventory was comprehensive, from publicly available sources and GIS mapping, it became clear that the asset inventory needed to be checked against similar information about assets identified by project stakeholders and public input that occurred as the many public engagement processes occurred. The crowdsource and stakeholder input was used to benchmark, validate, and supplement the extensive information collected during the creation of the asset inventory. This convergence of data sources was performed principally as a desktop review, given the many disparate forms in which the stakeholders and public provided information about critical assets – some using narrative information, some using maps, and others calling out general locations of assets to be reviewed for inclusion.

The asset inventory is based on extensive use of information compiled by local, state, and federal agencies, which has been supplemented with information gleaned through project stakeholder engagement.

### STEERING COMMITTEE MEETINGS

The Resilient NJ ACCR Steering Committee comprises one decision-maker from each of the entities that make up the region plus a Regional Coordinator. This includes one member from each of the seven municipalities (Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville), one member from the County (Atlantic County), one member from a Community Based Organization (the American Red Cross), and one Regional Coordinator that works with all the Steering Committee Members.

The Steering Committee was formally established and began holding monthly meetings in January 2021 to provide strategic input, direction, feedback, and decisions to guide the course of the Resilient NJ planning process. In each of these meetings, project objectives and tasks, including asset identification and risk assessment, are discussed. Steering Committee members also assisted in identifying other community stakeholders across the region, which has supported a robust outreach effort for engaging diverse populations in asset identification.

Through these meetings, the Steering Committee identified a breadth of assets, as shown in Table 3-4.

#	Asset	Asset Category		Notes
1	NJ Transit Atlantic City Rail Line	Transportation; Economic	-	Serves the region, including service to Philadelphia, PA.
			-	Important to casino workers because they use it as transportation to get to work.

**Table 3-4: Asset Identification from Steering Committee** 

#	Asset	Asset Category	Notes
			<ul> <li>Four stops on rail line; NJ Transit should put more emphasis on marketing the rail line.</li> <li>AC Chamber of Commerce and South Jersey Chamber of Commerce are advocating to reinvigorate it for both freight and passenger.</li> </ul>
2	Highways serving region	Transportation	Hierarchy:  Atlantic City Expressway (evacuation route)  Route 30 and 40 (evacuation routes)  Route 152  Longport/Somers Point Causeway (which has potential early in a storm event to be an evacuation route/ingress-egress daily but still needs some work)  Blackhorse Pike (work is needed to continue to be utilized as an evacuation route)
3	Transit Village Status	Transportation; Economic	As a NJ "Transit Village," Pleasantville has received grant funding for non-traditional transportation-related projects including \$250,000 in 2021 for enhancing corridor leading to the 16-block Lakes Bay marina district.
4	Jitneys	Transportation; Economic	<ul> <li>Association of mini-bus services, particularly for service to/from Atlantic City</li> <li>Important for tourism and commuters</li> <li>Connections to Atlantic City Rail Terminal as well as service around Central &amp; South Jersey</li> <li>Senior Citizen and Frequent Rider discounts</li> </ul>
5	Multi-level parking garages	Transportation; Resilience	Parking garages in Atlantic City are often used to store resident's vehicles during major storm events.
6	Special Needs Registry: "Register Ready" <sup>9</sup>	Social Infrastructure; Resilience	<ul> <li>"Register Ready – New Jersey's Special Needs Registry for Disasters" allows New Jersey residents with disabilities or access and functional needs and their families, friends, caregivers and associates an opportunity to provide information to emergency response agencies so emergency responders can better plan to serve them in a disaster or other emergency.</li> <li>SC members noted it is critical to consider special needs residents during an evacuation; currently working on developing database implementation for these populations, but that it is in infancy stages.</li> <li>For example, if a person has autism, you cannot send someone in to physically aid in evacuation, as they may be fearful and react. You need someone to be aware of the location and trained in dealing with special needs individuals.</li> </ul>

<sup>&</sup>lt;sup>9</sup> State of New Jersey Office of Emergency Management, NJ Register Ready, https://www13.state.nj.us/SpecialNeeds/Signin?ReturnUrl=%2fSpecialNeeds%2f.

#	Asset	Asset Category	Notes
7	Sewer & Stormwater Pump Stations	Utility Infrastructure	Atlantic County Utilities Authority (ACUA) manages about 20 pump stations throughout county that collect wastewater from municipalities.
			<ul> <li>Recent Atlantic City Baltic Avenue Pump Station &amp; drainage canal improvements: gates prevent high tides from flooding surrounding areas.</li> </ul>
			- Ventnor Gardens Plaza Stormwater Pump Station
			<ul> <li>Minor discharger of air pollutants, typically powered by diesel generator (for operation during power outages)</li> </ul>
8	Transitional Housing	Social Infrastructure	Two transitional facilities in Atlantic City: Covenant Care and Turning Point
			Outpatient facility in Pleasantville: John Brooks Recovery Center
			<ul> <li>Supportive housing, women's shelters, and residential treatment centers are critical assets to the community and serve some of the most vulnerable populations.</li> </ul>
9	Bader Field	Transportation,	- Airport closed in 2006
		Economic;	- Undeveloped; economic opportunity
		Social Infrastructure	- Previous site of Surf Stadium for baseball games
	ililiastructure	iiii aata aata a	- Site for pop-up events (e.g., music festival in summer 2021)
			- Served as food distribution site during COVID
10	Opportunity Zones & Redevelopment Plan areas	Housing & Economic	- Four opportunity zones in Atlantic City, created in the last 4 years: South Inlet, Uptown/Downtown, Ducktown, and Chelsea.
			<ul> <li>Goal of these incentive zones and identified areas is to encourage long-term investment in low-income and under-utilized census tracts.</li> </ul>
			<ul> <li>In Pleasantville, redevelopment areas focus on stabilizing and protecting residential neighborhoods while providing more affordable and workforce housing.</li> </ul>
11	Birch Grove Park	Natural and Cultural Environment	<ul> <li>Located in and owned by the City of Northfield, approximately 275-acre nature reserve (hold as open space in perpetuity) as well as a park – formerly Somers Brick Yard.</li> </ul>
		<ul> <li>Provides playgrounds, lakes for waterfowl and habitat, walking trails, sports fields, camping areas, and the Historic Society and Museum.</li> </ul>	
			<ul> <li>Ponds in park serve as detention and retention basis for about two-thirds of Northfield's stormwater runoff (controls the rate that stormwater drains into Maple Run).</li> </ul>
			<ul> <li>Stormwater from eastern portion of Maple Run in the park drains into Patcong Creek, which then flows into</li> </ul>

#	Asset	Asset Category	Notes
			Atlantic Ocean; other stormwater drains into salt marshes which flow into Lakes Bay.
			<ul> <li>This area is deemed a special flood hazard area (along Patcong Creek and Maple Run, and the tidal marsh area along Lakes Bay).</li> </ul>
12	Reservoir	Utility Infrastructure	- Located in Absecon, serves Atlantic County.
		minastructure	<ul> <li>Lake is approximately 290 acres.</li> <li>Recreational site for fishing, though has been noted</li> </ul>
			that it is located on federal property, so it is off limits for full park development.
13	Atlantic City Convention Center	Economic; Social Infrastructure	<ul> <li>Built in 1997; approximately 500,000 square feet of convention space – one of the East Coast's largest convention centers; also has meeting rooms, pre- function space.</li> </ul>
			- Approximately 500,000 visitors annually.
			<ul> <li>Connected to AC Regional Rail Terminal that runs to Philadelphia, 1,400 parking spaces, and a pedestrian bridge connected to Sheraton Hotel.</li> </ul>
			<ul> <li>Home to numerous concerts throughout year, Boat Show, RV &amp; Camping Show, Classic Car Show, Gourmet Food &amp; Cooking Festival, Anime convention, cheerleading competitions, and more.</li> </ul>
			<ul> <li>One of six (6) designated mega-centers for COVID testing and distribution.</li> </ul>
14	Independent power	Utility	- Several located in Atlantic County.
	producers	Infrastructure	<ul> <li>After Superstorm Sandy, the city was shut down for 7-10 days so microgrid opportunities are key.</li> </ul>
15	Veteran Affairs	Social	- Located in Northfield.
	Center Infrastructure	<ul> <li>Provides "one stop shop" assistance, referrals, and case management services to military veterans and their families seeking to access services and benefits.</li> </ul>	
			<ul> <li>Serves approximately 14,500 veterans in Atlantic County, ~1,200 of which are female.</li> </ul>
			- Construction to expand the veterans' medical services space is expected in 2021-2022 to nearly triple the space of the outpatient clinic which serves 3,000+ veterans each year (summer 2023 opening is projected).
16	Major employers	Economic;	- FAA Tech Center
		Social _ Infrastructure	- AtlantiCare; other healthcare & hospital
			0 :
			Casinos     Independent contractors for construction and residential development

#	Asset	Asset Category	Notes
			Academic Institutions: Stockton - Atlantic City     Campus; Atlantic Cape Community College (ACCC) -     Atlantic City Campus
17	17 "Blue Economy" Economic; Utility Infrastructure	Utility	<ul> <li>Offshore wind development is key (locally, regionally, state, and national levels)</li> <li>Burgeoning industry centered in Atlantic City</li> <li>Estimated 3,000 construction jobs coming for offshore construction</li> </ul>
			- "Blue Economy" also encompasses large fishing zone and beach/bay attractions
18	Shoreline Protection measures	Resilience; Economic; Government	<ul> <li>Bulkheads, dunes (beach nourishment), jetties, seawalls</li> <li>Critical gaps in shoreline; back bay in particular has gaps and is very vulnerable</li> <li>NJDOT Study is in early stages for shore protection for state highways and ties to county roads</li> <li>USACE Back Bays study also covers this</li> <li>Federal study in Ventnor planned for the Edgewater Avenue to study bulkhead heights area, awarded in 2021, to address flooding that ends up closing Dorset Avenue</li> </ul>

## **RESIDENT FOCUS GROUP MEETINGS**

As part of the ACCR's outreach efforts to engage with local, regional, and technical stakeholders, the consultant team worked with the Steering Committee to identify individuals and organizations to participate in one of nine Focus Groups, including six resident groups for those who live or work in the project area, and one group each for local businesses, environmental organizations, and utility companies. These Focus Groups are visualized in Figure 3-4. Virtual meetings were set up with each of these groups to facilitate discussions around resilience needs, opportunities, and assets in the region.

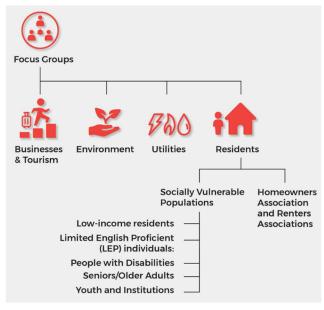


Figure 3-4: ACCR Focus Groups

As part of the engagement of the six residential Focus Groups, seven virtual meetings, also known as "Community Conversations," were held to engage historically underserved and socially vulnerable populations and Civic and Homeowner Associations including:

- 1. Youth held in two sessions in collaboration with (a) Atlantic City Boys & Girls Club and (b) NJ Youth Corps
- 2. Older adults
- 3. People with special needs in collaboration with the Oceanside Family Success Center
- 4. Limited English Proficiency (LEP) populations in collaboration with those below
- 5. Low-income individuals and households
- 6. Civic and Homeowners Associations

Through these sessions, both physical and non-physical (e.g., programmatic) assets and actions were discussed. As compared to feedback provided by members on the Steering Committee, these Focus Group Community Conversation sessions tended to have more social infrastructure and program-oriented assets and needs identified.

The following table provides a summary of assets, needs, and opportunities discussed with these stakeholder engagement groups within the context of climate risk and resilience:

Table 3-5. Asset Identification through Focus Group Community Conversation Sessions

#	Asset, Need, or Opportunity	Asset Category	Notes
1	Utilities and cell towers, power plants, and anything needed for supporting internet and telecom access	Utility Infrastructure	Residents and professionals in focus group sessions alike called attention to the importance of critical communications assets

#	Asset, Need, or Opportunity	Asset Category	Notes
			<ul> <li>Without backup plans in place for multiple methods of communication, residents and businesses are more vulnerable if there is no way to access the internet for communication and information purposes</li> <li>Access to power is also critical to be able to charge phones, computers, and other telecom/internet devices</li> <li>The digital divide is also a critically important situation to consider where some people may not have access to a computer or smart phone to contact family members, access information or reach critical services. Residents noted a special team should be available to help community members access social service programs to help complete paperwork</li> <li>It was noted that the Salvation Army relies on word of mouth</li> </ul>
			Army relies on word of mouth primarily with homeless populations as well as on their relationships with other grassroots organizations to promote their services through referrals
2	Hospitals, medical facilities, and pharmacies	Social Infrastructure	<ul> <li>Critically important to have medical facilities accessible during and after major extreme weather events</li> <li>Critical for basic medicine needs</li> <li>Backup power and access to these facilities were noted as critically important for providers of care, vendors, and those seeking treatment / medical attention</li> </ul>
3	Grocery stores (e.g., Save A Lot) and food access / assistance	Economic; Social infrastructure	<ul> <li>These physical stores may be susceptible to flooding</li> <li>During and after extreme events, basic food needs are critical</li> <li>Variety of food resources must be provided to ensure food access is culturally appropriate and to accommodate people with special needs / special diets.</li> </ul>
4	Job access and tourism	Economic; Transportation	Residents and business     representatives noted the     important link between jobs and

#	Asset, Need, or Opportunity	Asset Category	Notes	
			access to jobs, such that being able to get to your job via transportation infrastructure is just as important as having your place of work come back online after a disaster.  - Business representatives noted that access to the barrier islands is critical as these neighborhoods, particularly around Atlantic City, are the economic engines for the region.  - Re-starting visitor access to floodprone areas on the barrier islands is also critical for the region to bounce back from natural disasters.  - As a tourism hub, transportation infrastructure is fundamental for	
			people being able to get to and from attractions and workplaces.	
5	Schools and libraries	Economic; Social Infrastructure	<ul> <li>Susceptible to flooding.</li> <li>Can potentially serve as shelters.</li> <li>Libraries serve as assets before disasters as people can go here to scan/digitize important documents, so they are more easily accessible during times of emergency.</li> <li>Libraries also often contain cultural and historic resources that must be protected; may also have important community programs and services.</li> <li>Residents noted they need to have all of their important documents handy so they can apply for services when needed.</li> </ul>	
6	Fire Drills and Active Shooter Drills	Social infrastructure; Resilience programs	No drills for natural hazards in schools. Find this to be missing piece in preparedness so people know what to do in an emergency and don't panic.	
7	School curriculum: does not cover emergency preparedness or climate vulnerabilities	Social infrastructure; Resilience programs	Analogy to "Crying Wolf" - It makes the people not trust the warning systems, and they would rather stay home than evacuate to an unknown place.	
8	School alerts and other regional warning systems	Social infrastructure; Resilience programs	Students receive alerts about potential hazards by email from the school. If there is no email, they assume there's no issue. They didn't	

#	Asset, Need, or Opportunity	Asset Category	Notes
			know about other ways emergencies are communicated.  Improvements in communication include having different ways of communicating in case one form goes down: phone call, internet, radio  If electric/phone/internet is down, suggested a car should drive through neighborhoods with a loudspeaker that announces important messages and/or an emergency siren  Emergency call protocols using school closing channels/procedure  Instead of "Crying Wolf" every time there is a potential emergency — messages should be more specific about how likely or how bad events might be and what options people have to find safety.
9	Family emergency preparedness plans	Social infrastructure; Resilience programs	1 out of 20 teen participants said they had a family plan in case of an emergency
10	Coordinated evacuation plans with sufficient resources and trained staff  (E.g., availability and accessibility of vehicles and support services staff, improved communication and back-up methods of communication)	Transportation; Social infrastructure; Resilience programs	<ul> <li>Many of the youth participants (about half) said they did not evacuate when Superstorm Sandy happened – they stayed put and were without electricity for a long time.</li> <li>Not everyone has access to transportation or a place to go when there is an evacuation order. They have no options, so they stay put.</li> <li>Residents and business representative noted that conflicting information (e.g., from the State vs. local officials) made it difficult to understand the severity of projected conditions and contributed to people staying in the region when they should have evacuated; residents noted this was a source of embarrassment for the region as it was played out on Saturday Night Live</li> <li>In addition, there was not sufficient information provided in Spanish and other languages, which contributed to poor communication overall.</li> </ul>

#	Asset, Need, or Opportunity	Asset Category	Notes
			<ul> <li>Some residents noted there have not been enough evacuation vehicles; some noted they had to wave down trucks in the street only to find the vehicles were at capacity. Residents noted the vehicles did not return.</li> <li>Others noted vehicles were not able to move people with disabilities, citing issues such as lack of wheelchair accessibility and inability</li> </ul>
			to properly move medical equipment.  - Residents recommended better use of social media for relaying information to take a more proactive approach to information sharing vs. waiting for residents to visit a website
11	Housing and shelters with sufficient capacity, resources, and trained staff	Social infrastructure; Resilience programs	<ul> <li>Housing was a critical asset identified by residents; if there hasn't been adequate investment in protecting homes or if an evacuation is ordered, shelters are also critical for keeping people safe</li> <li>Residents noted volunteers in shelters were not treated well and did not feel welcomed or readily embraced; one resident recommended incentives or compensation for evacuation/emergency volunteers (Red Cross has paid staff, but also relies heavily on volunteers)</li> <li>Language barriers were also noted as challenges associated with feeling comfortable and safe at shelters</li> </ul>
12	Education and Transparency for Home Repair Loan Programs and Disaster Assistance	Social infrastructure; Resilience programs	- Lack of transparency around estimated cost of repairs in the aftermath of extreme weather events causes significant stress; some residents in the older adult population noted "I will probably die before paying it off" in reference to post-Sandy recovery costs  - Residents noted there was also a lack of supervision of contractors, so costs ballooned in some cases; contractors took advantage of residents' lack of familiarity with

#	Asset, Need, or Opportunity	Asset Category	Notes
			home repairs contracting to make more money  - Applying for disaster assistance can be challenging, particularly for disadvantaged and vulnerable populations; going through South Jersey Legal Services for aid and assistance is challenging for some residents  - Low-income and minority residents noted that some people may not understand the need for home visits in order to receive benefits and they may not allow these visits to occur.
13	Insurance, particularly for renters	Economic; Social infrastructure; Resilience programs	This can hinder them from receiving assistance.  - Lack of insurance, especially for low-income residents, made "bouncing back" even more difficult  - Residents noted this was a significant hardship for renters in particularly who did not always have insurance to cover the loss of homes and personal belongings
14	Continuity of social support services (e.g., therapy) for those with special needs	Social infrastructure	<ul> <li>Even (and sometimes especially) during times of emergency, social support services like therapy sessions are critically needed for people with special needs.</li> <li>Often, this gets overlooked during evacuations and at shelters – there should be a better way to connect people with special needs with these resources.</li> </ul>
15	Social and cultural assets – which may differ depending on sub-population/community (e.g., churches, community centers)	Economic; Social Infrastructure	<ul> <li>Provide an important sense of togetherness and make the community feel connected and secure.</li> <li>The Salvation Army was noted as being a hub for information and more residents should be aware of its services/resources</li> </ul>
16	Banks and banking services	Economic	Not all people have cash on hand at all times; there may be instances where electronic payments are not possible so having access to banks and banking resources like ATMs is important.

#	Asset, Need, or Opportunity	Asset Category	Notes
17	Renaissance Plaza (between New York Ave. and Kentucky Avenue)	Social infrastructure	Unhoused/homeless populations often congregate here.
18	The Boys and Girls Club of Atlantic City	Social infrastructure	Susceptible to flooding and is an important place for local kids to gather

#### **CROWDSOURCE MAP**

The crowdsource mapping tool provides a 24/7 opportunity for public engagement and allows users to help identify problems and develop strategies that can improve resilience to flooding impacts, enhance public safety and quality of life, reduce the risk from future extreme weather events, and advance intermunicipal and regional coordination. The mapping tool provides an additional layer of data for the risk assessment, to overlay direct inputs from members of the region on top of the flood risk analysis from DEP's methodology.

While over 30,000 assets (including homes and road segments, which comprise a majority of this count) were identified through available geospatial libraries and desktop research, the crowdsource mapping tool allows for lesser-known assets and vulnerable areas to be identified by the public. The crowdsource mapping tool input was used to benchmark, validate, and supplement the extensive information collected during the creation of the asset inventory. The crowdsource mapping tool asks:

What are the most critical features to you and your community (buildings, infrastructure, evacuation routes, recreational elements, historic sites, community services & programs)? How have they been impacted due to flooding and recent emergency situations?

The crowdsource mapping tool was launched in summer of 2021 and has been advertised through email blasts and social media posts through the Resilient NJ engagement team and its Community Advisory Committee partners. A screenshot of the crowdsource mapping tool interface is shown in Figure 3-5.

The comment categories for the mapping tool include:

- Climate Risk and Vulnerability Identification
  - Flood Risk
  - Snow
- Critical Asset
- Safety Concern
  - Failing Infrastructure
- Policy or Program Maintenance
- Resilient Project Opportunity
  - Project Visioning
- Economic and social assets that matter for the community
- Long-Term Community Vision

To date, the website has received over 2,000 views and over 100 comments have been provided on the crowdsource map tool, including comments such as:

- Where street flooding is already occurring and under what conditions (e.g., heavy precipitation)
- Where resilience investments are already allocated and where projects that help mitigate flood risk are being implemented

- Recommendations for various flood resilience actions, such as:
  - Installation of new stormwater pumps at specific flood-prone areas
  - Updates to new bulkhead requirements
  - Elevating and restoring tidal marsh areas

Figure 3-6 shows some of the comments that have been received through the crowdsource map tool. A table containing all of the received comments is included in Appendix D.

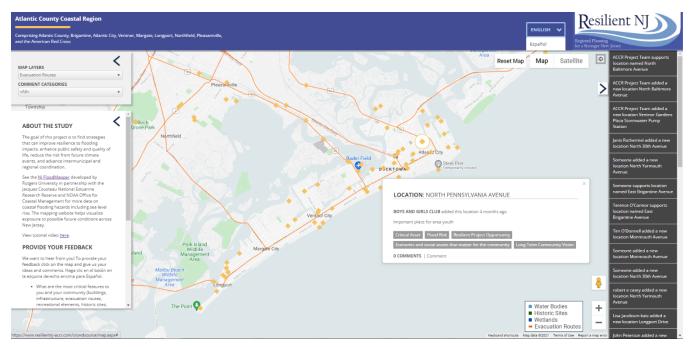


Figure 3-5. Screenshot of Crowdsource Map Tool

#### Crowdsource Map Administration

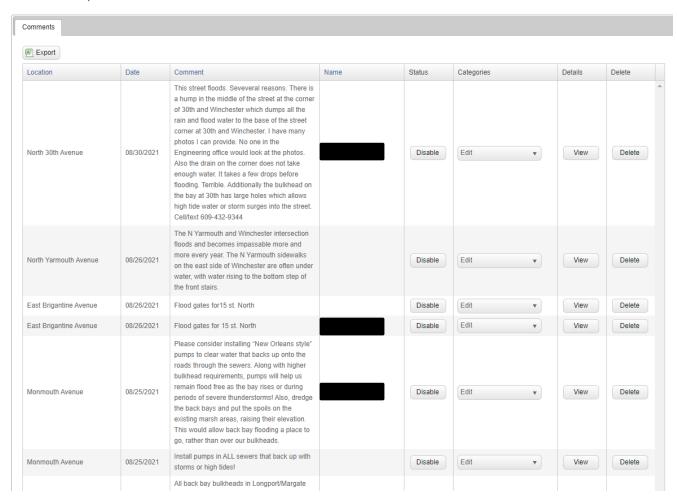


Figure 3-6. Screenshot of Comments Received on Crowdsource Map Tool

### 4 RISK ASSESSMENT

With the modeled flood conditions and the identified assets, a risk assessment was conducted to determine risks to the region and assets. The risk assessment for the Atlantic County Coastal Region included an economic impact analysis on the primary structures and an analysis on non-linear and non-tangible assets, such as impacts on mental health or changes to traffic. This comprehensive assessment informed the prioritization of key assets for scenario planning.

This risk assessment applies three "tiers" of risk and impact analysis:

- 1) **Hazus Analysis**. The first tier of analysis is the Hazus analysis, which provides monetary estimates of the impacts to buildings from various flood conditions. This analysis seems to overvalue the importance of some private buildings and sites over the importance of assets that served the community and residents more broadly following extreme weather events.
- 2) Monetized, Quantitative and Qualitative Methodologies (Non-Hazus Analyses). The second tier of analysis involved Monetized, Quantitative and Qualitative Methodologies (Non-Hazus Analyses), to help provide a better understanding of the impacts to specific asset groups. Monetized estimates of impact were developed for assets such as mental health and ecosystem services. Impacts to evacuation routes and commutation routes were estimated based on the percentage of the linear route that would be disturbed by an extreme weather event. And impacts to assets such as water supply and sewer services were assessed qualitatively, because the effects of loss of service were geographically extensive and more important than damage to a specific treatment or pumping unit. Risk template profiles were completed using these various analytical approaches.
- 3) Asset Criticality Analysis. The third tier of analysis applies the asset criticality analysis method which factors in the consequences to the community of impact to or loss of key community functions, such as public safety, infrastructure services, and education and medical services. The asset criticality analysis was used to supplement the Hazus and Non-Hazus analyses to further inform ACCR asset prioritization.

#### 4.1 HAZUS ANALYSIS

To provide a broad understanding and estimation of structural and financial risk in the Atlantic County Coastal Region, financial losses were estimated for the selected flooding conditions for all primary buildings in the region. This loss estimation was performed using Hazus v4.2, a GIS-based software distributed by FEMA that provides standardized tools and data for estimating risk from floods and other natural hazards.

Hazus loss estimations can be performed at multiple geographic scales. For this project flood losses were assessed for individual buildings. Hazus requires two inputs for a building-level loss analysis:

- Building footprint points with specific attributes
- Depth grids for each flooding condition

The flood depth grids were exported from the HEC-RAS models for each of the selected flooding conditions. These flooding conditions include the six initial flooding conditions described in Section 2.1 and the additional flooding conditions described in Section 2.3. As described in Section 2.2, the HEC-RAS models were refined based on issues that came up during the model review process, and the flood depth grids were taken from these refined models.

The following sub-section describes preparation of the building footprint dataset.

#### 4.1.1 BUILDING FOOTPRINT DATASET

The first stage in preparing the building footprint dataset was to create a point shapefile of building footprints in the region. This process involved several steps:

- 1. Downloaded Microsoft Bing Maps building footprints shapefile for New Jersey
- 2. Clipped building footprint shapefile to region
- 3. Converted the clipped building footprint shapefile to a point shapefile of building centroids

At this point in the process, it was noted that there were a significant number of buildings that lacked centroid points, as they were not captured in the Microsoft Bing Maps building footprints shapefile. As a result, additional centroid points were added using New Jersey tax parcel data. The tax parcel data was also joined with the Microsoft Bing Maps building centroids at this stage. These tasks were done through the following steps:

- 1. Downloaded composite shapefile of tax parcels and MOD-IV data for New Jersey
- 2. Clipped parcels to region
- 3. Spatially joined parcel data with clipped Microsoft Bing building centroids
- 4. Generated centroids for parcels without building footprint centroids
- 5. Removed parcel centroids that had no data or had descriptions indicating that the parcel was vacant, lacked structures, or held only sheds/garages

Following the creation and cleanup of this additional parcel centroids shapefile, the Microsoft Bing building centroids and the parcel centroids were combined into a single building centroids shapefile. Additional cleanup was performed on the combined building centroids shapefile by removing points that were classified as vacant land, points that had no property information, and points that had no improvement value. The final step in preparing the building footprint point dataset was assigning the building attributes required for the Hazus runs, including the occupancy type, number of stories, replacement value, contents value, square footage, and construction year. The first-floor height for all structures was set to 0.5 feet above ground elevation, as recommended in the NJDEP Risk Assessment Methodology.

#### 4.1.2 HAZUS PROCESS

To bring the building footprint point dataset into Hazus, the Comprehensive Data Management System (CDMS) was used. CDMS is a Hazus support tool that allows users to move data into Hazus state datasets. Within CDMS, the building footprint point dataset was imported into the User-Defined Facility (UDF) category. Once the building data was incorporated in the Hazus database for New Jersey, a new region encompassing the Atlantic County Coastal Region was created in Hazus. The flood depth grids for each flooding condition were imported, and a UDF analysis was completed for each flooding condition.

#### 4.1.3 HAZUS RESULTS

The output produced by Hazus consists of estimated structural and content damages in dollars (\$) and percentages (%) for each impacted building. This information has been aggregated in various ways to better understand how the estimated losses vary for the different flooding conditions and for different locations within the Atlantic County Coastal Region.

Figure 4-1 shows the number of buildings impacted by each flooding condition. The number of impacted buildings is mostly dependent on the type of event being modeled, while the impact of looking further in the future is less significant.

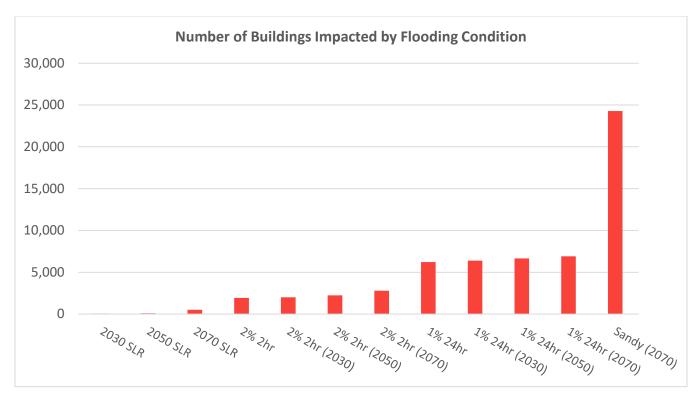


Figure 4-1: Number of Structures Impacted by Flooding Condition

Figure 4-2 shows the total monetary losses for each flooding condition, which include structural and content damages. The losses follow the same trend as the number of impacted structures, although the increase in losses from the Superstorm Sandy (2070) flooding condition is even more pronounced than the increase in the number of impacted buildings.

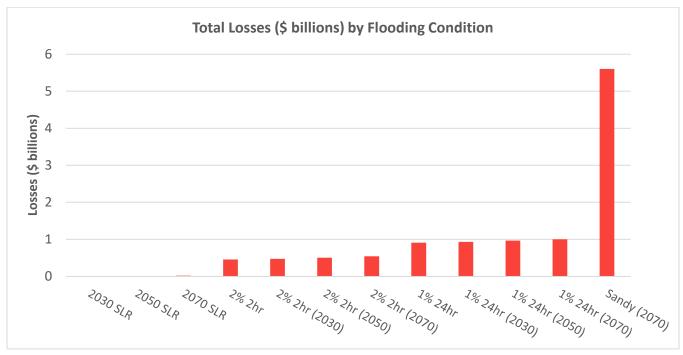


Figure 4-2: Total Losses (\$) by Flooding Condition

Figure 4-3 provides a mapped representation of total building losses for the MHHW + SLR 2070 (2.4 feet) + (1% annual chance, 24-hour storm event + 10% increase in rainfall) flood condition. The areas with the greatest losses are located on Absecon Island, which includes Atlantic City, Ventnor, Margate, and Longport, but there are also significant clusters of losses in Brigantine and farther inland in Northfield and Pleasantville. Additional Hazus results maps are included in Appendix E.

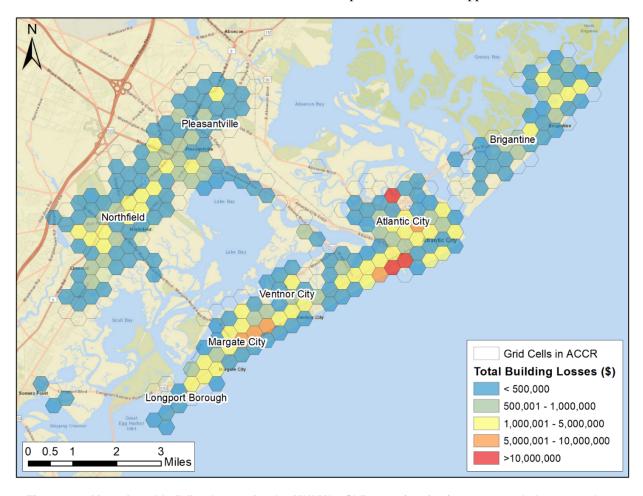


Figure 4-3: Map of total building losses for the MHHW + SLR 2070 (2.4 feet) + 1% annual chance, 24-hour storm event + 10% increase in rainfall flooding condition

#### **WATER LEVEL ANALYSIS**

In addition to the selected flooding conditions, Hazus loss estimations were performed for a range of water levels. These loss estimations were not part of the NJDEP Risk Assessment Methodology but were performed for the ACCR to provide a better understanding of how flooding impacts increase as water levels increase. This type of parametric analysis allows the stakeholders to have a broad sense of how many structures could be affected and the potential economic costs based on different water levels. To perform this water level analysis, a simple HEC-RAS model was constructed that encompasses the Atlantic County Coastal Region. This model was used to generate flood depth grids for each water level, and the flood depth grids were imported and used to complete a UDF analysis for each water level. These flood depth grids and the resulting loss estimates only reflect the impact of stillwater elevations; they do

not account for precipitation. Figure 4-4 and Figure 4-5 show plots of key results for the range of water levels that were analyzed. Figure 4-4 shows that the number of impacted structures begins to increase rapidly once the water level exceeds 5 feet. Figure 4-5 shows that the losses begin to increase significantly once the water level exceeds 6 feet, and that the increase accelerates once the water level exceeds 8 feet.

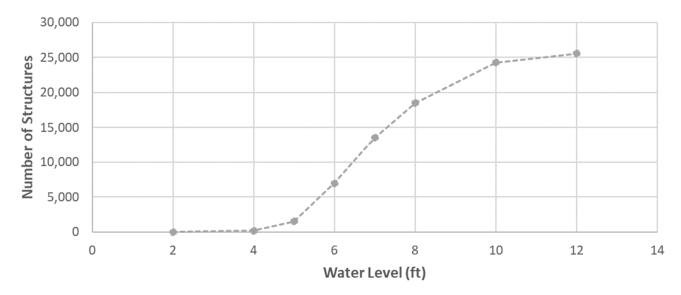


Figure 4-4: Number of Impacted Structures vs. Water Level

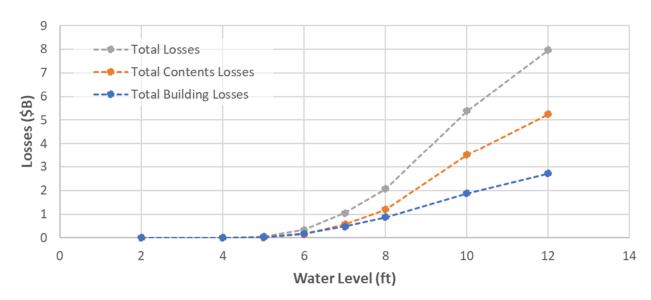


Figure 4-5: Building and Contents Losses vs. Water Level

# 4.2 MONETIZED, QUANTITATIVE, AND QUALITATIVE METHODOLOGIES (NON-HAZUS ANALYSES)

For the Risk Assessment, the Resilient ACCR project quantified and mapped property losses and valueat-risk using the Hazus model, as summarized in Section 4.1. The outputs of the Hazus model used for this project are principally expressed in terms of potential economic losses, standardized to dollar value of loss. The Hazus model is valuable for understanding the ranges of economic loss that might occur under the several possible future flood conditions, as discussed in Section 2.

It was noted through the public engagement process that potential impacts to ACCR assets should also be characterized with respect to consequences of loss that are more than economic loss – flooding can impact community functioning through the loss of infrastructure systems (loss of water and sewer and electricity *service* are not captured in Hazus building damage estimates); community resources such as health care, public safety, and education; and employment. Flooding's impact on all of these systems can have profound effects on a community in addition to the economic damage loss.

Because the impacts of flooding are more than economic, the ACCR Risk Assessment qualified and quantified risk to assets both that are included in the Hazus economic impact model and those that are outside the Hazus model domain. In this report, assets were also analyzed for risk in terms of "non-Hazus" impacts and risks. Assets that were subject to broader non-Hazus analysis include linear features—such as roads, railroads, water and sewer pipelines—and other assets that are not included in the property block-and-lot type analysis that is performed using the Hazus data sets. Assets receiving non-Hazus analysis also include important community assets, such as evacuation/public safety centers and schools that have value to the community that is much greater than their economic/\$ value. The non-Hazus analysis evaluated the critical community asset risk potential for the current-year 1% flood event, as well as for future 1% 24-hour flood events (years 2050 and 2070).

The Resilient NJ Risk Assessment Methodology (1/16/2020) recommends three other approaches to evaluating loss types not covered in the Hazus model. The first approach complements Hazus outputs by evaluating loss types that can be monetized. The monetized analysis uses two ways to capture what could be monetized losses: a value at risk approach, and monetized damages associated with a coastal storm. The value at risk approach uses peer-reviewed or otherwise widely used approaches to understand the value that specific assets or services contribute to society. For recreational assets and ecosystem services, the value at risk is calculated using academic sources that have been used in prior resilience studies in the Northeast, cited in the following sections. The monetized approach for mental health treatment monetizes the "cost" associated with a coastal storm event, using federal guidance to understand how people may be affected across the population.

The quantified approach to evaluating loss types is similar to the monetized approach but results in impacts shown in percentages rather than in dollar terms. This approach is best used when there is no adequate methodology for conducting a monetized evaluation, or the degree of impact may be best served by talking about how much of that asset may be at risk. Because evacuation routes are inherently spatial, with a set number of miles throughout the ACCR, a quantified approach was used to communicate the extent to which these critical assets may be unavailable during and immediately following a coastal storm event.

Finally, qualitative approaches were used for certain loss types. This approach is used when there is little agreement on how to quantify a specific risk, if the loss type is abstract or hard to quantify, or if a written description of how an asset may be impacted better communicates the risks involved. For increased commuting time, a number of data points would be needed to calculate an accurate quantified approach, data that was not fully accessible during the analysis period. The qualified approach is still data driven

and relies on quantified estimates as inputs but does not provide specific numerical outputs from which to judge the level of risk.

The inputs for the monetized, quantitative, and qualitative analyses were derived from the Resilient NJ Risk Assessment Methodology and are summarized in Table 4-1. The analyses are summarized in the following sections.

Table 4-1: Loss Types for Monetized, Quantitative, and Qualitative Risk Assessment

Loss Type	Source/Analysis Method	Quantified/Monetized/ Qualitative
Impacted Recreational Assets	Loss of recreational value of Marinas	Monetized
Impacted Ecosystem Services	Economic Value of Ecosystem Services per acre	Monetized
Incurred Mental Health Treatment Costs (\$)	FEMA sustainability benefits methodology	Monetized
Evacuation Route Vulnerability to Flooding	% of road and rail evacuation routes directly inundated by still water flooding with depth greater than 6 inches, the project threshold for impassable routes	Quantified
Socially Vulnerable Assets	# of assets directly inundated (by any % of building damage) by storm surge	Quantified
Increased Commuting Time	Stillwater flood impacts to roads/rail with depth greater than 6 inches, the project threshold for impassable	Qualitative
Water Supply	Flooding of drinking water infrastructure; wells, pumps, treatment facilities	Qualitative
Wastewater	Flooding of sewer infrastructure; lift stations, sewer pipe, control facilities	Qualitative

#### 4.2.1 ASSETS EVALUATED QUANTITATIVELY AND QUALITATIVELY

As described above, the assets that were not evaluated using Hazus include assets such as evacuation routes, water and wastewater infrastructure services, social services/community resources, increased commuting time (commutation/travel impacts), recreational assets, ecosystem services, and mental health assets.

#### **EVACUATION ROUTES**

Evacuation routes utilized within the ACCR include roadways used by passenger vehicles and buses, as well as the rail system to move residents and visitors out of harm's way. During a hurricane evacuation, there are a significant number of vehicles on the local and regional roadways. The number of evacuating vehicles depends on the severity of the storm, and the publicity and warnings about the storm. Particularly for the ACCR, the time of year greatly influences evacuation routes. Summer beach recreation populations are much greater than in winter months, and the scale of evacuation during June, July, and August is exponentially greater than non-summer months.

#### **ROADWAYS**

Given that five of the seven municipalities that make up the ACCR are located on barrier islands, most roadways that pass through the region and into higher ground are critical assets in the days before and following a coastal storm. Figure 4-6 shows a map of the roadways that serve as evacuation routes in the region. The full asset profiles in Appendix F detail the impacts from each flooding condition to the major roadways in the county that are evacuation routes. The major evacuation routes include:

- West Brigantine Avenue, Brigantine Boulevard, NJ 87
- Delaware Avenue, US 30 (Absecon Boulevard/White Horse Pike)
- Atlantic City Expressway
- US 40 (Albany Ave/Black Horse Pike), North Albany Avenue
- Ventnor Avenue
- NJ 152 (Somers Point-Longport Boulevard)
- North Jerome Ave, East Mill Road
- US 40 (Albany Ave/Black Horse Pike)
- Margate Boulevard/Downbeach Express, NJ 9 (New Road)



Figure 4-6: Evacuation Routes, Source: NJ OEM

The evacuation routes represent a major asset under risk due to their value in transportation of people away from the coastal areas during a storm, and the return of people and goods to the region during recovery periods. Properly accessible routes after a storm are particularly important for resources to get to people who may not have evacuated, limiting indirect impacts of the storm on communities.

In the ACCR, many of the evacuation routes are at low-lying elevations, particularly the roadways that provide access from the mainland to the barrier islands. The Planning Context Report detailed a number of instances where US-30, US-40, and Margate Boulevard/Downbeach Express are persistently flooded or

otherwise impassable during a wide range of storms. General flood safety messaging cautions drivers to never drive through flooded roadways, so any amount of roadway flooding can contribute to significant delays to an evacuation for a number of valid reasons. Consequently, evacuation must begin well before water starts to accumulate in the roads.

The impact of a 1% 24-hour rainstorm in 2070, however, is expected to cause significant impediment to the limited evacuation routes within the region. Overall, about 13 miles of evacuation routes would be inundated during a storm of this magnitude, including most of the causeways and bridges that connect Absecon Island to the mainland. Table 4-2 shows the length of evacuation route that would be inundated during a 1% 24-hour rainstorm in 2070, while Figure 4-7 shows the locations of inundated sections within the region.

Table 4-2: Evacuation Route Length Inundated by 1% 24-hour Storm in 2070

Road Name	Inundated Length (Miles)
ATLANTIC CITY EXPRESSWAY	1.4
COUNTY ROAD 563	1.2
COUNTY ROAD 629	3.6
COUNTY ROAD 638	0.7
COUNTY ROAD 662	0.5
NORTH ARKANSAS AVENUE	0.1
NORTH DELAWARE AVENUE	0.3
STATE HIGHWAY 152	0.1
STATE HIGHWAY 87	1.1
UNITED STATES HIGHWAY 30	0.6
UNITED STATES HIGHWAY 40	1.7
UNITED STATES HIGHWAY 9	1.9
Sum	13.2

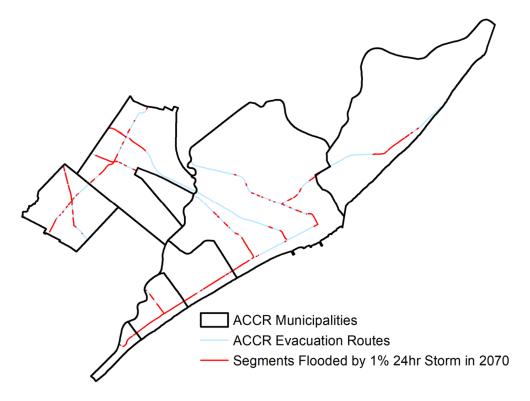


Figure 4-7: Evacuation Route Location

#### **BUS ROUTES**

NJ Transit provides bus service along the major arteries and through populated parts of the ACCR. These connections are significant in communities like Pleasantville, where the Pleasantville bus terminal provides access to other areas of interest in the county. Both Atlantic City and Pleasantville have high rates of households without access to a vehicle making bus transportation in the region a critical asset. Further, bus service is an important interregional connection, as NJ Transit and other private operators provide service to points in the New York and Philadelphia metropolitan areas. Bus service is also an option for early evacuation for households without vehicles.

Bus service is impacted when the roadways flood and are impassable and include social impacts when bus stops become inundated forcing people to wait in the rain or wade through the floodwater. Under a 1% 24-hour rainstorm in 2070 bus stops along Ventnor Avenue in Margate City and Ventnor City as well as North Albany Avenue in Atlantic City would experience 0.5 to 1.5 feet of flooding. Bus service is at risk of being suspended under this flooding condition. Further, flooding up >1.5 feet is possible at and near the intersection Black Horse Pike and New Road in Pleasantville which can have major impacts not only to local but also regional travel. The full asset profile for the NJ Transit Bus Routes is provided in Appendix F.

#### **RAIL LINES**

The Atlantic City Rail Line is the major rail line connecting Atlantic City to Philadelphia, PA. The rail line is owned and operated by NJ Transit and provides several trips daily between Atlantic City and Philadelphia. Local residents in the ACCR Region use the line to commute and access services and businesses in South Jersey and Philadelphia. Some residents also use the rail prior to climate events to preventively evacuate. If the rail line was lost due to long-term inundation or massive structural damage, the community would need to use other modes of transportation (cars, buses). This can have major social and economic impacts to populations without access to a vehicle. It can further affect early evacuation prior to major storms. The 1% 24-hour rainstorm in 2070 could cause flooding up to 1 foot near the

Atlantic City train station likely to affect access to the rail service. Rail service may be suspended after a hurricane or large rain event for safety and stability inspections. The full asset profile for the Atlantic City Rail Line is provided in Appendix F.

#### SOCIAL SERVICES/COMMUNITY RESOURCES

Certain assets are particularly important for providing social services and serving as community resources. To evaluate the impacts to these assets, the number of assets inundated by the 1% 24-hour storm in 2070 was tabulated for selected asset types. The results of this analysis are summarized in Table 4-3.

Table 4-3: Social Service/Community Resource Assets Inundated by 1% 24-hour Storm in 2070

Asset Type	# Inundated
Childcare	5
County Properties	3
Fire Station	4
Gas Station	13
Health Care	4
Library	1
Municipal Buildings	10
Nursing Home/Assisted Care Facilities	3
Places of Worship	4
Police Stations	2
Schools	8
Shelter Facilities	8

While most of the social services/community resources impacts are distributed evenly across the ACCR, some impacted asset types are concentrated in specific municipalities. All impacted childcare facilities and places of worship are in Atlantic City and Pleasantville, while all impacted libraries and police stations are in Longport. All impacted county properties are in Atlantic City and Northfield, and the majority of impacted schools are in Atlantic City.

#### **WORK COMMUTATION/TRAVEL IMPACTS**

As demonstrated in the ACCR Planning Context report, the region is one of the central employment areas for the south Jersey area, employing over 80,000 before the Covid-19 pandemic. Many of these employees live within the region, but the majority are commuters who come from outside the region to work at the casinos and other entertainment facilities and other regional employers in the area. In the summer, seasonal employment swells along with population, lifting the number of commuters who are moving to the region on a frequent basis.

Following Superstorm Sandy in 2012 and other major coastal storms, the ACCR experienced a number of closed employment centers and general travel delays associated with debris removal and other storm-related road closures. After Superstorm Sandy, casinos were shut down for five days following the initial

hit of the storm.<sup>10</sup> Most other industries were similarly closed in the area, impacting a majority of the workforce. This means that additional costs in lost wages can be applied up to seven days after a storm, adding additional costs for those commuters who have been unable to return to work. It was estimated that following Superstorm Sandy, commute times were about 17 minutes higher per-direction in New Jersey than the average time.<sup>11</sup> Additionally, after Superstorm Sandy, it was estimated that \$16 million in wages were lost in Atlantic County. Given that approximately 64% of jobs in the county are hosted in the ACCR, this means the ACCR lost about \$10 million in wages after Superstorm Sandy.

While industry shutdowns for smaller storms are less long-lasting, it can be expected that many of these impacts persist in all sizes of storms. In a 1% precipitation storm, the majority of the workforce can be expected to be delayed about at similar rates as during Superstorm Sandy, according to a methodology set up in a post-Sandy Benefit Cost Analysis for the Living Breakwaters Project on Staten Island.<sup>12</sup>

#### **WATER SUPPLY**

Within the ACCR, potable water is supplied from both groundwater and surface water. Flooding as a result of either sea level rise or major storms can adversely impact ACCR municipalities served by either source. The municipalities located on the barrier islands, except for Atlantic City, are supplied by groundwater sources. Sea level rise can result in the long-term degradation of groundwater quality with increased saltwater intrusion. Flooding events can also damage components of groundwater wells, pumps, and treatment systems including electrical equipment, and could result in a loss of service.

The reservoirs that supply some locations with surface water are located outside of areas prone to coastal flooding. Surface supplies in ACCR would have a much lower risk of being adversely impacted by sea level rise and coastal flooding. Surface water supply is at risk from contamination due to runoff from major storms. And pumps and treatment facilities for surface water supplies can be damaged or lost to service from major extreme weather events. Also, while energy to power water supply systems would generally be assessed under power infrastructure, it is important to emphasize that most water (and wastewater) systems rely extensively on energy for pumping, conveyance, and treatment.

The City of Brigantine has three water storage tanks that would be at risk of damage from severe extreme weather events, flooding, and sea level rise. The 1% recurrence 24 hour storm event with 2070 sea level rise and the 2070 Superstorm Sandy event with sea level rise flood conditions present situations where the water depth would be high enough to result in an adverse impact to the areas where these water tanks are located. The Superstorm Sandy event would present the most risk. Most water contained in storage tanks is pumped, creating a dependence on the power supply.

While water supply pipes are subsurface and may not seem to be at risk from sea level rise and flooding events, these events can cause erosion to the pipe bed, and/or increase in pressure on the pipes, resulting in cracks and breaks. This can result in contaminants infiltrating into the water system, damages that require repair, and a loss of water supply.

<sup>&</sup>lt;sup>10</sup> Press of Atlantic City, "Casinos re-open after a five-day shutdown following Hurricane Sandy." Nov. 2 2012. https://pressofatlanticcity.com/news/casinos\_tourism/casinos-reopen-after-five-day-shutdown-for-hurricane-sandy/article db808100-2514-11e2-8d3b-001a4bcf887a.html

<sup>&</sup>lt;sup>11</sup> Kaufman, King, Levenson, and Hanson. *Transportation During and After Hurricane Sandy*. 2012. https://wagner.nyu.edu/files/faculty/publications/sandytransportation.pdf

<sup>&</sup>lt;sup>12</sup> Governor's Office of Storm Recovery (GOSR). Rebuild by Design Living Breakwaters Project Benefit Cost Analysis. January 17, 2017.

#### **WASTEWATER**

The ACUA Wastewater Treatment Facility (WWTF) is located in the back bay marshes of Atlantic City. This general location is prone to flooding from sea level rise and major storms. However, as a result of this risk, ACUA has completed multiple resilience projects to increase the WWTF's level of protection, including the construction of a seawall, investments into portable flood barriers and sump pumps, and operating scenarios to reduce impacts of flooding conditions. The results of the MHHW + SLR 2070 (2.4 feet) + (1% annual chance, 24-hour storm rainfall + 10% increase in rainfall) and MHHW + SLR 2070 (2.4 feet) + Superstorm Sandy in 2070 storm surge (High Water Mark = 8.3 feet) flooding conditions show that the WWTF would be inundated, although it is noted that the model does not account for the seawall surrounding the ACUA. The flooding of the WWTF could cause not only loss of wastewater service for the entire ACCR but could result in adverse environmental impacts due to the release of pollutants from the untreated wastewater, and potential discharge of chemicals that are part of the treatment process.

Sewer lift and pumping stations are critical assets that support the management of wastewater. Flooding events and sea level rise can cause damage to necessary mechanical and electrical components that would result in a loss of wastewater collection function in the local community. In addition, any loss of function could cause sewer back up and release of untreated sewage in the surrounding area. The ACCR has many important pumping stations located on the barrier islands. (This project was able to identify at least 10 pump stations, but a complete inventory would require further consultation with ACUA and the municipalities.) These assets would be at risk to flooding primarily in MHHW + SLR 2070 (2.4 feet) + Superstorm Sandy in 2070 storm surge (High Water Mark = 8.3 ft) flooding condition. However, the stations located on the northern end of Brigantine Island could be at risk from inundation pursuant to the MHHW + SLR 2070 (2.4 feet) + (2% annual chance, 2-hour storm rainfall + 10% increase in rainfall), and MHHW + SLR 2070 (2.4 feet) + (1% annual chance, 24-hour storm rainfall + 10% increase in rainfall), defined in flooding conditions in Section 2.

Sewer pipes are largely subsurface and a flooding event can result in increased pressure on the pipes, and leakage into the pipes. Unlike water distribution piping, which operates under pressure, most wastewater collection piping functions under gravity flow, and it is typical for wastewater collection piping to have significant infiltration and inflow, especially during flooding events. High flows to the WWTF from infiltration and inflow can overwhelm the capacity of the WWTF, leading to releases of insufficiently treated wastewaters. Finally, erosion and flood pressures on pipes and pumping equipment could cause cracks and breaks which not only result in damages that require repair but could also release pollution from wastewater pipes into the surrounding area.

Water and wastewater facilities are critical infrastructure in the ACCR, and efforts to protect these systems are essential not only during emergency response to extreme weather events, but also in speeding recovery and return to functioning household and business activity after an extreme weather event. The long-term armoring and protection of such systems from flooding, wind, and sea level rise is essential if the ACCR is to remain functioning and viable during extreme weather events and sea level rise.

#### 4.2.2 MONETIZED ANALYSES

#### RECREATIONAL ASSETS

Given its coastal location, the ACCR has a large network of public and private marinas that serve as economic concentration areas for commercial fishing and recreational assets for community members. According to NOAA's National Marine Fisheries Service, marinas provide over 2,500 jobs from for-hire,

private boats for recreational fishing and over \$300 million in economic output statewide. <sup>13</sup> In the ACCR alone, 21 marinas provide over 1,660 slips.

To help contextualize the marinas' importance as a recreational asset, the ACCR used a methodology published in the academic journal Coastal Management (Johnston 2002)<sup>14</sup> to calculate the recreational utility of marinas, focusing on fishing and boating access (as opposed to other economic access like commercial fishing). The recreational usage rate represents the willingness to pay (WTP) for users who may be using the marinas recreationally. The willingness to pay value captures the consumer surplus value, as opposed to the gate fee or nominal price of storing the boat at the marina. For example, boaters may travel several hours on a trip and expend gas and time to reach a destination for a day trip. The time devoted to this trip also has an opportunity cost that should be reflected in the willingness to pay value. This willingness to pay value, captures these other economic values and is the preferred value to apply in a social welfare benefit cost analysis. The methodology recommends a slip-visit recreational value of \$52.50 in 2021 dollars.

Table 4-4 shows the listed marinas, number of slips, and applied economic value, stated in annual value per slip. In total, the 21 marinas provide about \$87,150 in annual recreational value per visitation. This value is an additional value to the physical value which varies based on the level of infrastructure at each marina.

**Table 4-4: Recreational Asset Value** 

Name	No. of Slips	Annual Value (Per Slip Visitation)
Sunset Marina	125	\$6,563
Blue Water Marina	30	\$1,575
Captain Andy's Marina	60	\$3,150
Ray Scott's Dock	40	\$2,100
Newport Marine Inc	70	\$3,675
Crown Key Yacht Club	60	\$3,150
Atlantic City Fishing Centers Party and Charter	15	\$788
Kammerman's Atlantic City Marina	30	\$1,575
Historic Gardener's Basin	50	\$2,625
Farley State Marina	600	\$31,500
Pleasantville Yacht Club	100	\$5,250
Bayside Marina	90	\$4,725
Conway's Marina	50	\$2,625
Bayshore Associate	30	\$1,575
Jolly Roger Marina	80	\$4,200
Brigantine Yacht Club	40	\$2,100

<sup>&</sup>lt;sup>13</sup> NOAA report.

http://www.tandfonline.com/doi/abs/10.1080/08920750252692616

<sup>&</sup>lt;sup>14</sup> Johnston, R.J. Valuing Estuarine Resource Services Using Economic and Ecological Models: The Peconic Estuary System Study. Costal management.

Name	No. of Slips	Annual Value (Per Slip Visitation)
Jersey State Marine	25	\$1,313
Deebold Boat Yard	45	\$2,363
Brigantine BPO Elks Lodge #2428	30	\$1,575
Bob's Outboard Marine	55	\$2,888
North Point Marina	35	\$1,838
Total	1660	\$87,150

To calculate the value at risk, it was assumed that each slip may have four visits per year, the times at which the recreational value is applied (see Table 4-5). While slip usage varies significantly, four visits per year was selected as a conservative overall estimate. Because marinas are by default at sea level, a 1% storm is estimated to cause the loss of 25% of annual slip visits, and this estimate is held constant for the base year as well as in future events. Some 1% storms may cause more or less damage to marinas, and the loss of 25% of annual slip visits is meant to provide a general summary of potential impacts. However, the frequency of storms impacting this recreational value may increase in the future, as the events as the likelihood of a storm that causes coastal flooding will increase.

Table 4-5: Value at Risk for Marinas

Number of Marinas	Number of Slips	Recreational Utility of Marinas (Slip-visit Value)	Annual Visitations	Total Annual Value	Value at Risk of 1% Storm		
21	1660	\$52.50	4	\$348,600	\$87,150		

Given the tourism focus on the ACCR, the recreational utility of a number of assets could be applied, including the recreational nature of park and open space, beach access, and entertainment venues in the region. The point at which this value is at risk is dependent on its location near flood zones and the reliability of their location being accessible.

#### **ECOSYSTEM SERVICES**

The ACCR is home to a diverse coastal ecosystem that support community functions in the form of recreation, small storm impacts, and from services such as carbon sequestration. The risk assessment considers the economic value of these ecosystem services by leveraging the acreage of various ecosystem types and a per acre value estimate of each ecosystem type from Costanza, 2006. <sup>15</sup> Costanza, 2006 assesses the economic value of New Jersey's natural capital for the purposes of policy, planning, and regulatory decisions. These per acre value estimates are shown in Table 4-6.

<sup>&</sup>lt;sup>15</sup> Costanza, Robert, Matther Wilsdon, Austin Troy, Alesey Voinov, Shuang Liu, John D'Agostino. 2006. The Value of New Jersey's Ecosystem Services and Natural Capital. DEP Division of Science, Research and Technology. July. 177pp.

**Table 4-6: Land Use and Land Cover Service Values** 

Land Use/Land Cover Type	Total Service Values per Acre (2017 USD)	Total Service Values per Acre (2021 USD)
Beach	\$54,695	\$58,874
Coastal Shelf	\$1,686	\$1,815
Cropland	\$1,124	\$1,210
Forest	\$1,915	\$2,062
Freshwater Wetland	\$15,012	\$16,159
Grass/Rangelands	\$101	\$109
Riparian Buffer	\$4,390	\$4,726
Saltwater Wetland	\$7,955	\$8,563
Urban Greenspace	\$3,209	\$3,454

Given the large area of coastal wetlands the ACCR has in its "back bays," as well as other critical ecosystems lining the shores of Absecon Island, Brigantine Island, and along the shore of Pleasantville, the potential risk of loss is quite high for the region. In total, over \$26 million of ecosystem services is at risk if lost to the impacts of a coastal storm (see Table 4-7).

Table 4-7: ACCR Land Use and Land Cover Value at Risk

Land Use/Land Cover Type	Acreage	1% Storm Value at Risk
Beach	167.1	\$9,835,048.45
Coastal Shelf	6092.3	\$11,054,704.04
Cropland	0.0	\$ -
Forest	209.2	\$431,320.84
Freshwater Wetland	23.4	\$378,166.50
Grass/Rangelands	320.4	\$34,907.71
Riparian Buffer	0.0	\$ -
Saltwater Wetland	431.2	\$3,691,925.74
Urban Greenspace	354.3	\$1,223,793.36
Total At Risk 0.0		\$26,649,866.64

#### **MENTAL HEALTH ASSETS**

The impact on mental health after natural disasters is well-documented. Several studies show impacts ranging from lower productivity in the recovery and post-recovery phase of natural disasters, and mental health impacts from surviving events such as floods and other severe storms have been documented. FEMA has documented that the incidence of severe, mild, and moderate mental disorders and/or impairment following storms. FEMA calculates costs of mental health as the cost of treatment, as well as the loss of productivity. Treatment costs to achieve the following levels of recovery amongst all populations who are affected are shown in Table 4-8. While it is hard to estimate the total population who may seek treatment, total costs per person are a good qualitative way to determine what these treatment costs might be depending on the size of the storm the subsequent recovery.

Table 4-8: Mental Health Impact after Disasters - Effectiveness and Treatment Costs

Time After Disaster	Severe – Treatment Cost Effectiveness	Mild/ Moderate – Treatment Cost Effectiveness	Costs Per Person – Severe Mental Illness	Costs Per Person – Mild/Moderate Mental Illness	Total Costs per Person
7-12 months	6%	26%	\$228.43	\$717.76	\$946.18
13-18 months	7%	19%	\$266.50	\$469.31	\$735.80
19-24 months	7%	14%	\$266.50	\$386.48	\$652.98
25-30 months	6%	9%	\$227.28	\$248.45	\$476.88
			Total Co	\$2,811.85	

Source: FEMA, 2012<sup>17</sup>

The cost of mental health treatment per disaster varies but is estimated to be about \$2,811.85 per person in 2021 dollars, after aggregating costs for both severe and mild/moderate cases. While the estimated population impacted is unknown, even a conservative estimate shows that mental health treatment could be a significant cost.

As described above, a loss of productivity is also expected amongst individuals significantly impacted by a natural disaster. FEMA 2012 considers productivity loss value for up to 30 months after a disaster, with values set at \$10,054.57 in 2021 dollars. The per-worker impacts are described in Table 4-9.

Table 4-9: Productivity Loss Due to Mental Illness Impacts

Time After Disaster	er Disaster Productivity Loss F		Productivity Loss Per Worker				
12 months	\$22,097.96	6%	\$1,325.88				
18 months	\$33,146.94	7%	\$2,320.29				

<sup>&</sup>lt;sup>16</sup> Boscarino, Hoffman, Adams, Figley, and Solhkhah. Mental health outcomes among vulnerable residents after Hurricane Sandy: Implications for disaster research and planning. *American Journal of Disaster Medicine*. March 2014. http://europepmc.org/article/med/25068940

<sup>&</sup>lt;sup>17</sup> FEMA (2012), Final Sustainability Benefits Methodology Report, Contract # HSFEHQ-10-D-0806; Task Order # HSFEHQ-1-J-1408

Time After Disaster	Productivity Loss	Prevalence Rate	Productivity Loss Per Worker
24 months	\$44,195.92	7%	\$3,093.71
30 Months	\$55,244.89	6%	\$3,314.69
	Total	\$10,054.57	

The ACCR is home to many climate-sensitive industries such as tourism and fishing. These jobs require in-person attendance, making the impacts shown above potentially even more severe than the in-person costs calculated using the FEMA methodology. The application of the above losses in productivity may also apply to a wider swath of the labor pool than would be expected in other economies.

#### 4.3 ASSET CRITICALITY ANALYSIS

#### 4.3.1 ASSET PRIORITIZATION METHODOLOGY

The purpose of asset criticality analysis is to identify the most important assets that are at greatest risk in the ACCR during a future extreme weather event or emergency. This analysis is conducted in support of the risk assessment analysis. While it is important to consider as many assets as possible in the risk assessment, evaluating every single asset individually is not feasible, so a prioritization/criticality method has been introduced to make sure the most critical assets are evaluated. This approach was important in the ACCR context since the asset inventory included over 35,000 assets. The method described allows focus on those assets in the ACCR that are most central to health, safety, and community recovery from a significant extreme weather event. It is based on the NJ Climate Resilience & Adaptation Guide (NJCRAG, October 2020). A section from that guidance is excepted below:

#### Non-Hazus Analyses (Monetized, Quantitative and Qualitative Methodologies)

To present a comprehensive understanding of risk and vulnerability to the Regional Teams, Consultant Teams should utilize monetized, quantitative, and qualitative methods as part of the Resilient NJ risk and vulnerability assessment. Given the variation across regions and potential asset prioritization, the Resilient NJ program is not being prescriptive on which methods to use. However, the Consultant Teams, in coordination with members of the Regional Team, should be able to populate the Asset Risk Profile as described in the Deliverables section of this methodology. Non-Hazus findings should include relevant and valuable information that is captured during the planning processes of Resilient NJ. As noted above, possible approaches could include, but are not limited to, monetized values, quantitative values, indexed values, or qualitative information or assessments.

This process of prioritization of assets for a region is consistent with the methodology described in Section 3 of the NJDEP Risk Assessment Methodology but expands on the DEP guidance by incorporating a well-established method of identifying the total risk to key assets as being the product of the risk of flooding (indicated by the depth of flooding produced by the HEC-RAS analysis) times the consequence of loss of an asset to flooding. The calculated numerical total risk result indicates the degrees of impact to an asset. Together, these two fundamental characteristics—the risk of (flooding) loss as indicated by flood depth and the consequence of (flooding) loss based on the importance of an asset to evacuation and recovery—are both considered using a simple model. The model allows both

characteristics to be combined to determine the total risk of loss, a risk value that captures both the importance of the activity provided by an asset and its vulnerability given various future flood conditions.

It is important to note that the results of the Hazus analysis (described in Section 4) are incorporated indirectly in the asset criticality analysis, however, the Hazus method by itself was identified as insufficient for the ACCR prioritization. This determination was a result of the observation that the highest values of monetary impact from flooding were clustered around largely private casino, hotel, and support operations that are private and somewhat unique to the ACCR region. Stakeholders felt that prioritizing resilience actions for large business did not adequately reflect the diversity and inclusionary needs of the region. Stakeholders also felt that improving the resilience of key assets such as evacuation routes and marshalling locations, and public safety support operations (police, fire, ambulance), and sites that facilitated the restoration of community functions (schools and local business) was at least as important as improving the resilience of the casino and hotel operations that showed higher values of damage from flooding using Hazus. The approach below sought to blend together information about the importance of assets and to include metrics beyond measurement of monetary damage.

The following considerations also related to the asset prioritization process:

- 1. While the ACCR Resilient NJ project is an intermunicipal resilience planning effort, it was important to recognize that different municipalities have different assets and stakeholders may value certain asset types differently than do their neighbors.
- 2. Stakeholder input is critically important to identify those assets that matter most to the region. The prioritization process gave special priority to assets that are regarded as important in terms of helping to protect public health and safety, and actions that could be useful across the region.

#### 4.3.2 PRIORITIZATION STEPS

This section outlines the steps taken to conduct the asset prioritization.

#### 1. LIST AND CHARACTERIZE ASSETS

ACCR assets were inventoried by asset type, municipality, function, and vulnerability.

#### 2. SCREEN FOR MOST CRITICAL EVACUATION AND EMERGENCY RESPONSE ASSETS

Certain assets were observed to have high criticality and were needed for immediate response to an extreme weather event. These assets included:

- Key evacuation functions, including available roads and transit, public safety and police staff coordination, and temporary shelter planning.
- Key emergency response systems and assets: public safety and health care communications resources and equipment, to support essential services during extreme weather events.
- Key utility and infrastructure assets: including water, wastewater, and energy/power asset.

## 3. SCREEN FOR ASSETS IMPORTANT TO STAKEHOLDERS IN RESTORING KEY NEIGHBORHOOD AND COMMUNITY FUNCTIONS

Based on stakeholder engagement and outreach, feedback etc. the following assets were identified as important to the community. Assets that stakeholders identified as most important in restoring key community functions following an extreme weather event included:

- Transportation systems (other than evacuation routes) to facilitate food shopping, medical services, and work access: Roads, transit, bike paths,, parking garages, etc. that allow residents to return to homes, and return to businesses by employees, and freight movement.
- Assets that are central to restoring neighborhoods and community functions after extreme weather, including education, food supply, and medicine and pharmacy.
- Business/Economic assets: Banks, offices, restaurants, retail, etc.
- Natural and cultural environments: wetlands, bird migration observation sites, wildlife areas, museums, Lucy the Elephant, beaches, historic sites, etc.

As noted in Section 3.1.2, these assets were identified through the project stakeholder engagement activities. Assets were grouped by type and location. The overall count of regional assets totaled over 37,500, with almost 32,000 being individual homes. The counts of ACCR assets by category are listed in Table 4-10. It should be noted that homes were regarded as important assets, but that all homes were thought to be equally important, and that prioritizing resilience actions for all homes would be challenging and expensive. It was recognized that protecting public safety and maintaining infrastructure services was especially critical to recovery.

Asset Category	Count
Economic	2,150
Government Services	61
Housing	31,736
Natural and cultural Environment	191
Resilience/ Sustainable Projects	22
Social Infrastructure	115
Transportation	2,867
Utility Infrastructure	118
Grand Total	37,260

**Table 4-10: Number of Assets by Category** 

#### 4. PRIORITIZATION

#### **DEFINING CRITERIA FOR PRIORITIZATION**

Through the stakeholder and project analysis, the project team identified key criteria that were used for asset prioritization. For evaluating risk, it is important to consider *how great is the potential for loss of an asset* or important function (probability of loss) as well as the corollary consideration of *what are the consequences of the loss of an asset* (consequence of loss). Assets that have the greatest effects (consequences) if they are lost to a community or town, and that have high probability of loss (using the metric of depth of flooding under the peak storm flooding condition) are those that are most critical for assessing improved resilience. Assets that exhibited relatively low consequence of loss, even if the probability of loss (flooding) is high, or assets that have low probability of loss even if the consequence of loss is high, were of lesser importance in this focused analysis.

Criteria for assessing risk fall into different categories, and we included the following resource elements, to the degree feasible:

Critical public safety and social services

- Transportation and mobility systems
- Economy
- Socioeconomic characteristics
- Socially Vulnerable Populations
- Historic flooding & impact/ damage
- Natural systems
- Spatial extent of impact
- Cultural resources of significance (e.g., places of worship)

#### Criteria related to probability of failure:

The flooding conditions were used to identify assets at risk to flooding. The future 2070 rainfall flooding condition which postulates a 50-year storm for a 2-hour duration (MHHW + SLR 2070 (2.4 feet) + (2% annual chance, 2-hour storm event + 10% increase in rainfall) was identified as the worst-case local flooding condition based principally on rainfall. While the future flooding event provided by DEP that was based on the Sandy tidal surge produced the overall worst-case flooding, the impacts from that flooding were pervasive, and nearly completely flooded all barrier island towns, as well as significant areas of inland municipalities along the bay; thus this flooding condition was almost impossible to protect from. Instead, the 50-year 2-hour intensity rainfall allowed for resilience benefits that appeared achievable and became the basis of the critical asset prioritization. Assets not flooded by any flooding condition can be excluded from the assessment.

Additional criteria are listed below that qualitatively influenced the risk analysis.

- Is the asset subject to recurrent flooding / substantially damaged in the past?
- Has the asset been retrofitted / rebuilt in the past?

#### Criteria related to consequence of failure:

After determining the probability of failure for the asset (using predicted future flood depths), the consequence of the failure was evaluated. Consequence of failure is higher if the damage, loss, or unavailability of the asset would have unacceptable consequences. The following factors were considered in assessing consequence of loss:

- Critical for life, safety and recovery/emergency operations?
- Will damage to this asset result in other unintended major negative consequences such as loss of life, major pollution, loss of critical functions?
- Is the asset easily replaceable or repaired? / How easily is the asset substituted?
- Would the loss of the asset have a regional impact?
- Are there viable nearby alternatives if the asset is not accessible or operable?
- Would the asset be considered a lifeline to an overburdened community area?
- Are the assets central to economic functioning and vitality (e.g., tourism?)
- Is the asset an important ecosystem; does the resource provide natural protection?
- Does the asset exhibit high cultural value; is it integral to community cohesiveness?

#### PRIORITIZATION SCORING

Numeric prioritization was calculated for all assets using applicable criteria identified above. The following numeric ranking was used: (5 - highest consequence of loss, 4 - high, 3 - medium, 2 - low, 1 - negligible). The assessment scoring generally follows the methodology described in the NJ Climate

Resilience & Adaptation Guide. While this approach results in a numeric ranking, it is not truly a quantitative assessment, but it does provide the project team with a practical and functional way to comparatively evaluate those assets that should be evaluated more closely during risk assessment and scenario planning.

#### PRIORITIZATION OF ASSETS FOR RISK ASSESSMENT

Assets in the ACCR were prioritized from a vulnerability and consequence of loss perspective, in conjunction with feedback from project stakeholders. Based on this prioritization, risk profiles were developed for some categories of assets; these risk profiles are included in Appendix F. However, due to high variability in data availability and precision and possible impacts under various extreme weather events, some asset categories were evaluated qualitatively as a group, evaluated based on natural capital and literature monetized values, and/or were assessed with respect to percentage of asset impacted (in the case of linear assets such as evacuation routes). These evaluations are discussed in Section 4.2.

#### 4.3.3 COMPILATION AND RANKING OF CRITICAL ASSETS

Compilation and ranking of critical assets that are vulnerable to flood impacts, using the method described in Sections 4.3.1 and 4.3.2, is drawn from the asset management literature. This approach is used when the loss type is hard to quantify because it is community-wide, or if a written description of how an asset may be impacted better communicates the risk that may occur. The qualitative approach is still data driven and relies on estimates of asset criticality and depth of possible flooding as inputs but does not provide specific numerical outputs in terms of dollars of property impact or loss. Instead, the index of severity of total risk to critical assets that was used conveys the risk potential and importance of enhancing the resilience of specific assets.

The Critical Assets Vulnerable to Flood Impacts analysis, as noted in the methodology section, relied on two factors, the depth of flooding the asset may experience (serving as a surrogate for degree of risk), and the potential consequence of loss of that critical community asset. Figure 4-8, presented in Section 3.1.1 and copied below, identifies the asset categories that were evaluated and ranked by their potential to experience flooding (i.e., vulnerability) and effects on the community from flooding, based on public engagement input.

In general, the infrastructure asset categories were ranked as high impact consequence of loss (values ranged from 1 to 5 with 5 indicating highest consequence of loss). In addition, assets that support communication (such as radio towers), that support health care (such as pharmacies and local clinics), and that are essential for daily life (such as local food shopping or receiving dialysis) were categories that were assigned high consequence of loss values. A community is often able to cope with the shock of several days of interruption of daily routines, but the fabric of the community can be undermined if interruptions extend for longer periods of time. The consequence values are summarized in Table 4-11 reflect the degree of impact.

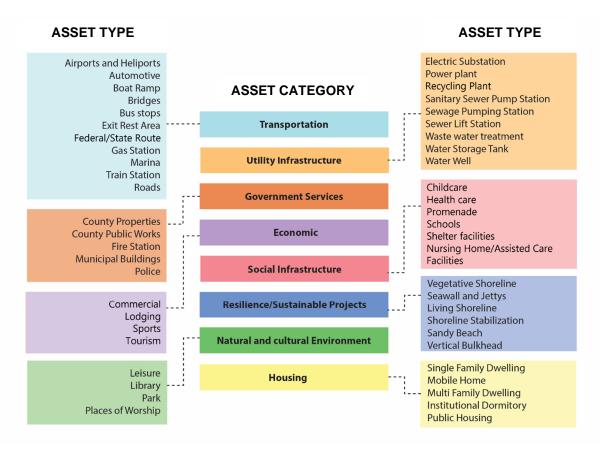


Figure 4-8: Asset Categories and Types

Table 4-11: Consequence of Loss Values by Asset Category

Asset Category	Asset Type	Linear Feature?	Consequence
Government Services	Fire Station		5
Government Services	Municipal Buildings		5
Government Services	Police		5
Natural and Cultural Environment	Resilience/ Sustainability Projects		5
Natural and Cultural Environment	Living Shoreline	Yes	5
Natural and Cultural Environment	Seawalls and Jetties	Yes	5
Natural and Cultural Environment	Shoreline Stabilization	Yes	5
Natural and Cultural Environment	Vegetative Shoreline	Yes	5
Natural and Cultural Environment	Vertical Bulkhead	Yes	5
Social Infrastructure	Health care		5
Social Infrastructure	Hospitals		5
Social Infrastructure	Nursing Home/Assisted Care Facilities		5
Social Infrastructure	Shelter facilities		5
Transportation Evacuation Routes		Yes	5

Asset Category	Asset Type	Linear Feature?	Consequence
Transportation	Federal State Route	Yes	5
Utility Infrastructure	Electric Substation		5
Utility Infrastructure	Sanitary Sewer Pump Station		5
Utility Infrastructure	Sewage Pumping Station		5
Utility Infrastructure	Sewer Lift Station		5
Utility Infrastructure	Wastewater treatment		5
Utility Infrastructure	Water Storage Tank		5
Utility Infrastructure	Water Well		5
Government Services	County Properties		4
Housing	Affordable Housing		4
Natural and Cultural Environment	Beach	Yes	4
Natural and Cultural Environment	Places of Worship		4
Social Infrastructure	Childcare		4
Social Infrastructure	Schools		4
Transportation	Level crossing		4
Transportation	Railway Track	Yes	4
Transportation	Train Station		4
Utility Infrastructure	Communication		4
Utility Infrastructure	Power plant		4
Economic	Commercial		3
Economic	Light Industrial		3
Economic	Lodging		3
Economic	Retail Trade		3
Economic	Technical/Business Services		3
Natural and Cultural Environment	Library		3
Natural and Cultural Environment	Park		3
Natural and Cultural Environment	Promenade	Yes	3
Transportation	Gas Station		3
Transportation	Parking		3
Utility Infrastructure	Recycle		3
Economic	Entertainment & Recreation		2
Economic	Sports		2
Economic	Tourism		2
Housing	Apartments		2
Natural and Cultural Environment	Leisure		2
Transportation	Airport and Heliport		2

Asset Category	Asset Type	Linear Feature?	Consequence
Transportation	Boat Ramp		2
Transportation	Bridges		2
Transportation	Bus stops		2
Transportation	Marina		2
Transportation	Roads	Yes	2
Natural and Cultural Environment	Agriculture		1

Figure 4-9 illustrates key results from the asset criticality analysis. This information supplements the Hazus model results and the Monetization analyses, yielding a more complete evaluation and understanding of the impacts from flooding on critical assets. The risk level values are dimensionless but indicate a relative total risk, which is based on the value of the Consequence of Loss Criticality factor multiplied by the depth of flood inundation (a surrogate for flood risk), providing a relative combined score of risk to an asset and its importance. These values were then used later in the Scenario Planning analysis to help determine where resilience actions would be valuable. For a complete table of the top atrisk assets, refer to Appendix C-2.

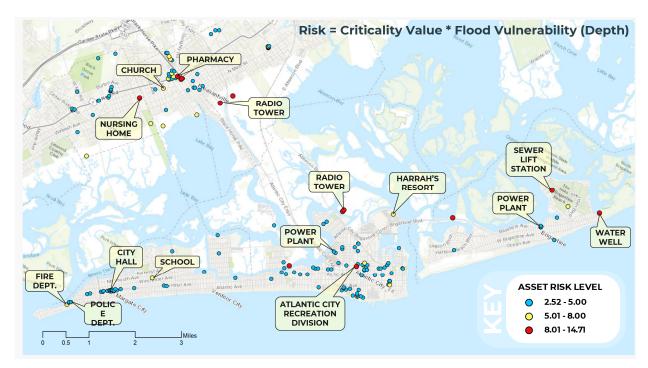


Figure 4-9: Critical Assets at Risk

The critical assets at risk map shows example results from the asset criticality analysis. For example, you will observe radio towers, sewer lift stations, and water supply wells showing as the most critical assets at risk in this example map because of the importance of continued communication and utility services. The map in Figure 4-9 does not show all assets at risk—rather it is intended to show the risk level and location of the critical asset to help the project team identify potential resilience actions that may be most useful

and effective in protecting assets in vulnerable locations. The asset criticality analysis is helpful in identifying the ACCR assets that need to receive priority attention with respect to resilience planning.

The inventory of assets in the ACCR developed for the project totals well over 30,000 assets in total, including individual homes and local road segments. After putting aside general housing stock, there were over 4,000 assets to consider. The asset criticality analysis helped identify the most important assets that were predicted to be affected by future extreme weather events, so those assets could receive priority attention for improved resilience during scenario planning and resolution of the preferred alternative, given the resources available for the project.

Public, municipal, and Steering Committee input emphasized that first and foremost, the ability to evacuate the barrier islands during extreme events was critical. During Sandy-type storm surges, evacuation of the barrier islands is the safest strategy. Important public facilities are present throughout the region, with facilities like schools and medical centers, valuable during moderate flooding to provide refuge. The back bays, and the marshes, wetlands, and ecosystems are the triple-bottom-line environmental foundation of this region. And commercial corridors (mostly local) form the supply chain for food and goods to the residents of the towns after an extreme weather event. These resources were identified and prioritized during the analysis.

Table 4-13 summarizes the top at-risk assets that were identified and provides flood depth data for these assets for all modeled flood conditions. These flood conditions are described in Table 4-12 (note that these are the same flood conditions presented in Table 2-2). Table 4-12 also includes a "Short Name" field to better link these conditions to Table 4-13. It should be noted that boat ramps were removed from Table 4-13, as it was determined that there are few structures associated with them that would be damaged by flooding.

**Table 4-12: Flood Conditions** 

Short Name	Year	Sea Level Rise (Feet)	Precipitation Event	Precipitation Increase	Storm Surge (Feet)	DEP Original Flood Condition	
SLR, 2030	2030	0.8	N/A	-	-		
SLR, 2050	2050	1.4	N/A	-	-		
SLR, 2070	2070	2.4	N/A	-	-	С	
2% 2hr	Present Day	-	2% 2-hr	-	-	а	
2% 2hr + 2%	Present Day	-	1% 24-hr	-	-	b	
2% 2hr + 6%	2030	0.8	2% 2-hr	2%	-		
2% 2hr + 10%	2030	0.8	1% 24-hr	2%	-		
1% 24hr	2050	1.4	2% 2-hr	6%	-		
1% 24hr + 2%	2050	1.4	1% 24-hr	6%	-		
1% 24hr + 6%	2070	2.4	2% 2-hr	hr 10% -		d	
1% 24hr + 10%	2070	2.4	1% 24-hr	10%	-	е	
Sandy + 2070 SLR	2070	2.4	N/A	-	7.6	f	

A table containing additional at-risk assets is included in Appendix C.

Table 4-13: Summary of Top At-risk Assets

	Depth of Flooding, Rounded (feet)																		
						Conseq. of	Risk	SLR,	SLR,	SLR,			2% 2hr +			1% 24hr +			Sandy +
Municipality	Asset Category	Asset Type	Name	Latitude	Longitude	Flooding	Level*	2030	2050	2070	2% 2hr	2%	6%	10%	1% 24hr	2%	6%		070 SLR
Northfield City	Social Infrastructure		Meadowview Nursing and Rehabilitation Center	39.38	-74.54	5	14.71	-	-	-	1.34	1.37	1.45	1.51	2.77	2.80	2.87	2.94	-
Brigantine City	Utility Infrastructure	Sewer Lift Station	Sewer Lift Station Sheridan Station	39.41559982	-74.37709808	5	14.16	-	-	2.33	0.70	0.76	0.85	2.56	2.35	2.37	2.31	2.83	7.94
Pleasantville City	Utility Infrastructure	Communication	Tower:WOND-AM (Pleasantville)	39.39009857	-74.51210022	4	13.35			2.89	0.94	1.65	2.20	3.06	1.97	2.39	2.72	3.34	8.50
Atlantic City	Utility Infrastructure	Communication	Tower:WFPG-AM (Atlantic City)	39.3783989	-74.44760132	4	12.66	1.45	2.05	3.05	0.70	1.49	2.10	3.10	0.77	1.55	2.16	3.16	8.66
Brigantine City	Utility Infrastructure	Water Well	Water Well #6	39.41630173	-74.35579681	5	11.85	0.57	1.17	2.17	0.11	0.76	1.31	2.23	0.32	0.95	1.48	2.37	7.78
Pleasantville City	Utility Infrastructure	Communication	Tower:WMGM-FM	39.39400101	-74.50900269	4	11.02	0.70	1.30	2.30	0.17	0.89	1.49	2.46	0.83	1.50	1.98	2.75	7.91
Pleasantville City	S∞ial Infrastructure	Health care	Pharmacy:Rite-Aid Pleasantville	39.39110184	-74.53230286	5	10.99	-	-	-	0.96	1.00	1.08	1.14	2.06	2.08	2.14	2.20	-
Pleasantville City	Economic	Retail Trade	PATEL, PRAVIN	39.391115	-74.530536	3	10.86	-	-	-	2.41	2.45	2.53	2.59	3.48	3.51	3.57	3.62	-
Atlantic City	Utility Infrastructure	Communication	Tower:WFPG Radio Tower (Conway)	39.37900162	-74.44740295	4	10.27	0.85	1.45	2.45	0.13	0.90	1.50	2.50	0.22	0.96	1.56	2.57	8.06
Atlantic City	Social Infrastructure	Shelter facilities	Atlantic City Pal Building	39.36539841	-74.43180084	5	9.44	-	-	-	1.11	1.13	1.17	1.21	1.80	1.82	1.86	1.89	5.72
Pleasantville City	Economic	Retail Trade	PATEL, PRAVIN	39.39086952	-74.53058886	3	8.24	-	-	-	1.61	1.64	1.72	1.77	2.61	2.64	2.69	2.75	-
Brigantine City	Transportation	Marina	Brigantine Marina & Paddle Club	39.39310074	-74.40720367	2	8.16	2.35	2.95	3.95	1.60	2.40	3.01	4.01	1.68	2.47	3.08	4.08	9.56
Egg Harbor Township	Economic	Entertainment & Recreation	BAYVIEW MARINA LLC	39.35221061	-74.53919077	2	7.88	2.20	2.80	3.80	1.45	2.25	2.86	3.86	1.53	2.33	2.94	3.94	9.41
Atlantic City	Economic	Retail Trade	RIPAC LLC C/O EDMUND C WIDEMAN, III	39.35709848	-74.4260735	3	7.67	-	-	-	2.02	2.03	2.07	2.10	2.47	2.48	2.53	2.56	5.09
Atlantic City	Economic	Retail Trade	SPATOLA, SALVATORE	39.36614915	-74.41742408	3	7.57	-	-	-	2.02	2.03	2.06	2.08	2.45	2.47	2.50	2.52	6.03
Pleasantville City	Economic	Retail Trade	GUENTHER, FRANCIS J	39.39107024	-74.53501978	3	7.45			-	1.21	1.25	1.33	1.39	2.33	2.36	2.42	2.48	
Pleasantville City	Economic	Retail Trade	SEASHORE ENTERPRISES INC	39.38906287	-74.53533642	3	7.35			-	1.24	1.28	1.35	1.40	2.31	2.34	2.40	2.45	
Pleasantville City	Transportation	Bus stops	NEW RD AT RT 40/322	39.39110184	-74.53119659	2	7.18	-	-	-	2.37	2.41	2.49	2.55	3.45	3.48	3.54	3.59	-
Egg Harbor Township	Economic	Lodging	YASH KAILASH INC	39.38042459	-74.493499	3	7.03	0.54	1.14	2.14	0.68	0.85	1.30	2.24	1.05	1.22	1.50	2.34	7.75
Northfield City	Natural and cultural Environment	Park	Glencove Park	39.35549927	-74.54940033	3	6.97	0.57	1.17	2.17	-	0.65	1.24	2.24	0.14	0.79	1.35	2.32	7.78
Margate City	Utility Infrastructure	Waste water treatment	MARGATE CITY	39.32220078	-74.51370239	5	6.81	-	-	0.14	0.73	0.77	0.81	0.91	1.29	1.28	1.32	1.36	5.75
Pleasantville City	Housing	Apartments	NJBF000079777	39.412801	-74.505955	2	6.79	_	-	-	0.05	0.13	0.31	0.50	3.06	3.13	3.25	3.39	4.38
Pleasantville City	Natural and cultural Environment	Park	Clematis Avenue Park	39.37519836	-74.52799988	3	6.72	0.48	1.08	2.08	-	0.55	1.15	2.15	0.25	0.73	1.27	2.24	7.69
Pleasantville City	Housing	Affordable Housing	Pleasantville Twr Annex	39.39475169	-74.53830023	4	6.59	-	-	-	0.60	0.62	0.70	0.88	1.54	1.56	1.60	1.65	
Longport Borough	Government Services	Fire Station	Fire station:Longport Fire Department	39.31150055	-74.52780151	5	6.39	_	_	_	0.86	0.87	0.90	0.89	1.28	1.30	1.33	1.28	5.28
Pleasantville City	Transportation	Bus stops	RT-40/322 AT NEW RD	39.39149857	-74.53179932	2	6.19	_	_		1.87	1.91	1.99	2.05	2.96	2.99	3.04	3.10	
Northfield City	Natural and cultural Environment	Park	Stillwater Park	39.37400055	-74.53279877	3	6.17	_	0.55	1.55	0.74	0.80	1.06	1.84	1.10	1.16	1.38	2.06	7.16
Pleasantville City	Economic	Retail Trade	APPLE FARM LLC & LEJO CORP	39.39524561	-74.53925173	3	5.92		- 0.00	1.00	1.00	1.03	1.09	1.17	1.84	1.87	1.92	1.97	7.10
Atlantic City	Economic	Commercial	Harrah's	39.38518524	-74.42903137	3	5.90		_	0.42	0.92	1.21	1.44	1.81	1.10	1.38	1.61	1.97	6.03
Margate City	Social Infrastructure	Shelter facilities	W.H. ROSS III SCHOOL	39.33100128	-74.50219727	5	5.84	_	_	0.72	0.45	0.47	0.51	0.54	1.09	1.11	1.14	1.17	4.56
Pleasantville City	Economic	Retail Trade	GUENTHER BROS LLC	39.39042534	-74.53387478	3	5.70				0.45	0.69	0.77	0.83	1.76	1.79	1.84	1.90	4.50
Egg Harbor Township	Economic	Lodging	DAND, JANAK N. & HANSA J.	39.38410027	-74.50301470	3	5.70	0.07	0.67	1.67	0.03	0.39	0.77	1.76	0.66	1.73	1.34	1.87	7.28
	Natural and cultural Environment	Places of Worship		39.38570023	-74.53520203	4	5.56	0.07	0.67	1.07	0.41	0.39	0.93	0.48	1.17	1.07	1.34	1.39	1.20
Pleasantville City		· · · · · · · · · · · · · · · · · · ·	Place of Worship:Grace Church	39.36669922	-74.33320203	2				0.98	1.87	1.89	1.94	2.00	2.63	2.65	2.69	2.72	6.59
Atlantic City	Transportation	Bus stops	South Cardina Ave at Mediterranean Ave			3	5.43	- 0.04	- 0.04										7.22
Egg Harbor Township	Economic	Lodging	YASH KAILASH INC	39.380184	-74.492975		5.39	0.01	0.61	1.61	0.17	0.36	0.78	1.70	0.63	0.75	0.99	1.80	5.94
Atlantic City	Housing	Apartments	NJBF000069943	39.365125	-74.416674	2	5.36		-	-	2.07	2.08	2.12	2.15	2.60	2.62	2.65	2.68	5.94
Egg Harbor Township	Economic	Retail Trade	JTD REALTY GROUP LLC	39.39826796	-74.54037186	3	5.31	-			1.02	1.04	1.08	1.11	1.63	1.66	1.71	1.77	
Egg Harbor Township	Economic	Retail Trade	JUST ALIGNMENTS & TIRES LLC	39.3848685	-74.505222	3	5.30	-	0.51	1.51		0.25	0.79	1.61	0.55	0.96	1.26	1.77	7.13
Margate City	Government Services	Municipal Buildings	Margate City Hall	39.32229996	-74.51370239	5	5.27	-	-	-	0.43	0.47	0.51	0.61	0.98	0.98	1.01	1.05	5.44
Brigantine City	Utility Infrastructure	Sewer Lift Station	Sewer Lift Station A-Station	39.41339874	-74.36830139	5	5.17	-	-	0.48	0.10	0.11	0.14	0.69	0.70	0.70	0.73	1.03	6.09
Pleasantville City	Housing	Apartments	NJBF000079802	39.412904	-74.505742	2	5.17	-	-	-	-	-	-	-	2.25	2.32	2.44	2.58	3.56
Pleasantville City	Housing	Apartments	NJBF000079740	39.41264	-74.505638	2	5.13		-	-	-	0.03		0.25	2.25	2.31	2.43	2.56	3.47
Northfield City	Economic	Technical/Business Services	TEPEDINO, REGINA	39.36624374	-74.56289736	3	5.09		-	-	0.47	0.49		0.58	1.58	1.60	1.65	1.70	-
Atlantic City	Transportation	Gas Station	Atlantic County Facilities Management	39.36750031	-74.42990112	3	5.08		-	-	0.91	0.93	0.97	1.02	1.61	1.63	1.67	1.69	5.56
Pleasantville City	Housing	Apartments	NJBF000079737	39.412617	-74.50554	2	5.02	-	-	-	0.13	0.16	0.26	0.37	2.21	2.27	2.38	2.51	3.34
Pleasantville City	Housing	Apartments	NJBF000079760	39.412726	-74.505991	2	4.97	-	-	-	-	-	-	-	2.16	2.22	2.35	2.49	3.47
Egg Harbor Township	Economic	Lodging	AKSHARPRIT LLC	39.38408426	-74.50332877	3	4.96	-	0.45	1.45	-	0.17	0.72	1.54	0.46	0.87	1.14	1.65	7.06
Northfield City	Economic	Technical/Business Services	TEPEDINO, REGINA	39.36634828	-74.56357488	3	4.95	-	-	-	0.76	0.79	0.84	0.88	1.53	1.56	1.60	1.65	-
Egg Harbor Township	Economic	Retail Trade	DO, DUNG	39.38034116	-74.49375715	3	4.90	-	0.39	1.39	-	0.09	0.55	1.53	0.26	0.46	0.75	1.63	7.00
Pleasantville City	Economic	Retail Trade	CAIRNS, THOMAS & ELEANOR	39.390348	-74.5328035	3	4.83			-	0.37	0.41	0.49	0.55	1.47	1.50	1.55	1.61	
Atlantic City	Economic	Retail Trade	M B MARKLAND CONST CO	39.37033965	-74.42141666	3	4.79	-	-	0.45	1.00	1.03	1.08	0.99	1.75	1.78	1.80	1.60	6.06
Pleasantville City	Economic	Retail Trade	CGF ASSOC	39.39132721	-74.53009933	3	4.76	-	-	-	0.37	0.41	0.49	0.55	1.45	1.48	1.53	1.59	-
Longport Borough	Government Services	Municipal Buildings	Borough Hall	39.31230164	-74.52739716	5	4.74	-	-	0.20	0.35	0.45	0.54	0.72	0.59	0.70	0.79	0.95	5.81
Pleasantville City	Housing	Apartments	NJBF000079744	39.412657	-74.505716	2	4.70	_	-	-	-	-	-	-	2.03	2.09	2.21	2.35	3.31

<sup>\*</sup> Note: Risk Level = [Consequence of Flooding] x [1% 24hr + 10% Flood Depth]

### 5 CONCLUSIONS

Using the results of the flood modeling (see Section 2), asset identification (see Section 3), and risk assessment (see Section 4), a prioritization of critical assets was performed for the Atlantic County Coastal Region.

The risk assessment relied on geospatial tools and analysis such as HEC-RAS and Hazus modeling to understand how mapped critical assets would be affected, and what the general value of building structures at risk would be. However, a financial-centric analysis (such as is available through Hazus modeling) does not fully capture the importance of health, safety, and mobility assets in the region. To broaden the understanding of risk, particularly in a region like the ACCR, which is an employment and recreation center for South Jersey, a criticality analysis was used to evaluate risk for assets, facilities, and communities not normally considered in a traditional risk analysis.

Beyond the evaluation of risk to critical assets, the risk assessment identified structural analysis and other monetized, quantitative, and qualitative risks from a range of specific flood conditions. Hazus results produced an estimate of structural and content damages for all buildings in the most recent Hazus building footprint dataset. Other monetized, quantified, and qualified losses showed that the flood conditions assessed have disproportionately high impacts on evacuation routes and services needed by local community groups. A geographic analysis showed that more than 13 miles of evacuation route length would be inundated during a 1 percent, 24-hour storm in 2070.

Other important outputs from the monetized, quantitative, and qualitative analysis show that more than 50 social service and community resources (i.e., childcare facilities, places of worship, gas stations, libraries, nursing homes, and schools) would be affected by a 1 percent, 24-hour storm in 2070. While most of the social services/community resources impacts are distributed evenly across the ACCR, some affected asset types are concentrated in specific municipalities. All of the childcare facilities and places of worship that would be affected are in Atlantic City and Pleasantville, while all libraries and police stations that would be affected are in Longport. All affected county properties are in Atlantic City and Northfield, and the majority of affected schools are in Atlantic City.

The ACCR is also home to a diverse coastal ecosystem that supports community functions in the form of recreation, small storm impacts, and services such as carbon sequestration. The risk assessment considers the economic value of these ecosystem services by leveraging the acreage of various ecosystem types and a per-acre value estimate of each ecosystem type. Given the large area of coastal wetlands the ACCR has in its "back bays," as well as other critical ecosystems lining the shores of Absecon Island, Brigantine Island, and along the shore of Pleasantville, the potential risk of loss is quite high for the region.

A complete list of the ACCR top at-risk assets are provided in Appendix C-2, Hazus results are provided in Appendix E, and asset profiles as outlined in the NJDEP Risk Assessment methodology are provided in Appendix F.

# **APPENDIX**

# A FLOOD MODEL UPDATES

# National Disaster Resilience – Resilient NJ Program Assistance New Jersey Department of Environmental Protection Technical Memorandum - Flood Model Refinements for Atlantic County Coastal Region

### Introduction

Michael Baker and the NJDEP previously provided methods and processes for the development of, as well as the resulting flood inundation maps for the regions selected as part of NJDEP's Resilient NJ Program. These maps were large scale, planning level models intended to reflect both current and future flooding events the regions may experience.

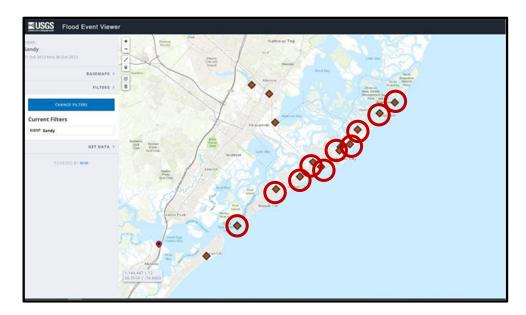
As regions were selected to participate in the program, specific regional needs were identified, and some model refinements were requested. The refinements listed in this memo were originally completed for the Raritan River Bay Region, but after discussions with WSP, also deemed appropriate to apply to the Atlantic County Coastal Region (ACCR).

### Refinements

- Breaklines were added for major highways, freeways, and railways within a region. These breaklines prevent "leaky cells" from occurring and prevent water from unintentionally flowing across roadways/railways.
- FEMA identified structures within a region were included in the analysis if they crossed a breakline. If the structure did not cross a breakline, the structure was not added as additional breaklines would have been required. This provided a more accurate representation of flow across breaklines, as well as upstream and downstream flood elevations. Structure width and length were estimated from Google Earth and depth and slope were estimated based on the existing terrain. For ACCR, no structures crossed any breaklines, and no structures were added to the models
- Both the Mullica Toms and Great Egg Harbor HUC-8 watersheds are within ACCR. The boundary conditions for both watersheds were taken based on the NOAA Atlantic City tide gauge (8534720).
- The future storm surge event was revised to include a mean of spatially specific high water marks from Hurricane Sandy, taken from <a href="https://stn.wim.usgs.gov/FEV/#Sandy">https://stn.wim.usgs.gov/FEV/#Sandy</a>. The screen capture below includes high water marks included for ACCR (circled in red).







• The mean of these marks was determined below. Final boundary condition elevation data (NAVD88) used for the future surge event was 7.6 ft + 2.4 ft = 10 ft. This surge elevation was utilized for both the Mullica Toms and Great Egg Harbor watershed models.

Region	Latitude, Longitude	High Water Mark
	39.3048, -74.5368	8.4
	39.3375, -74.4921	6.9
	39.3487, -74.4648	7.7
	39.3619, -74.4443	7.2
	39.3572, -74.4454	7.3
Atlantic County Coastal Region	39.3722, -74.4190	7.7
	39.3755, -74.4176	7.2
	39.3777, -74.4068	7.8
	39.3907, -74.3979	7.6
	39.4054, -74.3728	7.8
	39.4151, -74.3552	8.0
Average		7.6





# **APPENDIX**

# B FLOOD CONDITION MAPS

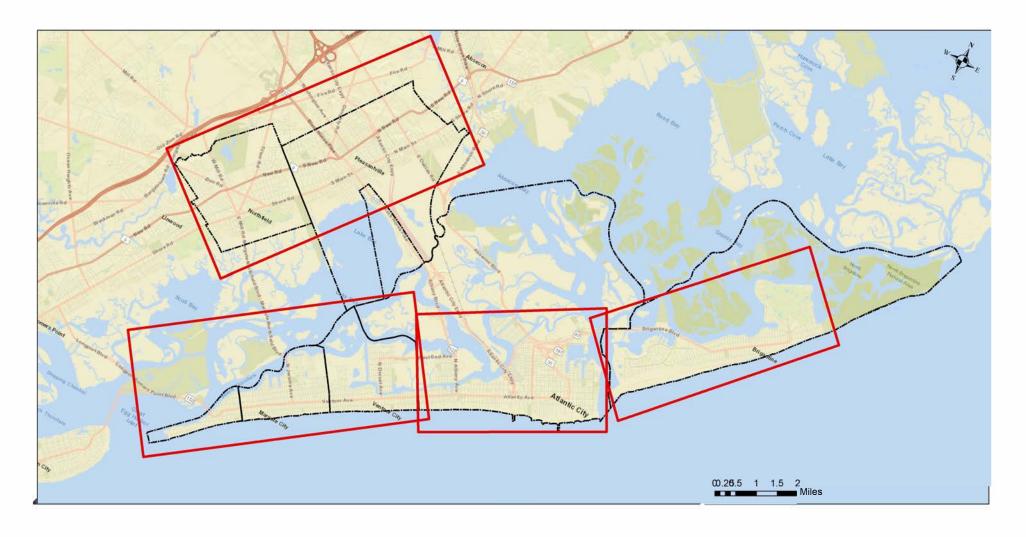


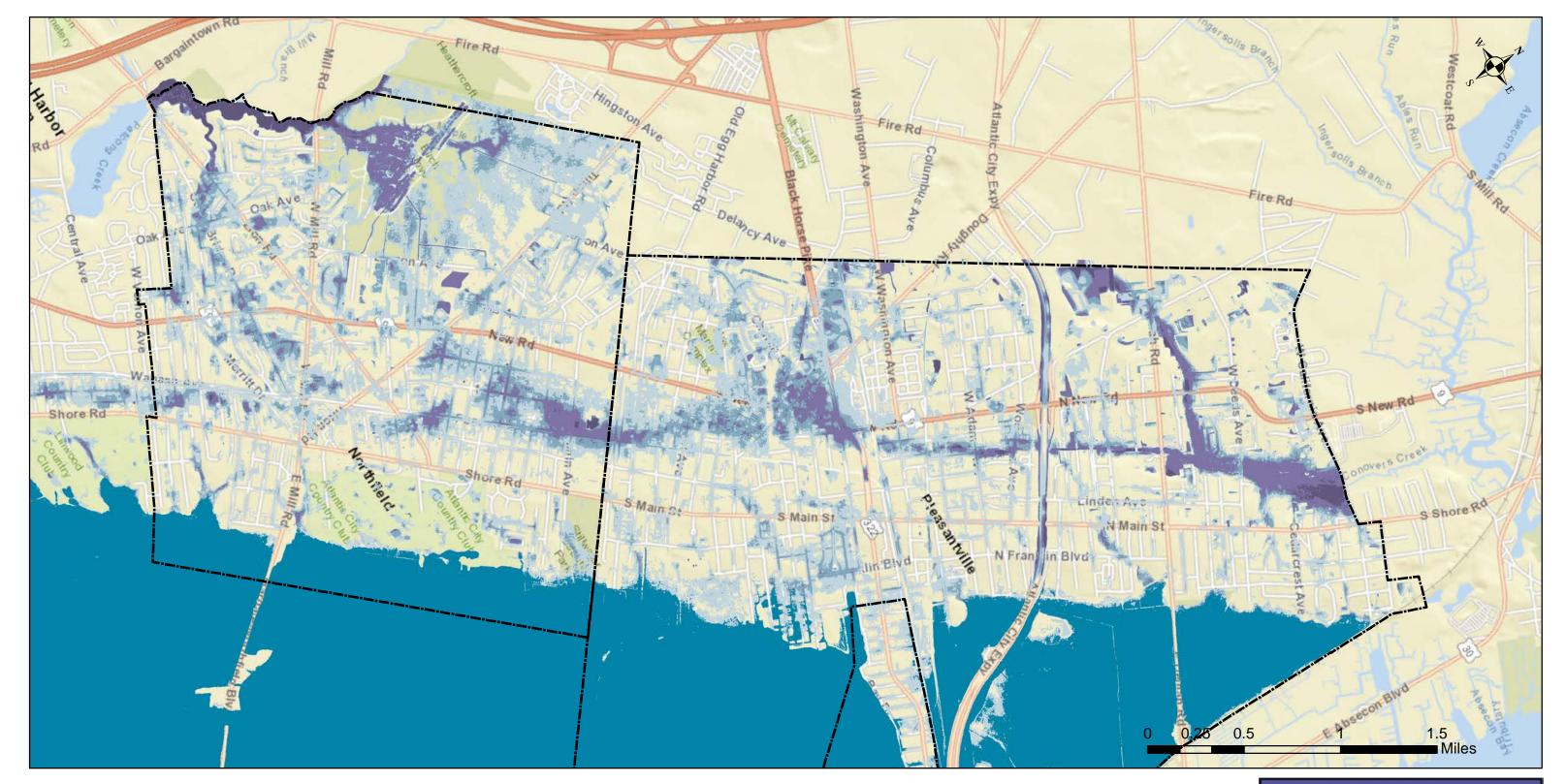
## **FLOOD DEPTH ANALYSIS - SUB REGIONS**

12.14.2021



# **SUB REGION EXTENT - Key Map**





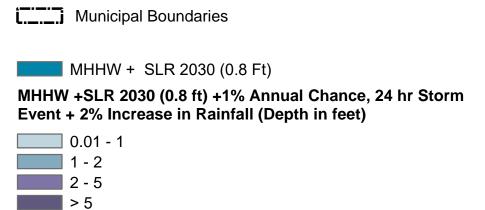
# **Northfield and Pleasantville**

### Notes:

- Vertical datum is NAVD88Flood depths are depth in feet above ground level

### Sources:

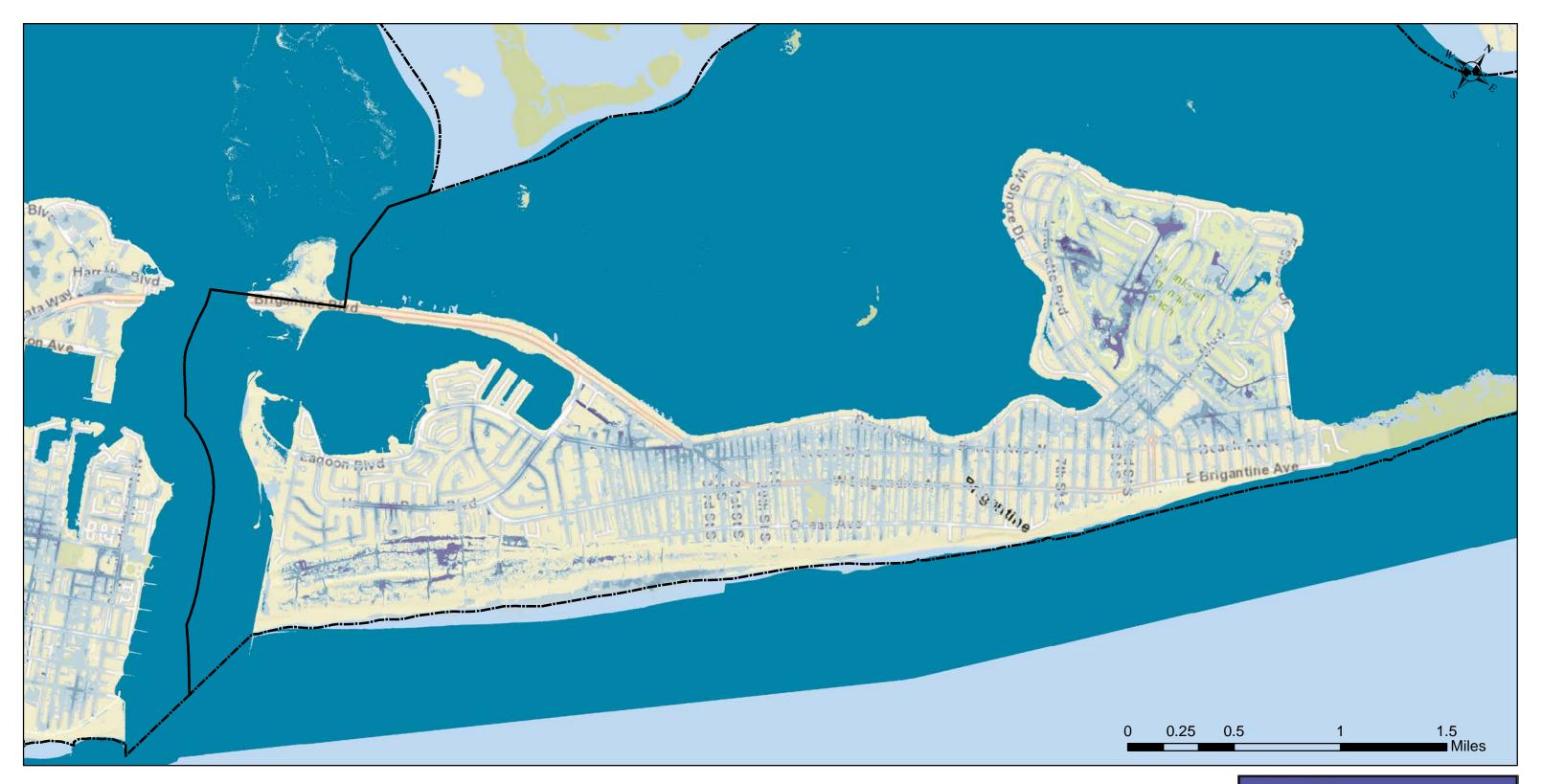
- MHHW extent: ACCR Team
   Flood depth data: Michael Baker HEC-RAS Models
   Municipal Boundaries: New Jersey Office of GIS
   Basemap: ESRI ArcMap



5 – 30 ft

2 – 5 ft

1 – 2 ft 0.01 – 1 ft



# **Brigantine**

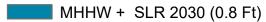
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- Basemap: ESRI ArcMap



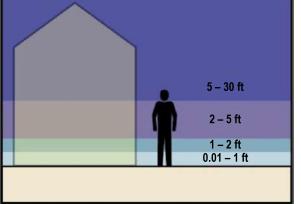


MHHW +SLR 2030 (0.8 ft) +1% Annual Chance, 24 hr Storm Event + 2% Increase in Rainfall (Depth in feet)



2 - 5

> 5





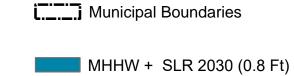
# **Longport, Margate City, and Ventnor City**

### Notes:

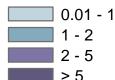
- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

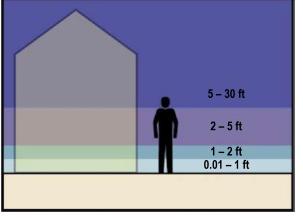
### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS Models
- Municipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap



MHHW +SLR 2030 (0.8 ft) +1% Annual Chance, 24 hr Storm Event + 2% Increase in Rainfall (Depth in feet)







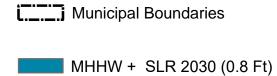
# **Atlantic City**

### Notes:

- Vertical datum is NAVD88Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS Models
  Municipal Boundaries: New Jersey Office of GIS
  Basemap: ESRI ArcMap

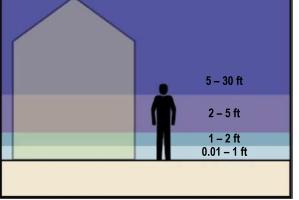


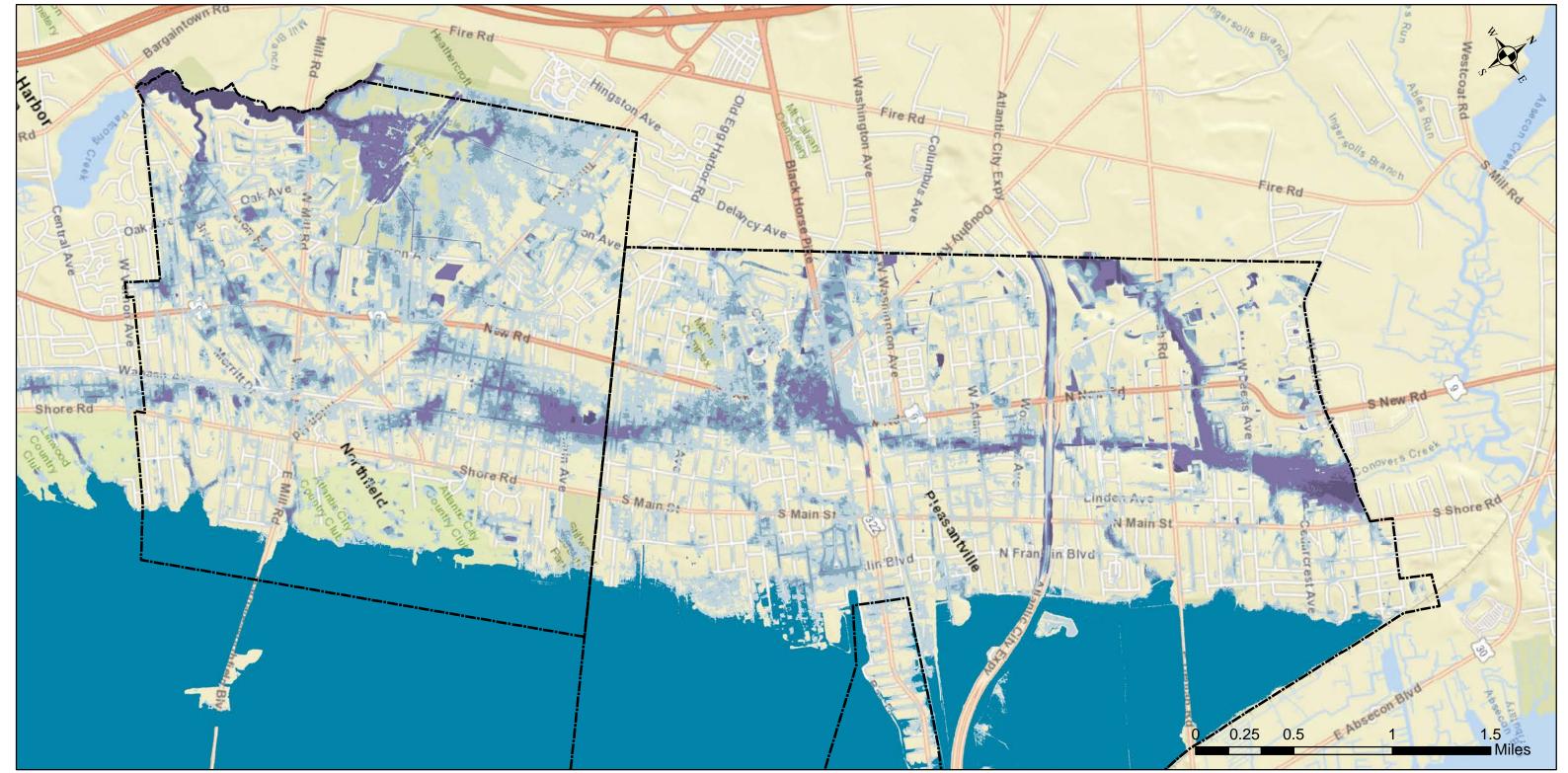
MHHW +SLR 2030 (0.8 ft) +1% Annual Chance, 24 hr Storm Event + 2% Increase in Rainfall (Depth in feet)



> 5







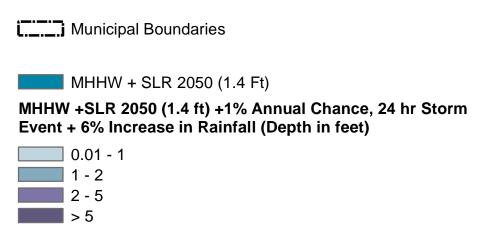
## **Northfield and Pleasantville**

### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

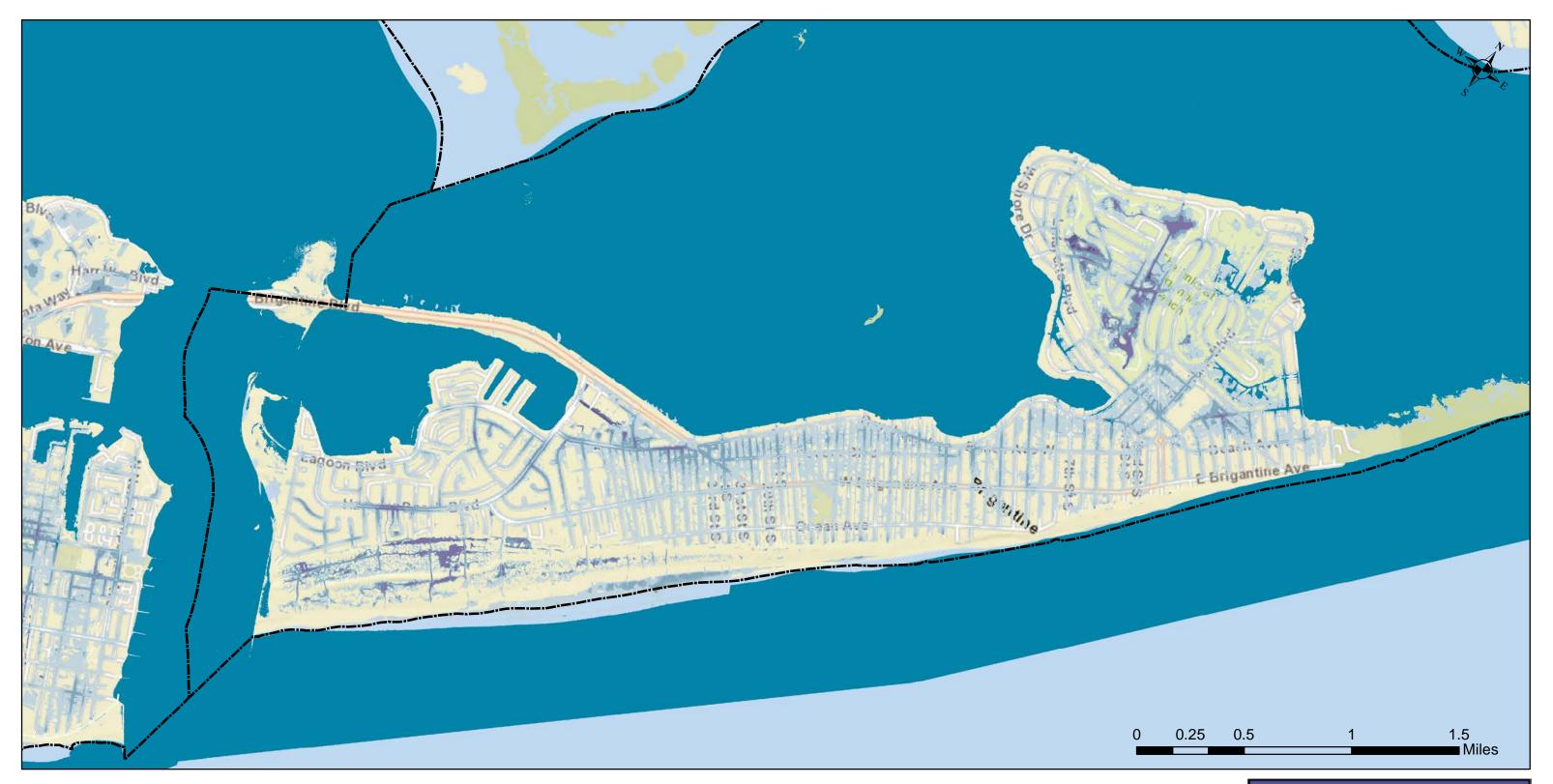


5 – 30 ft

2 – 5 ft

1 – 2 ft

0.01 – 1 ft



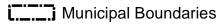
# **Brigantine**

### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap



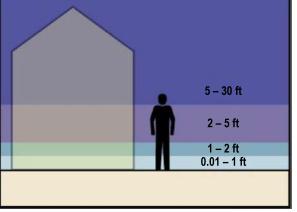


MHHW +SLR 2050 (1.4 ft) +1% Annual Chance, 24 hr Storm Event + 6% Increase in Rainfall (Depth in feet)



2 - 5







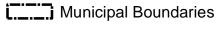
# **Longport, Margate City, and Ventnor City**

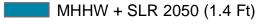
### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS Models
- Municipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap



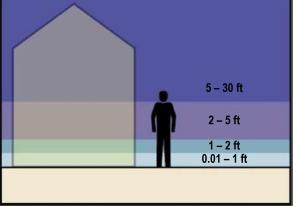


MHHW +SLR 2050 (1.4 ft) +1% Annual Chance, 24 hr Storm Event + 6% Increase in Rainfall (Depth in feet)











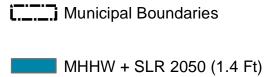
# **Atlantic City**

### Notes:

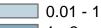
- Vertical datum is NAVD88Flood depths are depth in feet above ground level

### Sources:

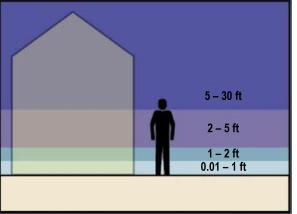
- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

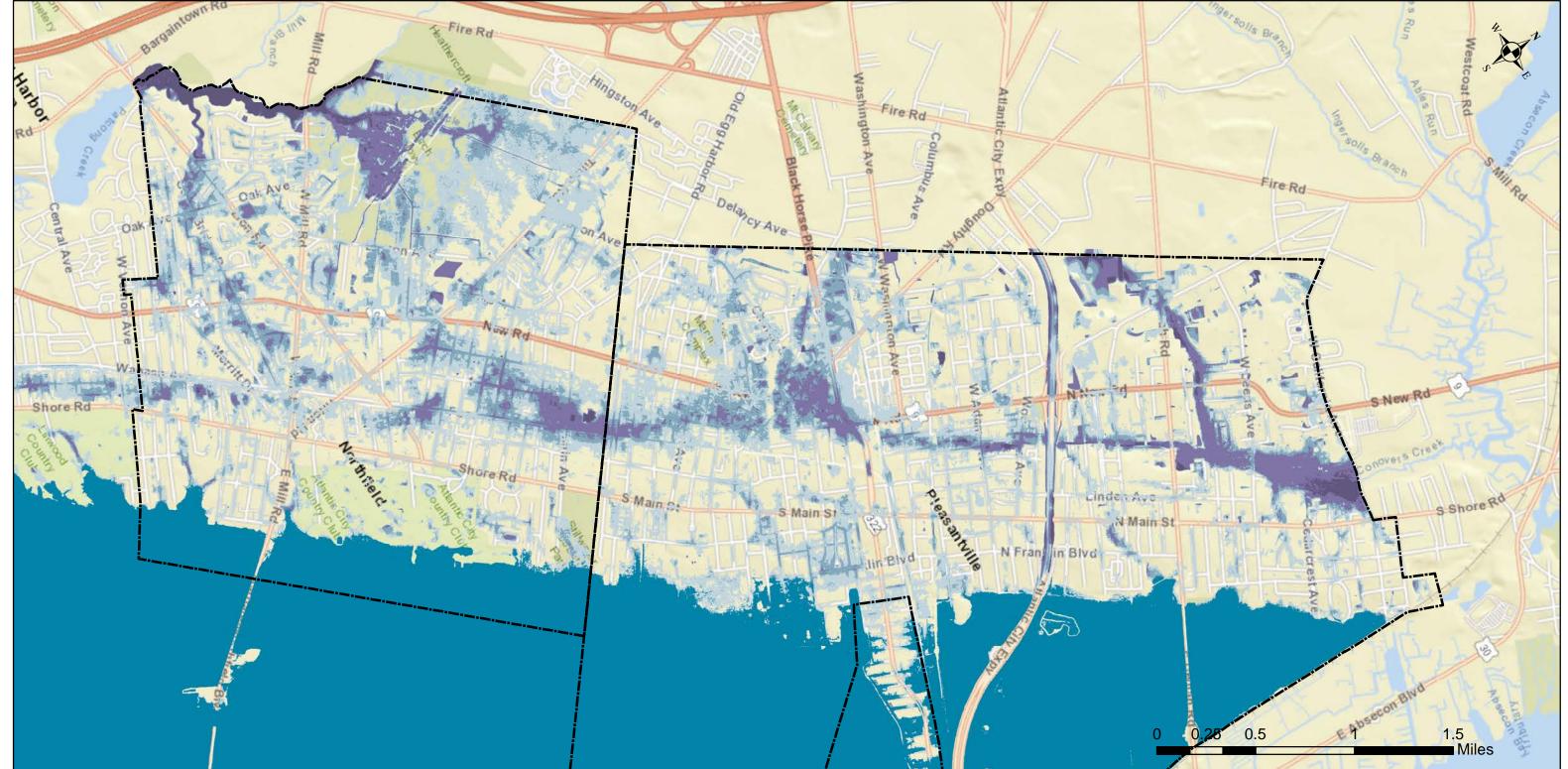


MHHW +SLR 2050 (1.4 ft) +1% Annual Chance, 24 hr Storm Event + 6% Increase in Rainfall (Depth in feet)









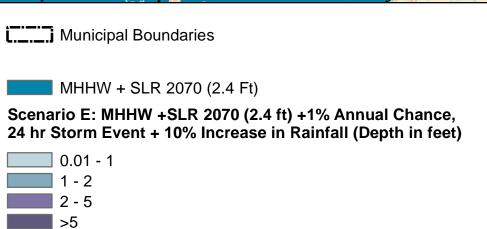
## **Northfield and Pleasantville**

### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

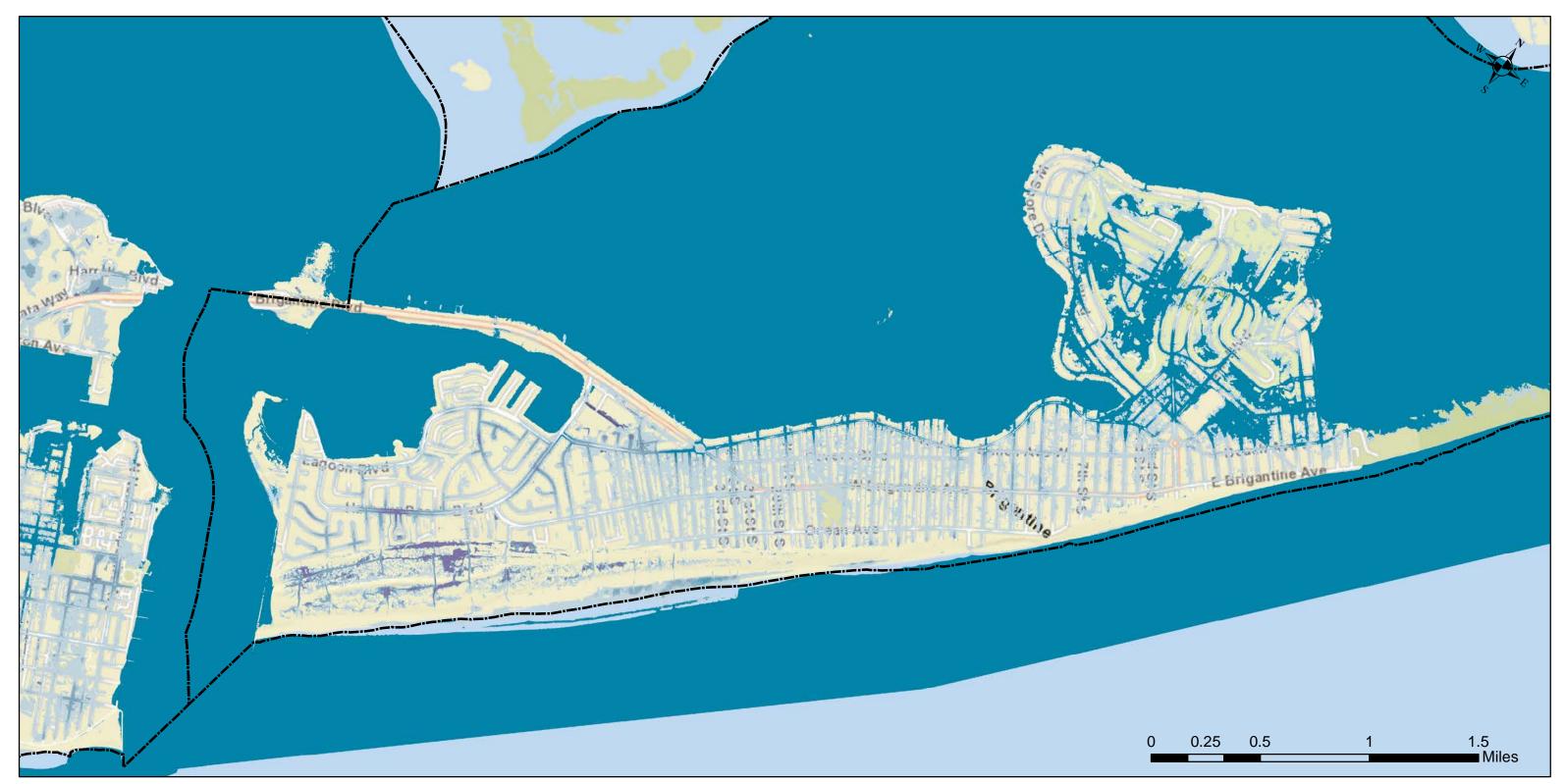


5 – 30 ft

2 – 5 ft

1 – 2 ft

0.01 – 1 ft



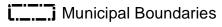
# **Brigantine**

### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap



MHHW + SLR 2070 (2.4 Ft)

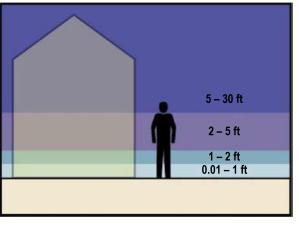
Scenario E: MHHW +SLR 2070 (2.4 ft) +1% Annual Chance, 24 hr Storm Event + 10% Increase in Rainfall (Depth in feet)



2 - 5









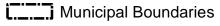
# **Longport, Margate City, and Ventnor City**

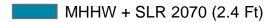
### Notes:

- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

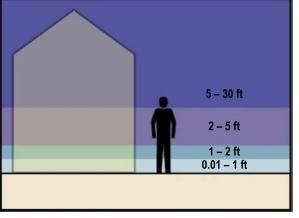




Scenario E: MHHW +SLR 2070 (2.4 ft) +1% Annual Chance, 24 hr Storm Event + 10% Increase in Rainfall (Depth in feet)









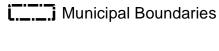
# **Atlantic City**

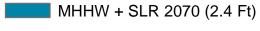
### Notes:

- Vertical datum is NAVD88Flood depths are depth in feet above ground level

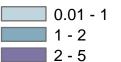
### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

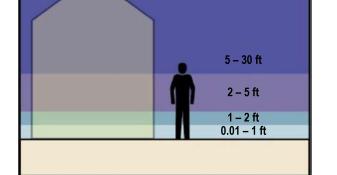


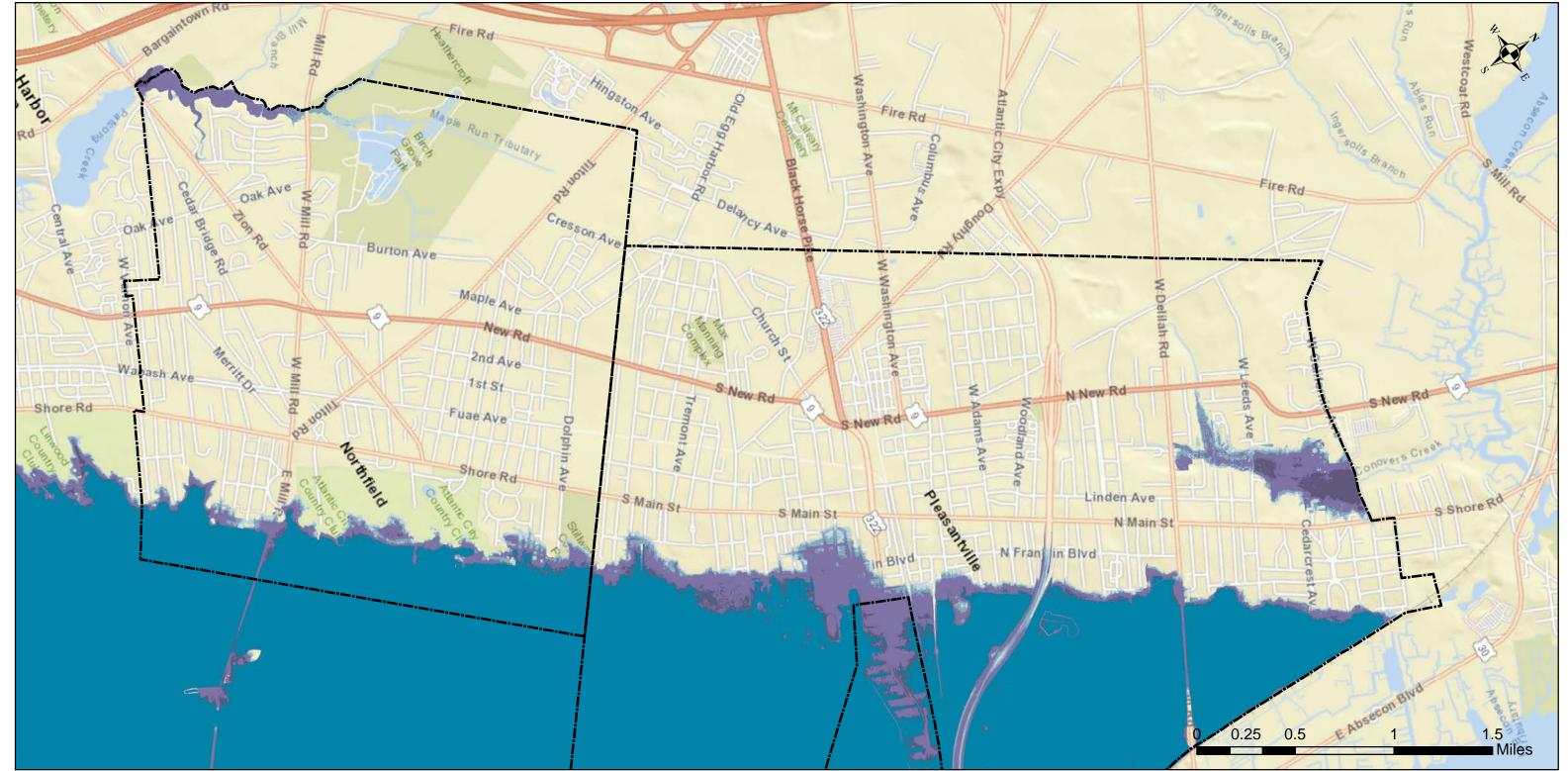


Scenario E: MHHW +SLR 2070 (2.4 ft) +1% Annual Chance, 24 hr Storm Event + 10% Increase in Rainfall (Depth in feet)



>5





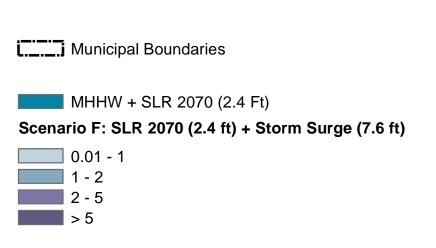
# **Northfield and Pleasantville**

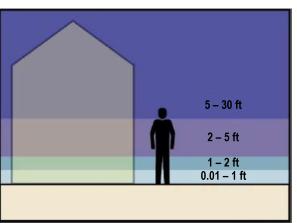
### Notes:

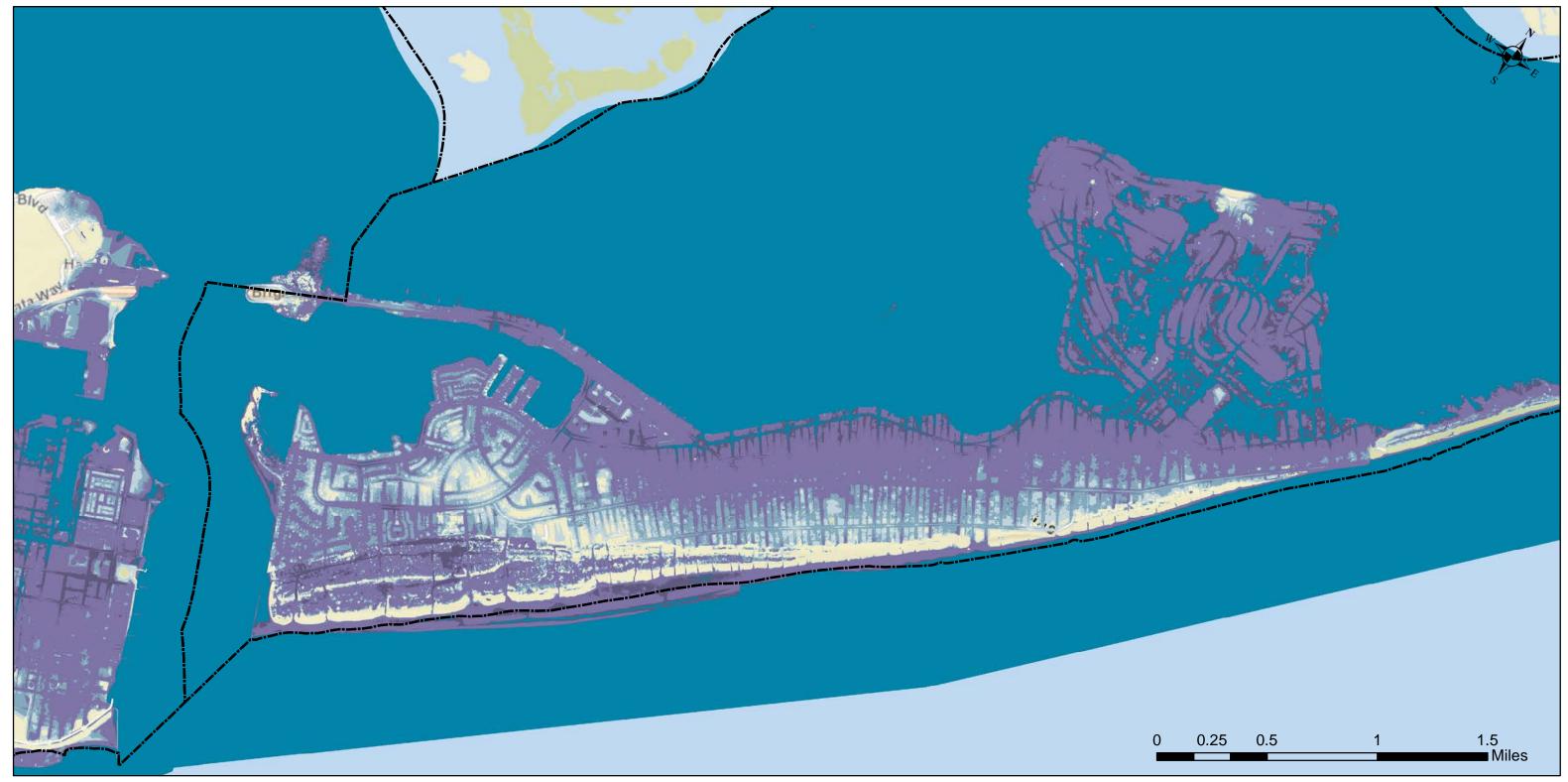
- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

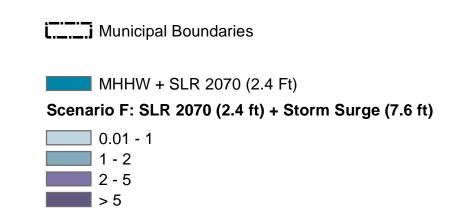
- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap

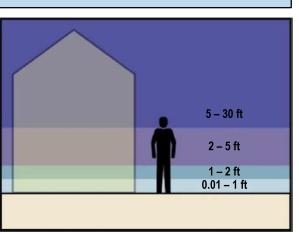


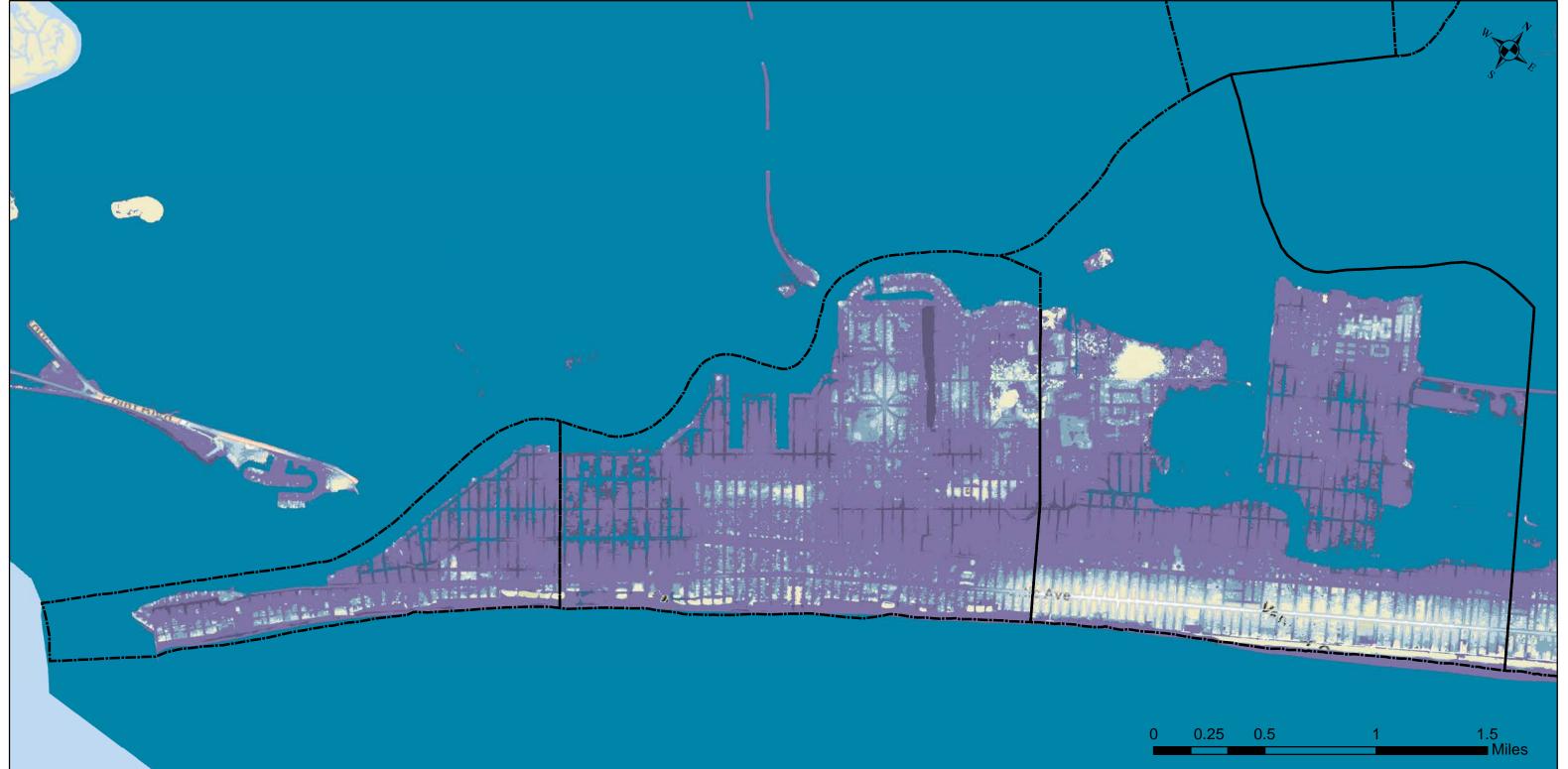












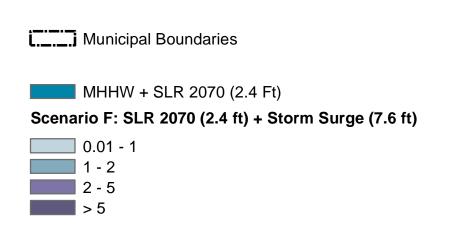
# **Longport, Margate City, and Ventnor City**

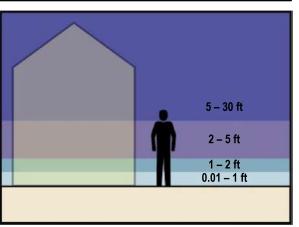
### Notes:

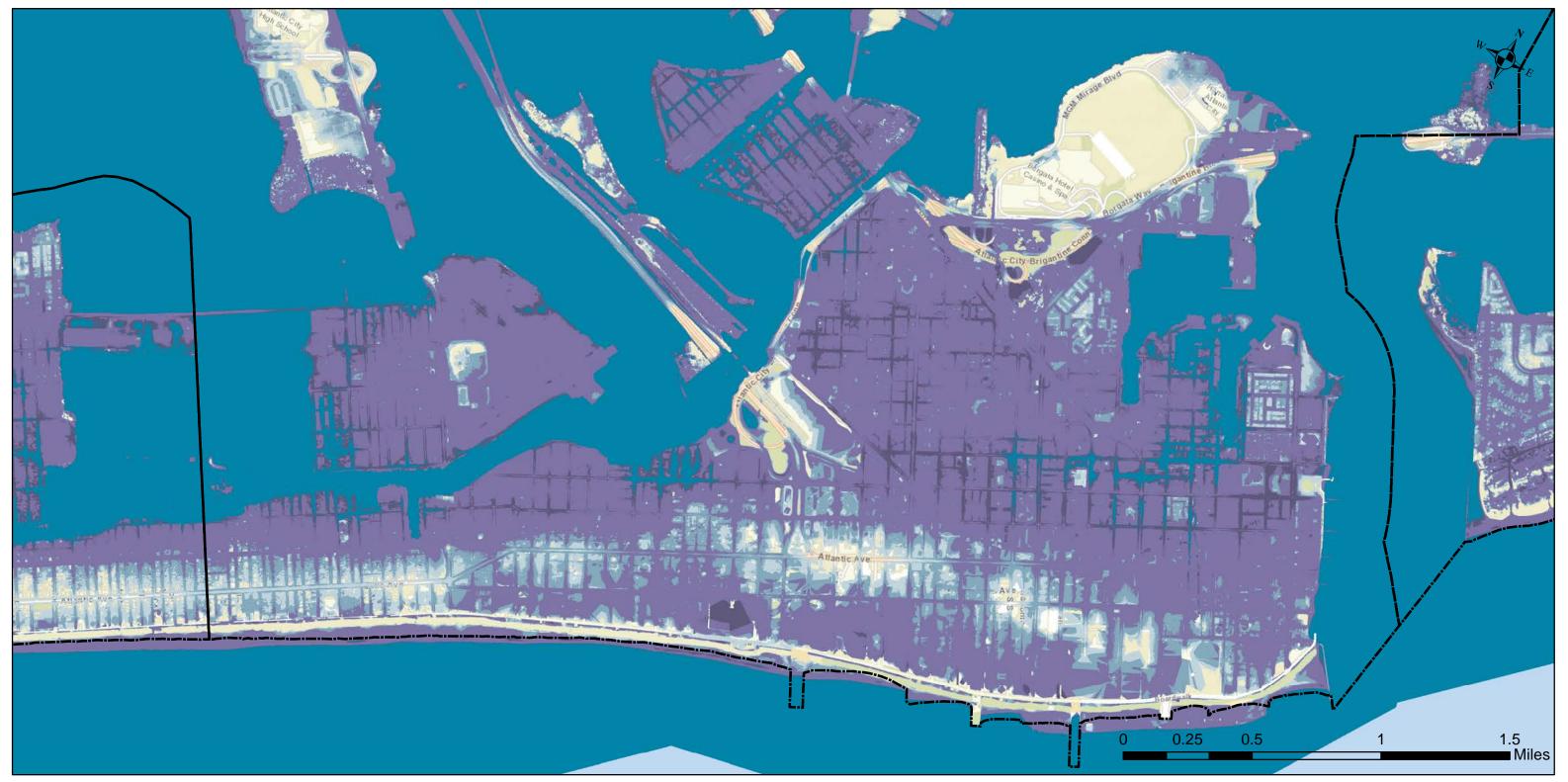
- Vertical datum is NAVD88
- Flood depths are depth in feet above ground level

### Sources:

- MHHW extent: ACCR Team
- Flood depth data: Michael Baker HEC-RAS ModelsMunicipal Boundaries: New Jersey Office of GIS
- Basemap: ESRI ArcMap





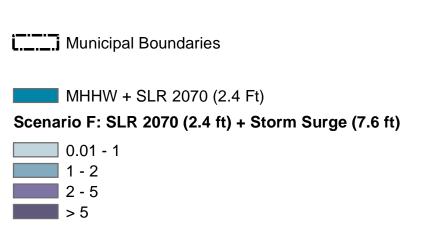


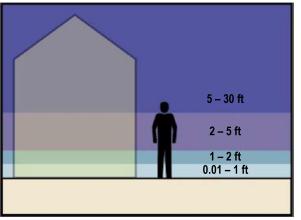
# **Atlantic City**

### Notes:

- Vertical datum is NAVD88Flood depths are depth in feet above ground level

- Sources:
   MHHW extent: ACCR Team
   Flood depth data: Michael Baker HEC-RAS Models
   Municipal Boundaries: New Jersey Office of GIS
   Basemap: ESRI ArcMap





# **APPENDIX**

# C ASSET DATABASE

# **C-1** NON-HOUSING ASSET COUNTS

# **APPENDIX**

Asset Categories and Types	Asset Count
Economic	2150
Commercial	45
Entertainment & Recreation	109
Light Industrial	152
Lodging	61
Retail Trade	1589
Sports	2
Technical/Business Services	188
Tourism	4
Sovernment Services	61
County Properties	15
Fire Station	11
Municipal Buildings	24
Police	11
Natural and Cultural Environment	191
Agriculture	5
Beach	59
Leisure	12
Library	4
Park	57
Places of Worship	17
Promenade	37
Resilience/ Sustainable Projects	22
Living Shoreline	1
Seawalls and Jetties	6
Shoreline Stabilization	1
Vegetative Shoreline Vertical Bulkhead	12
vertical Bulknead Social Infrastructure	2 <b>115</b>
Childcare	29
Health care	14
	4
Hospitals Nursing Home/Assisted Care Facilities	7
Schools	35
Shelter facilities	26
Fransportation	2867
Airport and Heliport	11
Boat Ramp	5
Bridges	44
Bus stops	825
Evacuation Routes	12
Federal State Route	4
Gas Station	36
Level crossing	3
Marina	39
Parking	47
Railway Track	1
Roads	1839
Train Station	1
Jtility Infrastructure	118
Communication	12
Electric Substation	2
Power plant	8
Recycle	3
Sanitary Sewer Pump Station	1
Sewage Pumping Station	2
Sewer Lift Station	7
Wastewater treatment	74
Water Storage Tank	3
Water Well	6
Grand Total	5524

# C-2 TOP AT-RISK ASSETS

The table on the following pages summarizes the top at-risk assets that were identified (assets with a risk level of at least 2.5) and provides flood depth data for these assets for all modeled flood conditions. These flood conditions are described in the table below, which also includes a "Short Name" field to link these conditions to the top at-risk assets table.

### Flooding Conditions Table

Short Name	Year	Sea Level Rise (ft)	Precipitation Event	Precipitation Increase	Storm Surge (ft)	DEP Original Flood Condition
SLR, 2030	2030	0.8	N/A	-	-	
SLR, 2050	2050	1.4	N/A	-	-	
SLR, 2070	2070	2.4	N/A	-	-	С
2% 2hr	Present Day	-	2% 2-hr	-	-	а
2% 2hr + 2%	Present Day	-	1% 24-hr	-	-	b
2% 2hr + 6%	2030	0.8	2% 2-hr	2%	-	
2% 2hr + 10%	2030	0.8	1% 24-hr	2%	-	
1% 24hr	2050	1.4	2% 2-hr	6%	-	
1% 24hr + 2%	2050	1.4	1% 24-hr	6%	-	
1% 24hr + 6%	2070	2.4	2% 2-hr	10%	-	d
1% 24hr + 10%	2070	2.4	1% 24-hr	10%	-	е
Sandy + 2070 SLR	2070	2.4	N/A	-	7.6	f

Marcis   M													Dept	h of Floo	dina. Re	ounded (fe	eet)			
Seeches Friedman 1. Martin Disconsistant of Name 1 Seeches Annual							Conseq. of	Risk	SLR,	SLR,	SLR,	2						% 24hr + 1	l% 24hr +	Sandy +
Page	Municipality	Asset Category	Asset Type	Name	Latitude	Longitude	Flooding	Level*	2030	2050	2070	2% 2hr	2%	6%	10%	1% 24hr	2%	6%	10%	2070 SLR
Properties by   Description   Communication   Description   Descriptio	Northfield City	Social Infrastructure	Nursing Home/Assisted Care Facilities	Meadowview Nursing and Rehabilitation Center	39.38	-74.54	5	14.71	-	-	-	1.34	1.37	1.45	1.51	2.77	2.80	2.87	2.94	-
Selection (1) (1) (1) (1) (1) (2) (2) (2) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	Brigantine City	Utility Infrastructure	Sewer Lift Station	Sewer Lift Station Sheridan Station	39.41559982	-74.37709808	5	14.16	-	-	2.33	0.70	0.76	0.85	2.56	2.35	2.37	2.31	2.83	7.94
	Pleasantville City	Utility Infrastructure	Communication	Tower:WOND-AM (Pleasantville)	39.39009857	-74.51210022	4	13.35	1.29	1.89	2.89	0.94	1.65	2.20	3.06	1.97	2.39	2.72	3.34	8.50
Progression   Symptomic   Sy	Atlantic City	Utility Infrastructure	Communication	Tower:WFPG-AM (Atlantic City)	39.3783989	-74.44760132	4	12.66	1.45	2.05	3.05	0.70	1.49	2.10	3.10	0.77	1.55	2.16	3.16	8.66
Part	Brigantine City	Utility Infrastructure	Water Well	Water Well #6	39.41630173	-74.35579681	5	11.85	0.57	1.17	2.17	0.11	0.76	1.31	2.23	0.32	0.95	1.48	2.37	7.78
Part	Pleasantville City	Utility Infrastructure	Communication	Tower:WMGM-FM	39.39400101	-74.50900269	4	11.02	0.70	1.30	2.30	0.17	0.89	1.49	2.46	0.83	1.50	1.98	2.75	7.91
Separate   Use   International   Commented   Department	Pleasantville City	Social Infrastructure	Health care	Pharmacy:Rite-Aid Pleasantville	39.39110184	-74.53230286	5	10.99	-	-	-	0.96	1.00	1.08	1.14	2.06	2.08	2.14	2.20	-
Martine   Seal Martine   Seal Martine   Mart	Pleasantville City	Economic	Retail Trade	PATEL, PRAVIN	39.391115	-74.530536	3	10.86	-	-	-	2.41	2.45	2.53	2.59	3.48	3.51	3.57	3.62	
Processing   Commer	Atlantic City	Utility Infrastructure	Communication	Tower:WFPG Radio Tower (Conway)	39.37900162	-74.44740295	4	10.27	0.85	1.45	2.45	0.13	0.90	1.50	2.50	0.22	0.96	1.56	2.57	8.06
Suppress Cyre   Norma   Suppress Name   Suppress Name   Personal	Atlantic City	Social Infrastructure	Shelter facilities	Atlantic City Pal Building	39.36539841	-74.43180084	5	9.44	-	-	-	1.11	1.13	1.17	1.21	1.80	1.82	1.86	1.89	5.72
Expending   Concess   Consistence   Amount	Pleasantville City	Economic	Retail Trade	PATEL, PRAVIN	39.39086952	-74.53058886	3	8.24	-	-	-	1.61	1.64	1.72	1.77	2.61	2.64	2.69	2.75	
NewSelf CPU   Securate   Real Trade   RPACLIC CO EDMAND G VORDAM D   Securate   Securate	Brigantine City	Transportation	Marina	Brigantine Marina & Paddle Club	39.39310074	-74.40720367	2	8.16	2.35	2.95	3.95	1.60	2.40	3.01	4.01	1.68	2.47	3.08	4.08	9.56
Security	Egg Harbor Township	Economic	Entertainment & Recreation	BAYVIEW MARINA LLC	39.35221061	-74.53919077	2	7.88	2.20	2.80	3.80	1.45	2.25	2.86	3.86	1.53	2.33	2.94	3.94	9.41
Presentable Cy   Extension   Result Tade   QUENTINE, FRANCIS   9,8840/FR PITTOR   9,884	Atlantic City	Economic	Retail Trade	RIPAC LLC C/O EDMUND C WIDEMAN, III	39.35709848	-74.4260735	3	7.67	-	-	-	2.02	2.03	2.07	2.10	2.47	2.48	2.53	2.56	5.09
Presentable Cy   Extension   Result Tade   QUENTINE, FRANCIS   9,8840/FR PITTOR   9,884	Atlantic City	Economic	Retail Trade	SPATOLA, SALVATORE		-74.41742408	3	7.57	-	-	-	2.02		2.06		2.45	2.47		2.52	6.03
Personative Cly   Recommo   Main Trade   SPASNORE ENTERMOSES NOT   39,000   39,000   30,000   174,0000   30,000   176   1,000   1,00	Pleasantville City	Economic	Retail Trade	GUENTHER, FRANCIS J	39.39107024	-74.53501978	3	7.45	-	-	-	1.21		1.33		2.33	2.36		2.48	-
Personal Policy   Personal P	Pleasantville City	Economic	Retail Trade	SEASHORE ENTERPRISES INC	39.38906287	-74.53533642	3	7.35	-	-	-	1.24	1.28	1.35	1.40		2.34	2.40	2.45	
Personal Processor   Congreg   VASS ALA SER NC   State   Sta	Pleasantville City		Bus stops	NEW RD AT RT 40/322		-74.53119659	2		-	-	-									
Nominifact Gy Nourul and cultural Environment MARGATE CITY 93.255602 7.45484003 9 0.00 1.07 0.07 0.05 1.24 0.24 0.14 0.79 1.30 2.29 Notempor City Museling Apartments MARGATE CITY 93.25500 7.4556005 2 0.07 0.05 0.05 0.05 0.30 0.31 0.32 0.39 Notembor City Museling Apartments MARGATE CITY 93.45500 7.4556005 2 0.07 0.05 0.05 0.05 0.30 0.31 0.32 0.39 Notembor City Museling Apartments MARGATE CITY 93.45500 7.4556005 2 0.07 0.05 0.05 0.05 0.05 0.05 0.05 0.05	Egg Harbor Township	Economic	Lodging	YASH KAILASH INC	39.38042459	-74.493499	3	7.03	0.54	1.14	2.14	0.68	0.85	1.30	2.24	1.05	1.22	1.50	2.34	7.75
Magnet City   Unity Infrastructure   Master order treatment   Master Order   Master order treatment   Master Order   Master order   Master order order   Master order order   Master order   Master order order   Master order   Mast	Northfield City	Natural and cultural Environment	Park	Glencove Park	39.35549927	-74.54940033	3	6.97	0.57	1.17		-		1.24						7.78
Processor   Proc	Margate City	Utility Infrastructure	Waste water treatment	MARGATE CITY	39.32220078	-74.51370239	5	6.81	-	-	0.14	0.73				1.29				5.75
Neutral Corp.   Neutral and outstrat Environment   Park   Clematis Aeesure Park   39,375/1985   74,257/1985   74	Pleasantville City	Housing	Apartments	NJBF000079777			2	6.79	-	-	_	0.05	0.13			3.06	3.13			4.38
Pleasanthilo Cy   10.010   1	Pleasantville City	Natural and cultural Environment	Park	Clematis Avenue Park	39.37519836	-74.52799988	3	6.72	0.48	1.08	2.08	-	0.55			0.25	0.73	1.27	2.24	7.69
League Regard Program   Services   Fire Statistics   Program Fire Department   39,31150005   74,5278015   5   0.9   -   0.88   0.97   0.90   0.98   1.28   1.39   1.39   1.28	Pleasantville City	Housing	Affordable Housing	Pleasantville Twr Annex	39.39475169	-74.53830023	4	6.59	-	-	_	0.60	0.62	0.70	0.88		1.56	1.60	1.65	-
Presentation   Pres	•	Government Services	Fire Station	Fire station:Longport Fire Department	39.31150055	-74.52780151	5	6.39	-	-	_	0.86	0.87	0.90						5.28
Northfield City   Natural and outland Environment   Park   Silliwater Park   39,3440005   74,52278877   3   6,17   0,05   1,50   7,0   0,80   1,00   1,10   1,16   1,10   1,16   1,17	Pleasantville City			0, ,			2		-	-	-									
Pleasanthic City   Economic   Setal Trade   APPLE FARM LLC & LEJO CORP   38,385/4581   74,5359/4781   3   5,52	Northfield City	Natural and cultural Environment	Park	Stillwater Park		-74.53279877	3		-	0.55	1.55									7.16
Misuria Coly   Enonmic   Commercial   Harmin   33/81952   744.4903137   3   5.90   .   . 0.42   0.32   1.24   4.14   1.10   1.	,	Economic	Retail Trade	APPLE FARM LLC & LEJO CORP			3		-	-	-									-
Mergascoly   Social Infrastructure   Shelter Racilities   W.H. ROSS III SCHOOL   39.33410128   74.55021977   5   5.84	•						3		-	-	0.42									6.03
Pleasanthle City Egg Hathor Township Commic Services Serv	•		Shelter facilities	W.H. ROSS III SCHOOL			5		-	-	-									4.56
Egg Harbor Township   Conomic   Lodging   DAND, JANAK N. & HANISA J.   33.83410027   74.53031862   3   5.65   0.07   0.67   1.67   0.30   0.33   1.76   0.68   1.07   1.34   1.87	,	Economic	Retail Trade	GUENTHER BROS LLC			3		-	-	-	0.65	0.69							-
Pleasanthille City Nutural end cultural Environment Place of Worship Place of Worship Care Country Assays 2003 4 5.58 - 0. 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4		Economic	Lodging	DAND, JANAK N. & HANSA J.	39.38410027	-74.50301852	3	5.61	0.07	0.67	1.67	-	0.39	0.93		0.66	1.07		1.87	7.28
Allantic City   Tansportation   Bus stops   South Carolina Awe at Mediterranean Awe   39,36669922   74,4469877   2   5.43   . 0.98   1.87   1.89   1.94   2.00   2.63   2.65   2.69   2.72			5 5				4		_	-	-	0.41								
Egg Harbor Township   Economic   Lodging   VASH KAILASH INC   S9.380184   -74.482675   3   5.38   0.01   0.61   1.61   0.17   0.38   0.78   1.70   0.63   0.75   0.99   1.80	•								-	_	0.98									
Attentic City Housing Apartments NUBF000069943 93,385125 -74,418674 2 5.36 2.07 2.08 2.12 2.15 2.60 2.62 2.65 2.68    Progression Transplant City Commit Retail Trade JUST ALIGNMENTS & TIRES LLC 93,384685 -74,54037186 3 5.31 1.02 1.04 1.08 1.11 1.63 1.66 1.71 1.77    Regulator Township Conomic Retail Trade JUST ALIGNMENTS & TIRES LLC 93,384685 -74,550321 3 5.30 - 0.51 1.51 - 0.25 0.79 1.61 0.55 0.66 1.26 1.77    Margate City Government Services Municipal Buildings Margate City Hall 93,22229996 -74,51370239 5 5.77 - 0.48 0.10 0.11 0.14 0.69 0.70 0.70 0.70 0.73 1.03    Presearchille City Housing Apartments NJBF000079740 39,41294 -74,505742 2 5.17 0.03 0.47 0.51 0.61 0.98 0.98 1.01 1.05    Presearchille City Economic Technical/Business Services TEPEDINO, REGINA 39,3675031 -74,42590112 3 5.08 0.03 0.14 0.25 2.25 2.21 2.43 2.56    Northfield City Housing Apartments NJBF000079737 39,412726 -74,505991 2 5.02 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Housing Apartments NJBF000079737 39,412726 -74,505991 2 4,97 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Housing Apartments NJBF000079737 39,41267 -74,505991 2 4,97 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Housing Apartments NJBF000079737 39,412726 -74,505991 2 4,97 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Housing Apartments NJBF000079737 39,412726 -74,505991 2 4,97 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Housing Apartments NJBF000079738 39,38034828 -74,505991 2 4,97 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51    Presearchille City Economic Retail Trade O, DUNG 39,38034828 -74,505991 3 4,96 0.45 1.45 0.07 0.79 0.84 0.88 1.53 1.66 1.60 1.65    Presearchille City Economic Retail Trade OARNS, THOMAS & ELEANOR 39,390348 -74,525739716 5 4,74 0.20 0.37 0.41 0.49 0.55 1.45 1.48 1.80 1.60 1.60    Presearchille City Economic Retail Trade OARNS, THOMAS & ELEANOR 39,3933896 -74,525739716 5 4,74 0.20 0.37 0.41 0.49 0.55 1.45 1	,	Economic	•				3		0.01	0.61										7.22
Egg Harbor Township   Economic   Retail Trade   JID REALTY GROUP LLC   39.38826796   -74.54037186   3   5.31   -   -   -   -   1.02   1.04   1.08   1.11   1.63   1.66   1.71   1.77	Atlantic City						2		_	-	-									5.94
Egg Harbor Township   Economic   Retail Trade   JUST ALIGNMENTS & TIRES LLC   39.3848685   -74.505222   3   5.30   -0.51   1.51   - 0.25   0.79   1.61   0.55   0.96   1.26   1.77    Margate City   Government Services   Municipal Buildings   Margate City Hall   39.32229996   -74.51370239   5   5.27   - 1   - 0.43   0.47   0.51   0.61   0.98   0.98   1.01   1.05    Retail Trade   JUST ALIGNMENTS & TIRES LLC   39.3848685   -74.5056232   3   5.30   - 0.51   1.51   - 0.25   0.79   1.61   0.55   0.96   1.26   1.77    Margate City   Government Services   Municipal Buildings   Margate City Hall   39.2229996   -74.51370239   5   5.27   - 1   - 0.40   0.40   0.47   0.69   0.70   0.70   0.73   0.71   0.10    Retail Trade   JUST ALIGNMENTS & TIRES LLC   39.3848685   -74.505622   3   5.17   - 0.40   0.48   0.10   0.69   0.70   0.70   0.73   0.70   0.73   0.70   0.73   0.70    Retail Trade   JUST ALIGNMENTS & TIRES LLC   39.3846845   -74.505632   3   5.17   - 0.40   0.48   0.47   0.69   0.70   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.73   0.70    Retail Trade   JUST ALIGNMENTS & TIRES LLC   39.3846845   -74.505632   3   5.09   5.27   - 0.40   0.48   0.40   0.48   0.68   0.70   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.73   0.70   0.70   0.73   0.70   0.70   0.70   0.70   0.73   0.70	,						3		-	-	-									-
Margate City Government Services Municipal Buildings Margate City Hall 39.3222996 74.51370239 5 5.27 - 0.43 0.47 0.51 0.61 0.98 0.98 1.01 1.05 Engantine City Utility Infrastructure Sewer Lift Station Sewer Lift Station 39.4139874 74.36830139 5 5.77 - 0.48 0.10 0.11 0.14 0.69 0.70 0.70 0.73 0.73 1.03 Pleasantville City Housing Apartments NJBF000079740 39.41264 74.505638 2 5.13 - 0 - 0.03 0.14 0.25 2.25 2.31 2.43 2.56 Northfield City Economic Technical/Business Services TEPEDINO, REGINA 39.36524374 74.565638 2 5.13 - 0 - 0.04 0.49 0.55 1.58 1.60 1.65 1.69 Pleasantville City Housing Apartments NJBF000079760 39.41276 74.505691 2 5.02 - 0.013 0.14 0.26 0.26 0.37 2.21 2.27 2.38 2.51 Pleasantville City Housing Apartments NJBF000079760 39.41276 74.505694 2 5.02 - 0.013 0.16 0.26 0.37 2.21 2.27 2.38 2.51 Pleasantville City Housing Apartments NJBF000079760 39.41276 74.505991 2 4.97 - 0.5 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51 Pleasantville City Housing Apartments NJBF000079760 39.41276 74.505991 2 4.97 - 0.5 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51 Pleasantville City Housing Apartments NJBF000079760 39.41276 74.505991 2 4.97 - 0.5 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51 Pleasantville City Economic Lodging AKSHARPRIT LLC 39.38408426 74.50332877 3 4.96 - 0.45 1.45 - 0.17 0.72 1.54 0.46 0.87 1.14 0.56 Pleasantville City Economic Retail Trade DO, DUNG 39.38034116 74.49375715 3 4.96 - 0.39 1.39 - 0.09 0.55 1.53 0.26 0.46 0.75 1.53 Pleasantville City Economic Retail Trade DO, DUNG 39.390348 74.5328035 3 4.83 - 0.00 0.37 0.41 0.49 0.55 1.47 1.50 1.55 1.61 Pleasantville City Economic Retail Trade MB MARKLAND CONST CO 39.37303965 74.42141666 3 4.79 - 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	Egg Harbor Township						-		_	0.51	1.51	-								7.13
Brigantine City   Utility Infrastructure   Sewer Lift Station   Sewer	Margate City						5			-	_	0.43								
Pleasant/lile City Housing Apartments NJBF000079802 39.41294 -74.505742 2 5.17 0.03 0.14 0.25 2.25 2.32 2.44 2.58   Pleasant/lile City Housing Apartments NJBF000079740 39.41264 -74.505638 2 5.13 0.03 0.14 0.25 2.25 2.31 2.43 2.56   Nothfield City Economic Technical/Business Services TEPEDINO, REGINA 39.36624374 -74.56289736 3 5.09 0.47 0.49 0.54 0.58 1.58 1.60 1.65 1.70   Natlantic City Transportation Gas Station Atlantic County Facilities Management 39.36750031 -74.42990112 3 5.08 0.91 0.93 0.97 0.92 0.97 0.102 1.61 1.63 1.67 1.69   Pleasant/lile City Housing Apartments NJBF000079737 39.412617 -74.50554 2 5.02 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51   Pleasant/lile City Housing Apartments NJBF000079760 39.412726 -74.505991 2 4.97 0.45 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Brigantine City		· · · · ·	,			-			_	0.48									
Pleasantville City Housing Apartments NJBF00079740 39.41264 -74.505638 2 5.13 0.03 0.14 0.25 2.25 2.31 2.43 2.56 Northfield City Economic Technical/Business Services TEPEINO, REGINA 39.36624374 74.56289736 3 5.09 0.47 0.49 0.54 0.58 1.58 1.60 1.65 1.70 Atlantic City Transportation Gas Station Atlantic County Facilities Management 39.36750031 74.42990112 3 5.08 0.91 0.93 0.97 1.02 1.61 1.63 1.67 1.69 Pleasantville City Housing Apartments NJBF00007973 39.412617 -74.50554 2 5.02 0.13 0.16 0.26 0.37 2.16 2.22 2.38 2.51 Pleasantville City Housing Apartments NJBF000079760 39.412766 74.505591 2 4.97 0.13 0.16 0.26 0.37 2.16 2.22 2.38 2.51 Pleasantville City Economic Lodging AKSHARPRIT LLC 39.38408426 -74.50332877 3 4.96 - 0.45 1.45 - 0.17 0.72 1.54 0.46 0.87 1.14 1.65 Northfield City Economic Technical/Business Services TEPEINO, REGINA 39.36634828 -74.56357488 3 4.95 - 0.05 0.79 0.84 0.88 1.53 1.56 1.60 1.65 1.65 1.65 1.65 1.65 1.65 1.65 1.65	Pleasantville City	·					-			_	-		-	-	-					3.56
Northfield City	Pleasantville City		· ·							-	_	-	0.03	0.14	0.25					3.47
Attantic City Transportation Gas Station Attantic County Facilities Management 39.36750031 -74.42990112 3 5.08 0.91 0.93 0.97 1.02 1.61 1.63 1.67 1.69   Pleasantville City Housing Apartments NJBF000079737 39.412617 -74.50554 2 5.02 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51   Pleasantville City Housing Apartments NJBF000079760 39.412726 -74.505991 2 4.97 0.5 0.13 0.16 0.26 0.37 2.21 2.27 2.38 2.51   Pleasantville City Housing Apartments NJBF000079760 39.412726 -74.505991 2 4.97 0.5 0.17 0.72 1.54 0.46 0.87 1.14 1.65   Pleasantville City Economic Lodging AKSHARPRIT LLC 39.38408426 -74.50332877 3 4.96 - 0.45 1.45 - 0.17 0.72 1.54 0.46 0.87 1.14 1.65   Pleasantville City Economic Technical/Business Services TEPEDINO, REGINA 39.36634828 -74.56357488 3 4.95 0.76 0.79 0.84 0.88 1.53 1.56 1.60 1.65   Pleasantville City Economic Retail Trade DO, DUNG 39.390348 -74.5328035 3 4.83 0.37 0.41 0.49 0.55 1.47 0.46 0.75 1.63   Pleasantville City Economic Retail Trade MB MARKLAND CONST CO 39.37033965 -74.42141666 3 4.79 - 0.45 1.00 1.03 1.08 0.99 1.75 1.78 1.80 1.60   Pleasantville City Economic Retail Trade CGF ASSOC 39.39132721 -74.53009933 3 4.76 0.037 0.41 0.49 0.55 1.45 1.48 1.53 1.59   Pleasantville City Economic Retail Trade GGF ASSOC 39.39132721 -74.53009933 3 4.76 0.037 0.41 0.49 0.55 1.45 1.48 1.53 1.59   Pleasantville City Economic Retail Trade GGF ASSOC 39.39132721 -74.52039716 5 4.74 - 0.020 0.35 0.45 0.54 0.72 0.59 0.70 0.79 0.95   Pleasantville City Economic Retail Trade GGF ASSOC 39.39132721 -74.52039716 5 4.74 0.020 0.35 0.45 0.54 0.75 0.59 0.70 0.79 0.95   Pleasantville City Economic Retail Trade GGF ASSOC 39.39132721 -74.52039716 5 4.74 0.020 0.35 0.45 0.54 0.75 0.59 0.70 0.79 0.95 0.95   Pleasantville City Economic Retail Trade GGF ASSOC 39.39132721 -74.52039716 5 4.74 0.020 0.35 0.45 0.54 0.75 0.59 0.70 0.79 0.95 0.95 0.95 0.95 0.70 0.99 0.95 0.95 0.95 0.95 0.95 0.95 0.9	Northfield City		•						_	-	_	0.47								
Pleasant/ille City   Housing   Apartments   NJBF000079737   39.412617   -74.50554   2   5.02   -   -   -   0.13   0.16   0.26   0.37   2.21   2.27   2.38   2.51	Atlantic City						-		-	_	_									
Pleasantiville City   Housing   Apartments	Pleasantville City	'		, ,			-		_	-	_									3.34
Egg Harbor Township	Pleasantville City		'						_	-	_	-	-	-	-					
Northfield City	Egg Harbor Township		•						-	0.45	1.45	_	0.17	0.72	1.54					
Egg Harbor Township         Economic         Retail Trade         DO, DUNG         39.38034116         -74.49375715         3         4.90         -         0.39         1.39         -         0.09         0.55         1.53         0.26         0.46         0.75         1.63           Pleasantville City         Economic         Retail Trade         CAIRNS, THOMAS & ELEANOR         39.390348         -74.5328035         3         4.83         -         -         -         0.37         0.41         0.49         0.55         1.47         1.50         1.55         1.61           Atlantic City         Economic         Retail Trade         M B MARKLAND CONST CO         39.37033965         -74.42141666         3         4.79         -         -         0.45         1.00         1.03         1.08         0.99         1.75         1.78         1.80         1.60           Pleasantville City         Economic         Retail Trade         CGF ASSOC         39.39132721         -74.53009933         3         4.76         -         -         0.37         0.41         0.49         0.55         1.45         1.48         1.53         1.59           Longport Borough         Government Services         Municipal Buildings         Borough Hall	Northfield City						-		-		-	0.76								
Pleasantville City							-		_	0.39	1.39	-								7.00
Atlantic City Economic Retail Trade MB MARKLAND CONST CO 39.37033965 -74.42141666 3 4.79 0.45 1.00 1.03 1.08 0.99 1.75 1.78 1.80 1.60   Pleasantville City Economic Retail Trade CGF ASSOC 39.39132721 -74.53009933 3 4.76 0.37 0.41 0.49 0.55 1.45 1.48 1.53 1.59   Longport Borough Government Services Municipal Buildings Borough Hall 39.31230164 -74.52739716 5 4.74 - 0.20 0.35 0.45 0.54 0.72 0.59 0.70 0.79 0.95	Pleasantville City						-		-	-	-	0.37								
Pleasantville City         Economic         Retail Trade         CGF ASSOC         39.39132721         -74.53009933         3         4.76         -         -         0.37         0.41         0.49         0.55         1.48         1.53         1.59           Longport Borough         Government Services         Municipal Buildings         Borough Hall         39.31230164         -74.52739716         5         4.74         -         -         0.20         0.35         0.45         0.72         0.59         0.70         0.79         0.95	Atlantic City			,			-		-	_	0.45									6.06
Longport Borough Government Services Municipal Buildings Borough Hall 39.31230164 -74.52739716 5 4.74 0.20 0.35 0.45 0.54 0.72 0.59 0.70 0.79 0.95	Pleasantville City						-			_	-									
	,								_	-	0.20									
Γοωσαιτνίτιο - Τουστική   Τουσ	Pleasantville City	Housing	Apartments	NJBF000079744	39.412657		2	4.70	-	_	-	-	-	-		2.03	2.09	2.21	2.35	

<sup>\*</sup> Note: Risk Level = [Consequence of Flooding] x [1% 24hr + 10% Flood Depth]

							Depth of Flooding, Rounded (feet)												
						Conseq. of	Risk	SLR,	SLR,	SLR,	;		2% 2hr + 2		-		1% 24hr + <i>1</i>	1% 24hr +	Sandy +
Municipality	Asset Category	Asset Type	Name	Latitude	Longitude	Flooding	Level*	2030	2050	2070	2% 2hr	2%	6%	10%	1% 24hr	2%	6%	10%	2070 SLR
Atlantic City	Housing	Affordable Housing	46 N Connecticut Av	39.3649956	-74.4172461	4	4.68	-	-	-	0.59	0.61	0.64	0.67	1.10	1.11	1.14	1.17	4.44
Atlantic City	Transportation	Bus stops	NEW HAMPSHIRE AVE AT MELROSE AVE#	39.37170029	-74.41539764	2	4.67		-	-	1.77	1.79	1.82	1.85	2.33	2.37	2.35	2.33	
Atlantic City	Utility Infrastructure	Power plant	ATLANTIC CITY ELECTRIC CO	39.36596443	-74.44220232	4	4.65		-	-	0.41	0.43	0.47	0.51	1.06	1.08	1.12	1.16	
Atlantic City	Transportation	Marina	Historic Gardener's Basin	39.37670135		2	4.61	0.29	0.89	1.89	0.47	1.08	1.53	2.29	0.49	1.09	1.55	2.30	
Pleasantville City	Housing	Apartments	NJBF000079845	39.413093		2	4.60		-	-	-	-	-	-	1.97	2.04	2.16	2.30	
Northfield City	Economic	Technical/Business Services	HARDING ONE, LLC	39.37734537	-74.55347269	3	4.58		-	-	0.97	0.99	1.03	1.05	1.45	1.46	1.50	1.53	
Atlantic City	Economic	Retail Trade	CARDANI, JOSEPH W. & CARDANI JAMES	39.35857587	-74.44734378	3	4.58		0.26	1.26	-	0.22	0.57	1.35	0.33	0.66	0.94	1.53	
Atlantic City	Transportation	Bus stops	SOUTH CAROLINA AVE AT BALTIC AVE	39.36539841	-74.4285965	2	4.57		-	0.55	1.45	1.47	1.51	1.57	2.20	2.22	2.26	2.28	
Ventnor City	Economic	Retail Trade	AMERICAN TOWER SYSTEMS, LP	39.34198804	-74.50059032	3	4.56		-	-	0.81	0.83	0.87	0.89	1.45	1.46	1.50	1.52	
Egg Harbor Township	Economic	Retail Trade	JUST ALIGNMENTS & TIRES LLC	39.384999		3	4.56	-	0.26	1.26	-	-	0.54	1.37	0.30	0.72	1.01	1.52	
Margate City	Government Services	Fire Station	Fire station:Margate City Fire Department	39.32239914	-74.51370239	5	4.51		-	-	0.29	0.33	0.36	0.45	0.82	0.82	0.86	0.90	
Northfield City	Economic	Retail Trade	MASON PROPERTIES LLC	39.36768917	-74.55503083	3	4.48		-	-	0.90	0.92	0.97	1.01	1.41	1.43	1.46	1.49	
Atlantic City	Economic	Retail Trade	SCHIFF ENTERPRISES	39.35666921	-74.42779204	3	4.48	-	-	-	1.11	1.12	1.14	1.16	1.42	1.44	1.47	1.49	
Atlantic City	Housing	Apartments	NJBF000070199	39.366188		2	4.42		•	-	1.72	1.73	1.75	1.78	2.14	2.16	2.18	2.21	5.72
Egg Harbor Township	Economic	Lodging	DAND, HANSA J.	39.38058781	-74.49393455	3	4.38	-	0.23	1.23	-	-	0.39	1.36	-	0.28	0.58	1.46	6.84
Atlantic City	Transportation	Bus stops	North Carolina Ave at Mediterranean Ave	39.36729813	-74.42849731	2	4.28		-	0.42	1.30	1.33	1.37	1.43	2.06	2.08	2.12	2.14	
Atlantic City	Economic	Light Industrial	ATLANTIC CITY SEWERAGE COMPANY	39.366723	-74.428684	4	4.21		-	-	0.21	0.23	0.28	0.34	0.97	0.99	1.03	1.05	4.94
Northfield City	Economic	Retail Trade	THE DANDY GROUP LLC	39.372684	-74.5557055	3	4.20		-	-	1.06	1.08	1.11	1.13	1.35	1.36	1.38	1.40	-
Atlantic City	Utility Infrastructure	Power plant	ATLANTIC CITY ELECTRIC CO	39.36609774	-74.44303588	4	4.16	-	-	-	0.31	0.32	0.36	0.40	0.94	0.96	1.00	1.04	4.81
Margate City	Transportation	Bus stops	VENTNOR AVE AT MONROE AVE	39.32030106	-74.51740265	2	4.14	-	-	0.98	1.45	1.47	1.51	1.63	2.11	2.09	2.10	2.07	6.59
Egg Harbor Township	Economic	Retail Trade	HI-HO MOTEL INC	39.38303096	-74.500373	3	4.14	-	0.20	1.20	-	-	0.36	1.28	-	0.29	0.59	1.38	6.81
Northfield City	Economic	Retail Trade	SLOTOROFF, HOWARD & JILL	39.372496	-74.555908	3	4.06	-	-	-	0.97	0.99	1.02	1.04	1.31	1.32	1.33	1.35	-
Northfield City	Natural and cultural Environment	Park	Birch Grove Park	39.38420105	-74.56410217	3	4.05	-	-	-	0.32	0.34	0.40	0.44	1.18	1.22	1.29	1.35	-
Atlantic City	Economic	Retail Trade	BOARDWALK INVESTMENT PROP	39.3576745	-74.4248195	3	4.03	-	-	-	0.78	0.80	0.84	0.87	1.27	1.28	1.31	1.34	3.94
Northfield City	Economic	Technical/Business Services	CMC OF ABSECON, LLC	39.3754945	-74.5529635	3	4.02	-	-	-	0.31	0.32	0.39	0.40	1.18	1.21	1.27	1.34	-
Pleasantville City	Transportation	Bus stops	NEW RD AT NOAHS RD	39.38890076	-74.53500366	2	4.01	-	-	-	0.77	0.81	0.89	0.95	1.87	1.90	1.95	2.00	-
Northfield City	Economic	Technical/Business Services	NIKMEHR PROPERTIES, LLC	39.37712235	-74.55343462	3	3.98	-	-	-	0.80	0.81	0.85	0.87	1.25	1.26	1.30	1.33	-
Atlantic City	Transportation	Bus stops	Mediterranean Ave at Indiana Ave	39.36410141	-74.43589783	2	3.97	-	-	-	1.30	1.32	1.36	1.39	1.89	1.91	1.94	1.98	5.75
Atlantic City	Economic	Retail Trade	GINSBURG BAKERY, INC	39.36619915	-74.43213975	3	3.97	-	-	-	0.55	0.57	0.60	0.64	1.23	1.25	1.29	1.32	5.16
Brigantine City	Utility Infrastructure	Water Storage Tank	Water Storage Tank 14TH Street Tank	39.40399933	-74.3742981	5	3.94	-	-	-	0.19	0.31	0.41	0.50	0.49	0.62	0.70	0.79	5.59
Northfield City	Economic	Retail Trade	SAGGESE, JOHN & DONNA	39.37760052	-74.55362518	3	3.93	-	-	-	0.69	0.71	0.75	0.77	1.22	1.24	1.27	1.31	-
Atlantic City	Housing	Affordable Housing	Lenape Landing Apts	39.3680524	-74.4405295	4	3.90	-	-	-	0.19	0.21	0.25	0.28	0.88	0.90	0.93	0.98	4.75
Northfield City	Economic	Entertainment & Recreation	1200 TILTON ROAD LLC	39.37492066	-74.55295504	2	3.87	-	-	-	0.71	0.73	0.78	0.80	1.75	1.79	1.86	1.93	-
Pleasantville City	Transportation	Parking	Parking	39.40769958	-74.5286026	3	3.85	-	-	-	0.30	0.33	0.39	0.45	1.09	1.13	1.21	1.28	-
Margate City	Transportation	Bus stops	VENTNOR AVE AT WASHINGTON AVE	39.32229996	-74.5141983	2	3.85	-	-	0.73	1.30	1.31	1.35	1.46	1.86	1.85	1.88	1.92	6.34
Atlantic City	Economic	Commercial	Bally's	39.35651779	-74.43273163	3	3.84	-	-	-	0.46	0.48	0.53	0.57	1.17	1.19	1.23	1.28	4.16
Pleasantville City	Economic	Retail Trade	JP RAIL INC	39.39210846	-74.52610593	3	3.83	-	-	-	-	-	-	-	1.24	1.25	1.26	1.28	-
Pleasantville City	Economic	Retail Trade	GENESIS LAND HOLDINGS LLC	39.39582736	-74.54095519	3	3.79	-	-	-	0.32	0.34	0.39	0.44	1.12	1.15	1.20	1.26	-
Atlantic City	Social Infrastructure	Shelter facilities	Atlantic City Convention Center	39.37760162	-74.4701004	5	3.77	-	-	-	0.53	0.54	0.56	0.57	0.70	0.71	0.73	0.75	3.41
Pleasantville City	Housing	Apartments	NJBF000079733	39.412587	-74.505446	2	3.76	-	-	-	-	-	-	-	1.59	1.65	1.75	1.88	
Atlantic City	Economic	Technical/Business Services	TJM ATLANTIC CITY LLC	39.35736594	-74.43248691	3	3.74	-	-	-	0.54	0.56	0.60	0.63	1.13	1.16	1.20	1.25	
Pleasantville City	Economic	Retail Trade	HILL, HAROLD JR	39.384221	-74.53785	3	3.74	_	-	-	0.02	0.03	0.08	0.11	1.03	1.07	1.16	1.25	
Pleasantville City	Economic	Retail Trade	330 SOUTH MAIN ST PLEASANTVILLE LLC	39.388867	-74.526054	3	3.74		-	-	0.79	0.81	0.83	0.88	1.14	1.16	1.21	1.25	
Pleasantville City	Economic	Retail Trade	TONDO INC % STEVEN RITONDO	39.39042095		3	3.72		-	-	1.02	1.02	1.05	1.06	1.20	1.21	1.23	1.24	
Pleasantville City	Natural and cultural Environment	Places of Worship	Oasis United Methodist Church	39.3946991	-74.52580261	4	3.71		_	-	0.18	0.19	0.23	0.25	0.77	0.80	0.87	0.93	
Margate City	Economic	Retail Trade	THE FAMILY BRICKS, IV, LLC	39.32190296		3	3.69		_	0.08	0.60	0.62	0.66	0.77	1.20	1.18	1.20	1.23	
Atlantic City	Economic	Retail Trade	STARKMAN GENERAL PRODUCTS CO INC	39.37190016		3	3.52		_	-	0.49	0.51	0.54	0.56	1.07	1.09	1.13	1.17	
Atlantic City	Transportation	Bus stops	NEW HAMPSHIRE AVE AT MELROSE AVE#	39.37170029		2	3.48		_	_	1.18	1.20	1.23	1.26	1.74	1.77	1.76	1.74	
Atlantic City	Social Infrastructure	Schools	Brighton Avenue School	39.35580063		4	3.48	-		_	0.52	0.53	0.55	0.57	0.81	0.83	0.85	0.87	4.63
Atlantic City  Atlantic City	Economic	Retail Trade	SCHIFF, A & R SCHIFF	39.35766372		3	3.46				0.32	0.48	0.54	0.57	1.10	1.11	1.13	1.15	
Pleasantville City	Economic	Retail Trade	PLEASANT MANOR REST HOME LLC	39.39185587		3	3.46				0.46	0.48	0.10	0.19	0.99	1.02	1.09	1.15	
Pleasantville City	Economic	Light Industrial	619 CHURCH STREET LLC	39.39163367		3	3.45			_	0.20	0.20	0.10	0.19	1.00	1.02	1.09	1.15	
Pleasantville City	Economic	Retail Trade	REESE, PETER & LEIFER, MARK & COLLEEN	39.39602975		3	3.40	-		-	0.15	0.17	0.23	0.03	0.97	1.00	1.09	1.13	
•		_				2		-	-	-									
Atlantic City	Transportation	Bus stops	NEW YORK AVE AT MEDITERRANEAN AVE	J9.303099//	-74.43199921	۷	3.40	-	-	-	0.92	0.94	0.97	1.02	1.61	1.63	1.67	1.70	5.53

<sup>\*</sup> Note: Risk Level = [Consequence of Flooding] x [1% 24hr + 10% Flood Depth]

							Depth of Flooding, Rounded (feet)												
						Conseq. of	Risk	SLR,	SLR,	SLR,	2		2% 2hr + 2			-	1%24hr + 1	1% 24hr +	Sandy +
Municipality	Asset Category	Asset Type	Name	Latitude	Longitude	Flooding	Level*	2030	2050	2070	2% 2hr	2%	6%	10%	1% 24hr	2%	6%	10%	2070 SLR
Margate City	Economic	Retail Trade	VENTNOR AVE,JEWITT,M&LINDSEY,W&J	39.32213811	-74.51475784	3	3.36	<u> </u>	-	-	0.49	0.51	0.55	0.66	1.08	1.06	1.09	1.12	5.56
Northfield City	Economic	Retail Trade	DELLISANTI, MARGARET	39.37836716	-74.55386139	3	3.33		-	-	0.41	0.43	0.47	0.50	1.01	1.03	1.07	1.11	-
Atlantic City	Economic	Retail Trade	ATLANTIC CITY INVESTMENTS LLC	39.35752579	-74.42637855	3	3.33	-	-	-	0.54	0.56	0.60	0.64	1.03	1.04	1.08	1.11	3.69
Atlantic City	Economic	Retail Trade	NAMMOUR, MOUSA & TAMARA	39.36922316	-74.42194859	3	3.31		-	-	0.40	0.43	0.48	0.48	1.16	1.20	1.22	1.10	
Atlantic City	Economic	Retail Trade	807 BALTIC, LLC	39.36838724	-74.42311907	3	3.30	<u> </u>	-	-	0.33	0.36	0.41	0.46	1.11	1.14	1.17	1.10	5.34
Atlantic City	Natural and cultural Environment	Park	Winchester Avenue Park	39.35269928	-74.45570374	3	3.30		-	-	0.65	0.67	0.71	0.61	1.25	1.28	1.32	1.10	
Margate City	Economic	Retail Trade	BENNIE MANAGEMENT INC	39.32176915	-74.51443575	3	3.28		-	-	0.47	0.49	0.52	0.63	1.05	1.03	1.06	1.09	5.53
Pleasantville City	Economic	Retail Trade	SIMPKINS, GARY WILLIAM	39.38955849	-74.53390616	3	3.24		-	-	-	-	-	0.02	0.94	0.97	1.02	1.08	
Atlantic City	Economic	Retail Trade	MORNING STAR PENTECOSTAL CHURCH	39.36810548	-74.42380615	3	3.23		-	-	0.28	0.31	0.36	0.43	1.06	1.09	1.12	1.08	5.25
Atlantic City	Economic	Retail Trade	FEELEY'S HOTEL, INC C/O HORN,KAPLAN	39.35789827	-74.42662845	3	3.23		-	-	0.51	0.53	0.57	0.61	1.00	1.02	1.05	1.08	3.66
Atlantic City	Economic	Retail Trade	STARKMAN GENERAL PRODUCTS CO., INC.	39.37190067	-74.43578	3	3.23		-	-	0.37	0.38	0.42	0.44	0.97	0.99	1.03	1.08	4.84
Pleasantville City	Social Infrastructure	Nursing Home/Assisted Care Facilities	OUR LADYS RESIDENCE	39.38	-74.53	5	3.22		-	-	0.29	0.30	0.32	0.34	0.59	0.60	0.62	0.64	
Atlantic City	Economic	Retail Trade	MCKINLEY ASSOCIATES, L.L.C.	39.35411683	-74.45748919	3	3.21	<u> </u>	-	0.86	-		0.37	1.01	-	0.13	0.47	1.07	6.47
Margate City	Economic	Retail Trade	JSL ASSOCIATES, LLC	39.32222313	-74.51462643	3	3.19		-	-	0.43	0.45	0.49	0.60	1.02	1.00	1.03	1.06	5.50
Longport Borough	Natural and cultural Environment	Library	Library	39.3125	-74.52749634	3	3.19		-	0.55	0.03	0.28	0.48	0.88	0.22	0.47	0.68	1.06	6.16
Margate City	Economic	Retail Trade	SEABRIGHT HOUSE LLC	39.32287701	-74.51270346	3	3.13	<b>-</b>	-	-	0.51	0.52	0.55	0.61	0.96	0.97	1.00	1.04	5.31
Atlantic City	Transportation	Bus stops	VENTNOR AVE AT WINDSOR AVE	39.34909821	-74.45999908	2	3.09		-	-	1.26	1.27	1.29	1.30	1.53	1.54	1.55	1.55	5.13
Atlantic City	Economic	Technical/Business Services	TJM ATLANTIC CITY LLC	39.35755668	-74.43260339	3	3.09		-	-	0.42	0.44	0.47	0.50	0.92	0.94	0.98	1.03	3.91
Northfield City	Economic	Retail Trade	RICHARDS, ROBERT G SR & GEORGETTA	39.37185165		3	3.08	<u> </u>	-	-	0.66	0.68	0.70	0.72	0.98	0.99	1.01	1.03	
Margate City	Transportation	Bus stops	VENTNOR AVE AT WILSON AVE	39.32379913	-74.51159668	2	3.05		-	-	1.03	1.05	1.08	1.12	1.44	1.46	1.49	1.52	
Atlantic City	Economic	Retail Trade	PHILADELPHIA SUBURBAN DEVELOP. CORP	39.35904913	-74.44539306	3	3.04		-	0.36	0.84	0.37	0.33	0.60	1.86	1.41	1.12	1.01	5.97
Pleasantville City	Economic	Light Industrial	TASIA DEVELOPMENT LLC	39.38989107	-74.53540172	3	3.02	-	-	-	-	-	-	-	0.86	0.89	0.95	1.01	-
Longport Borough	Transportation	Bus stops	VENTNOR AVE AT 31ST AVE	39.31740189	-74.52259827	2	3.01		-	0.45	1.01	1.02	1.06	1.11	1.58	1.59	1.62	1.50	6.06
Margate City	Transportation	Bus stops	VENTNOR AVE AT OSBORNE AVE	39.3260994	-74.50700378	2	3.01		-	-	1.01	1.02	1.06	1.08	1.43	1.45	1.48	1.50	4.53
Pleasantville City	Economic	Light Industrial	BRADCO REALTY CORP	39.40940334	-74.52779235	3	2.98		-	-	-	-	-	-	0.80	0.84	0.92	0.99	-
Atlantic City	Economic	Retail Trade	IRELAND CHARLES H. SR.	39.353836	-74.441524	3	2.96	<u> </u>	-	-	0.43	0.44	0.47	0.49	0.90	0.91	0.95	0.99	3.84
Margate City	Transportation	Bus stops	VENTNOR AVE AT DOUGLAS AVE	39.33119965	-74.49690247	2	2.95	<b>-</b>	-	-	0.76	0.78	0.81	0.84	1.40	1.41	1.45	1.48	4.91
Pleasantville City	Transportation	Parking	Parking	39.39070129	-74.52200317	3	2.95		-	-	0.48	0.50	0.53	0.56	0.92	0.93	0.96	0.98	-
Brigantine City	Utility Infrastructure	Power plant	Small Power Station	39.40356064	-74.3740921	5	2.94	-	-	-	0.30	0.33	0.38	0.11	0.84	0.88	0.90	0.59	
Brigantine City	Economic	Retail Trade	ATLANTIC CITY ELECTRIC CO % L GASKO	39.403595	-74.373916	3	2.94	<u> </u>	-	-	0.69	0.71	0.76	0.55	1.19	1.24	1.26	0.98	5.00
Pleasantville City	Economic	Retail Trade	DOUGHTY PROPERTY LLC	39.391971	-74.534614	3	2.94		-	-	-	-	-	-	0.82	0.86	0.92	0.98	-
Brigantine City	Transportation	Marina	Jersey State Marine	39.40869904	-74.37010193	2	2.92		0.26	1.26		0.10	0.55	1.35		0.21	0.66	1.46	6.88
Margate City	Economic	Retail Trade	THE FAMILY BRICKS II, LLC	39.32178873		3	2.92	<u> </u>	-	-	0.35	0.37	0.41	0.52	0.95	0.93	0.95	0.97	5.44
Pleasantville City	Economic	Light Industrial	701 DELILAH LLC & SEVEN, O ONE DEL	39.40997132		3	2.92		-	-	-	-	-	-	0.80	0.83	0.91	0.97	
Atlantic City	Economic	Retail Trade	2647 FAIRMOUNT CORNER, LLC	39.35857549		3	2.92		-	0.36	0.84	0.36	0.30	0.58	1.86	1.41	1.08	0.97	5.97
Atlantic City	Transportation	Bus stops	KUEHNLE AVE AT ARKANSAS AVE	39.37319946		2	2.91		0.26		0.40	0.57	0.67	1.36	0.69	0.86	0.90	1.45	6.88
Atlantic City	Transportation	Bus stops	CONNECTICUT AVE AT DREXEL AVE#	39.37099838	-74.42140198	2	2.90		-	0.39	0.92	0.96	1.01	0.86	1.67	1.70	1.72	1.45	6.00
Atlantic City	Government Services	Municipal Buildings	CITY HALL, TENNESSEE &	39.36399841	-74.43599701	5	2.90	<u> </u>	-	-	-		-	-	0.49	0.51	0.55	0.58	4.44
Atlantic City	Housing	Apartments	NJBF000070327	39.366722	-74.430303	2	2.88		-	-	0.60	0.62	0.67	0.72	1.35	1.38	1.42	1.44	5.31
Atlantic City	Economic	Retail Trade	3401 WINCHESTER AVE LLC	39.35437289	-74.4531015	3	2.88		-	-	0.45	0.47	0.50	0.52	0.93	0.95	0.99	0.96	4.72
Pleasantville City	Economic	Retail Trade	APPLE FARM LLC & LEJO CORP	39.39471731	-74.5374245	3	2.88		-	-	0.15	0.17	0.23	0.28	0.85	0.88	0.92	0.96	-
Atlantic City	Economic	Retail Trade	SCHIFF ENTERPRISES	39.35723167	-74.42586157	3	2.87		-	-	0.44	0.46	0.49	0.52	0.88	0.90	0.93	0.96	3.50
Atlantic City	Transportation	Bus stops	ARCTIC AVE AT DELAWARE AVE	39.3667984		2	2.87		-	-	0.79	0.81	0.84	0.90	1.36	1.39	1.42	1.44	5.56
Ventnor City	Natural and cultural Environment	Park	Lilly Park	39.34400177		3	2.86		-	0.64	-	-	-	0.83	-	-	0.16	0.95	6.25
Atlantic City	Transportation	Gas Station	GULF SERVICE STATION #2910	39.35469818		3	2.85		-	-	0.59	0.60	0.63	0.65	0.91	0.92	0.95	0.95	4.78
Margate City	Economic	Retail Trade	9615 VENTNOR AVENUE LLC	39.32068824	-74.51734702	3	2.84		-	-	0.32	0.34	0.38	0.50	0.98	0.96	0.98	0.95	5.47
Longport Borough	Transportation	Bus stops	VENTNOR AVE AT 32ND AVE	39.31800079	-74.52159882	2	2.83		-	0.33	0.92	0.94	0.97	1.02	1.46	1.47	1.50	1.41	5.94
Atlantic City	Transportation	Bus stops	MAGELLAN AVE AT NEW YORK AVE#	39.36980057	-74.43460083	2	2.83		-	-	0.78	0.80	0.83	0.85	1.31	1.33	1.37	1.41	5.19
Brigantine City	Natural and cultural Environment	Leisure	Beach:Brigantine Beach	39.40209961	-74.3667984	2	2.82		-	0.80	-	0.15	0.49	1.05	0.08	0.50	0.83	1.41	6.41
Brigantine City	Utility Infrastructure	Water Well	Water Well #5	39.40390015	-74.37390137	5	2.81		-	-	0.28	0.30	0.34	0.18	0.70	0.74	0.75	0.56	4.88
Pleasantville City	Economic	Retail Trade	ARIAS, OLIVIA	39.39218339	-74.52160393	3	2.80		-	-	0.37	0.39	0.43	0.46	0.88	0.89	0.92	0.93	
Margate City	Transportation	Bus stops	VENTNOR AVE AT JEFFERSON AVE	39.32130051	-74.51599884	2	2.79	<u> </u>	-	0.26	0.78	0.79	0.83	0.95	1.39	1.37	1.39	1.39	
Northfield City	Economic	Technical/Business Services	NIKMEHR PROPERTIES, LLC	39.376917	-74.5533805	3	2.78		-	-	0.42	0.44	0.47	0.50	0.85	0.86	0.90	0.93	
Atlantic City	Transportation	Bus stops	FAIRMOUNT AVE AT MISSISSIPPI AVE	39.36029816	-74.4417038	2	2.78	<mark>-</mark>	-	-	0.65	0.67	0.73	0.77	1.30	1.32	1.36	1.39	4.75

<sup>\*</sup> Note: Risk Level = [Consequence of Flooding] x [1% 24hr + 10% Flood Depth]

								Depth of Flooding, Rounded (feet)											
						Conseq. of	Risk	SLR, SLR, SLR, 2%2hr + 2%2hr + 1%24hr + 1%24hr +								Sandy +			
Municipality	Asset Category	Asset Type	Name	Latitude	Longitude	Flooding	Level*	2030	2050	2070	2% 2hr	2%	6%	10%	1% 24hr	2%	6%	10%	2070 SLR
Margate City	Transportation	Bus stops	VENTNOR AVE AT CLERMONT AVE	39.33150101	-74.49590302	2	2.78	-	-	-	0.82	0.83	0.86	0.89	1.31	1.33	1.36	1.39	4.78
Margate City	Economic	Retail Trade	BAGLIVO, STEVEN	39.32160756	-74.51485485	3	2.77	<u>-</u>	-	-	0.29	0.31	0.35	0.47	0.89	0.87	0.89	0.92	5.38
Egg Harbor Township	Economic	Retail Trade	HI-HO MOTEL INC	39.38330162	-74.5007815	3	2.75	<mark></mark>	-	0.73	-	-	-	0.81	-	-	0.16	0.92	6.34
Atlantic City	Transportation	Bus stops	BALTIC AVE AT SOUTH CAROLINA AVE	39.36560059	-74.42870331	2	2.75	<mark></mark>	-	-	0.54	0.56	0.60	0.66	1.29	1.31	1.35	1.37	5.25
Atlantic City	Economic	Light Industrial	ATLANTIC CITY SEWERAGE CO	39.364331	-74.4693205	4	2.75	<mark></mark>	-	-	0.23	0.25	0.29	0.33	0.58	0.61	0.64	0.69	3.75
Atlantic City	Economic	Retail Trade	HOME ELITE LTD & TRENTON BAY LLC	39.35250369	-74.45758635	3	2.74	<u>-</u>	-	0.70	-	-	-	0.79	-	-	-	0.91	6.31
Margate City	Economic	Retail Trade	CBAG, LLC	39.32299594	-74.51346472	3	2.74	<u> </u>	-	_	0.35	0.37	0.40	0.47	0.82	0.83	0.87	0.91	5.25
Atlantic City	Economic	Technical/Business Services	READING 99, LLC	39.37039836	-74.43640833	3	2.74	<u>.</u> -	-	-	0.34	0.35	0.37	0.39	0.83	0.84	0.88	0.91	4.66
Egg Harbor Township	Economic	Retail Trade	GRANJA, JOSE	39.38619176	-74.5087805	3	2.73	-	-	0.51	-	-	-	0.67	-	0.01	0.33	0.91	6.13
Ventnor City	Transportation	Bus stops	DORSET AVE AT FULTON AVE	39.34840012	-74.4835968	2	2.72	-	-	0.01	0.68	0.70	0.74	0.88	1.25	1.27	1.30	1.36	5.63
Northfield City	Economic	Technical/Business Services	LALLY,MICHAEL & LORI	39.3659355	-74.563213	3	2.72	-	-	-	-	-	-	-	0.79	0.82	0.86	0.91	-
Atlantic City	Transportation	Bus stops	NORTH CAROLINA AVE AT BALTIC AVE	39.36600113	-74.42769623	2	2.71	-	-	_	0.52	0.54	0.59	0.64	1.27	1.29	1.33	1.35	5.25
Atlantic City	Transportation	Bus stops	FAIRMOUNT AVE AT MISSOURI AVE	39.3608017	-74.44049835	2	2.70	-	-	_	0.60	0.63	0.68	0.72	1.26	1.28	1.32	1.35	4.69
Longport Borough	Government Services	Police	Police Dept.	39.31280136	-74.52680206	5	2.69	-	-	_	0.12	0.19	0.27	0.20	0.53	0.60	0.68	0.54	5.31
Northfield City	Transportation	Bus stops	SHORE RD AT RIDGEWOOD DR	39.3606987	-74.55719757	2	2.69	-	-	_	0.96	0.97	1.00	1.02	1.29	1.30	1.32	1.34	-
Atlantic City	Transportation	Bus stops	Pop Lloyd Way at Indiana Blvd	39.3572998	-74.43139648	2	2.68	-	-	-	0.53	0.55	0.60	0.63	1.23	1.25	1.29	1.34	4.22
Atlantic City	Transportation	Bus stops	PORTER AVE AT ALBANY AVE	39.35559845	-74.45890045	2	2.66	-	-	-	0.93	0.95	0.97	0.97	1.34	1.36	1.39	1.33	5.28
Brigantine City	Transportation	Bus stops	Harbor Beach Blvd at Lighthouse Dr	39.38439941	-74.40049744	2	2.65	-	-	-	0.93	0.95	0.98	1.01	1.26	1.27	1.30	1.33	3.34
Northfield City	Economic	Retail Trade	KENSINGTON SQUARE,LLC	39.38801717	-74.5588565	3	2.64	-	-	-	0.45	0.47	0.49	0.51	0.81	0.83	0.86	0.88	-
Atlantic City	Housing	Apartments	NJBF000070859	39.368667	-74.418317	2	2.64	<u> </u>	-	-	0.79	0.80	0.82	0.85	1.26	1.29	1.31	1.32	5.50
Margate City	Economic	Retail Trade	GALLAGHER, MARIE	39.32231733	-74.51464546	3	2.64	-	-	-	0.25	0.27	0.31	0.42	0.83	0.81	0.84	0.88	5.31
Pleasantville City	Housing	Apartments	NJBF000079694	39.412375	-74.505558	2	2.64	-	-	-	-	-	-	-	1.05	1.10	1.19	1.32	2.09
Margate City	Transportation	Bus stops	VENTNOR AVE AT COOLIDGE AVE	39.32009888	-74.51809692	2	2.63	-	-	0.23	0.70	0.72	0.76	0.88	1.36	1.34	1.36	1.32	5.84
Atlantic City	Economic	Retail Trade	TAJA REAL ESTATE INVESTORS LLC	39.36565651	-74.42389265	3	2.63	-	-	_	0.37	0.38	0.40	0.43	0.81	0.83	0.87	0.88	4.81
Northfield City	Transportation	Bus stops	NEW RD AT CEDAR BRIDGE RD	39.36650085	-74.56259918	2	2.60	-	-	_	-	-	0.04	0.08	1.19	1.21	1.26	1.30	-
Atlantic City	Transportation	Bus stops	KUEHNLE AVE AT MISSOURI AVE	39.37210083	-74.45200348	2	2.59	-	0.14	1.14	-	-	0.30	1.21	-	0.12	0.43	1.29	6.75
Ventnor City	Transportation	Marina	Newport Marine Inc	39.34109879	-74.48519897	2	2.58	-	0.08	1.08	-	-	0.36	1.20	-	-	0.46	1.29	6.69
Atlantic City	Economic	Retail Trade	NY, ATLANTIC LLC	39.35914723	-74.42673718	3	2.57	-	-	_	0.28	0.38	0.41	0.43	0.78	0.80	0.83	0.86	3.38
Pleasantville City	Economic	Retail Trade	FREDERICK PROP LLC	39.38904373	-74.534673	3	2.56	-	-	-	-	-	-	-	0.71	0.74	0.80	0.85	-
Atlantic City	Economic	Technical/Business Services	BOARDWALK PIERS 3 LLC	39.35814523	-74.430084	3	2.54	-	-	_	0.27	0.29	0.32	0.35	0.76	0.78	0.81	0.85	3.66
Pleasantville City	Economic	Retail Trade	MARKMAN, ERWIN & BEBE	39.39060659	-74.52394838	3	2.53	-	-	-	0.61	0.62	0.64	0.65	0.81	0.81	0.83	0.84	-
Atlantic City	Housing	Affordable Housing	Atlantic City consumer group home	39.3685196	-74.4408385	4	2.52	<u>.</u> -	-	_	-	-	-	-	0.53	0.55	0.59	0.63	4.41

<sup>\*</sup> Note: Risk Level = [Consequence of Flooding] x [1% 24hr + 10% Flood Depth]

# **APPENDIX**

# D CROWD-SOURCED MAP COMMENTS

Index	Location Name	Lat.	Long.	Comments	Category Names
1	Absecon Boulevard	39.38963	-74.48389	Atlantic City Expressway, Routes 30 and 40, Route 152, and	
				Longport/Somers Point Causeway are critical highway routes	
2	Absecon Lighthouse	39.36629	-74.41435	-	Economic and social assets that matter for the community
3	ACME, WalMart, Wawa, AtlantiCare, FAA and casinos	39.35218	-74.47813	These are major employers for region	Economic and social assets that matter for the community
4	ACUA Wastewater Treatment Facility	39.38186	-74.44746	A major wastewater and stormwater treatment facility that is within the back bay area of Atlantic City. Has built some protective treatments, but represents a major piece of critical infrastructure	Critical Asset
5	Amherst Ave Marinas	39.32623	-74.51653	Amherst Avenue, between Decatur and Monroe avenues, is home to several marinas and bait and tackle shops, including small boat rentals. Part of "blue economy"	Economic and social assets that matter for the community, Long Term Community Vision
6	Area of significant erosion exposure	39.41692	-74.3531	Long history of beach nourishment along shore in Brigantine	Climate Risk and Vulnerability Identification
7	Area susceptible to flooding	39.38432	-74.52293	Area susceptible to flooding, Blue Acres buyout offers coming to 25 Pleasantville properties (9/7/2018)	Climate Risk and Vulnerability Identification
8	Atlantic Cape Community College	39.36372	-74.43143	ACCC is a major employer and economic asset for education and training.	Economic and social assets that matter for the community, Long Term Community Vision
9	Atlantic City Boardwalk	39.35101	-74.44746	-	Economic and social assets that matter for the community
10	Atlantic City Bus Terminal	39.35973		For local residents, bus transportation is important; NJ Transit and Greyhound buses provide service from Ohio & Arctic Ave stop. Jitneys are also important.	Economic and social assets that matter for the community, Critical Asset
11	Atlantic City Rail Terminal	39.36301	-74.4404	-	Economic and social assets that matter for the community
12	Atlantic City Rail Terminal	39.36301	-74.4404	Four stops on the rail line, could put more emphasis on reinvigorating it for both freight and passenger	Economic and social assets that matter for the community
13	Atlantic City Rail Terminal	39.36301	-74.4404	Rail line is important for getting to work as well as regional destinations (e.g., Philadelphia)	Critical Asset, Economic and social assets that matter for the community
14	Atlantic City Rail Terminal	39.36301	-74.4404	Rail Line in Atlantic City is critical to area	Critical Asset
15	Atlantic County Office of Fleet Management	39.38243	-74.5448	-	Critical Asset
16	Atlantic County Public Works	39.38163	-74.54592	-	Critical Asset
17	Atlantic County Records Storage	39.36126	-74.43167	Atlantic County property, Property ID: 6; Block 290; Lot: 5	Critical Asset

Index	Location Name	Lat.	Long.	Comments	Category Names
18	Atlantic County Youth Shelter	39.3775	-74.53875	Atlantic County Youth Services Commission's (YSC) mission is to plan and implement community based services and advocacy to prevent and reduce juvenile delinquency and improve the juvenile justice system.	Economic and social assets that matter for the community
19	AtlantiCare Regional Medical Center, Atlantic City Campus	39.35838	-74.43432	Critical infrastructure. Major employer.	Economic and social assets that matter for the community
20	AtlantiCare Regional Medical Center, Mainland Campus	39.47841	-74.54043	-	Economic and social assets that matter for the community
21	Campus	39.47841	-74.54043	Major employer	Economic and social assets that matter for the community
22	Back bay bulkhead vulnerability	39.35794	-74.45145	Many areas along back bay vulnerable to flooding; have gaps; deteriorating bulkheads	Flood Risk, Climate Risk and Vulnerability Identification, Failing Infrastructure
23	Bader Field	39.35715	-74.45839	Old airport that has not been used since permanently since 2006. Has been the host of redevelopment plans but nothing has come to fruition. Proposed design competition, 2019.	Long Term Community Vision
24	Bader Field	39.35715	-74.45839	Bader Field has been a food distribution site during COVID	Critical Asset
25	Birch Grove Park	39.37586	-74.56742	-	Critical Asset
26	Boardwalk	39.34874	-74.45173	Dumpster Exist on Beach without cover and all the Trash facilities on the beach are uncovered. Trash frequently blows onto the beach and then into the ocean.	Resilient Project Opportunity
27	Brigantine Beach	39.40214	-74.36687	-	Economic and social assets that matter for the community
28	Brigantine Golf Links	39.42075	-74.37072	-	Economic and social assets that matter for the community
29	California & Fairmount Aves	39.35872	-74.44659	This intersection floods frequently during "king-tides". Often, it floods regardless of rain. This is a main route for commuters and essentially restricts access to/from the blocks of California Ave and Arizona Ave. Opportunity to "living streets" and tie into existing park for flood mitigation?	Climate Risk and Vulnerability Identification, Flood Risk, Safety Concern, Resilient Project Opportunity, Project Visioning, Economic and social assets that matter for the community, Long Term Community Vision
30	Chelsea Heights	39.35072		floods during high tide – USACE studying area for CAP project	Climate Risk and Vulnerability Identification
31	Chelsea/Ducktown	39.35844	-74.44613	Back Bay side remains vulnerable to flooding	Climate Risk and Vulnerability Identification
32	Convention Center	39.36377	-74.43928	Convention Center is home to numerous events throughout the year. Convention Center service as a designated mega-center for COVID testing and vaccinations.	Critical Asset, Economic and social assets that matter for the community
33	Covenant Care	39.36446	-74.42276	Transitional facility important asset to community	Critical Asset, Economic and social assets that matter for the community

Index	Location Name	Lat.	Long.	Comments	Category Names
34	Department of Regional Planning and Development	39.38161	-74.54614	-	Critical Asset
35	Dorset Ave Bridge	39.34158	-74.47826	Dorset Ave Bridge in Ventnor lost electric power and had functional issue in past storms (Irene)	Climate Risk and Vulnerability Identification, Safety Concern, Failing Infrastructure
36	East Black Horse Pike	39.38203	-74.49358	Atlantic City Expressway, Routes 30 and 40, Route 152, and Longport/Somers Point Somers Point Causeway are critical highway routes	Critical Asset
37	East Brigantine Avenue	39.41554	-74.3531	At-grade vehicular access increases potential exposure to storm surge and sea level rise related exposure. May assess whether raised vehicular access bridge and increased vegetation could help prevent erosion of NE end of islande.	Climate Risk and Vulnerability Identification, Economic and social assets that matter for the community, Resilient Project Opportunity, Long Term Community Vision
38	East Brigantine Avenue	39.41562	-74.35345	Beach access is an asset to the community, driving on the beach is a unique amenity.  At the same time, at-grade vehicle access at this end of Brigantine may increase vulnerability to wave and storm surge related erosion.  Preservation of this natural area can increase wave attenuation and reduce flooding exporse for the NE side of Brigantine island.	Climate Risk and Vulnerability Identification, Economic and social assets that matter for the community, Long Term Community Vision
39	East Brigantine Avenue	39.41554	-74.3531	Flood gates for15 st. North	Climate Risk and Vulnerability Identification, Flood Risk
40	East Brigantine Avenue	39.41554	-74.3531	Flood gates for 15 st. North	Flood Risk
41	Edgewater Avenue	39.34242	-74.47786	Federal study in Ventnor for the area of Edgewater Bulkhead Heights that will address flooding that ends up closing Dorset Avenue. The Study has been awarded but hasn't started yet; it will come later this year.	Safety Concern, Flood Risk, Resilient Project Opportunity
42	FAA William J. Hughes Technical Center	39.44444	-74.56333	-	Economic and social assets that matter for the community
43	FAA William J. Hughes Technical Center	39.44444	-74.56333	FAA Tech Center is a major employer	Economic and social assets that matter for the community, Long Term Community Vision
44	Fairmount Avenue	39.36029	-74.4407	Multi-level parking garages in Atlantic City are often used to store resident's vehicles during major storm events. E.g.: The Wave parking garage in Atlantic City has been made available for people to park their vehicles during the upcoming flooding events in the gaming resort. The Casino Reinvestment Development Authority announced that the garage is made available so residents can move their vehicles away from high water.	
45	Faunce Landing	39.42654	-74.48648	Chronic flooding during highest high tides, prevents pedestrian + vehicle access. Opportunity for resilient/green infrastructure project.	Flood Risk, Resilient Project Opportunity
46	Fishing Area - North New Hampshire Avenue	39.37751	-74.41949	Fishing area in ACCR; component of "blue economy"	Economic and social assets that matter for the community

Index	Location Name	Lat.	Long.	Comments	Category Names
47	Gardners Basin Marina	39.37466	-74.42449	Home to charter boats, fishing cruises; part of "blue economy"	
48	Jeffries Towers Nutrition Site	39.37138	-74.41624	Atlantic County property.	Critical Asset
49	Jersey-Atlantic Wind Farm	39.38079	-74.44991	Located at Wastewater Treatment Plant 7.5 MW - five, 380-foot turbines – enough energy to power approximately 2,500 homes! Power produced, in conjunction with solar energy project, is used to operate the wastewater treatment plant, with any excess energy provided to the main power grid. Opened in December 2005, the wind farm is the first in the state. As an eastern, urban, coastal, industrial, onshore, multi-turbine wind farm, it is one that is unique to the world. http://www.acua.com/green-initiatives/renewable-energy/windfarm/	Critical Asset
50	Jfk Memorial Bridge	39.31563		Atlantic City Expressway, Routes 30 and 40, Route 152, and Longport/Somers Point Somers Point Causeway are critical highway routes	
51	Jim Whelan Boardwalk Hall	39.35504	-74.43848	-	Economic and social assets that matter for the community
52	John Brooks Recovery Center	39.39418	-74.53619	Outpatient facility	Economic and social assets that matter for the community, Critical Asset
53	John Brooks Recovery Center	39.36473	-74.43877	Recovery center for community members	Critical Asset
54	Longport Construction Code office	39.31189	-74.52765	Independent contractors for construction are major employment opportunities	Economic and social assets that matter for the community
55	Longport Drive	39.31701	-74.52316	Flooding at any rain event making the intersection impassable	Flood Risk, Safety Concern, Long Term Community Vision
56	Longport Terminal	39.3056	-74.53573	Groin just reconstructed. 1204-1298 Atlantic Ave https://www.nap.usace.army.mil/portals/39/docs/civil/absecon/broc hure-f-6.pdf	Resilient Project Opportunity
57	Longport Terminal	39.30553	-74.53577	Groin just reconstructed.	Resilient Project Opportunity
58	Melrose Avenue	39.36979	-74.42212	Chronic flooding due to stormwater accumulation and tidal flooding. Inhibits access to Gardner's Basin and Inlet from Absecon Blvd.	Climate Risk and Vulnerability Identification, Flood Risk, Economic and social assets that matter for the community, Safety Concern, Resilient Project Opportunity, Project Visioning

Index	Location Name	Lat.	Long.	Comments	Category Names
59	Monmouth Avenue	39.32065	-74.52308	Please consider installing "New Orleans style" pumps to clear water that backs up onto the roads through the sewers. Along with higher bulkhead requirements, pumps will help us remain flood free as the bay rises or during periods of severe thunderstorms!  Also, dredge the back bays and put the spoils on the existing marsh areas, raising their elevation. This would allow back bay flooding a place to go, rather than over our bulkheads.	
60	Monmouth Avenue	39.3207	-74.5229	Install pumps in ALL sewers that back up with storms or high tides!	Flood Risk
61	New seawall and Boardwalk at Oriental Ave	39.36615	-74.40986	-	Resilient Project Opportunity
62	North 30th Avenue	39.31797	-74.5246	This street floods. Seveveral reasons. There is a hump in the middle of the street at the corner of 30th and Winchester which dumps all the rain and flood water to the base of the street corner at 30th and Winchester. I have many photos I can provide. No one in the Engineering office would look at the photos. Also the drain on the corner does not take enough water. It takes a few drops before flooding. Terrible. Additionally the bulkhead on the bay at 30th has large holes which allows high tide water or storm surges into the street.	
63	North 30th Avenue	39.31793	-74 5246	All back bay bulkheads in Longport/Margate should be raised to ten feet above mean low.  Also, pumps should be installed on ALL sewers that back up during flood periods, those caused by storms or high tides!	Flood Risk
64	North Baltimore Avenue	39.3366	-74.49277	The area along Monmouth Avenue between Fredericksburg and Melbourne Avenues, which is especially prone to flooding, is expected to see relief now that the facility is operational. It is also expected to reduce flooding along Ventnor Avenue, a county roadway, as well as in other parts of Ventnor and Margate (see drainage map below). Excerpt from: http://www.acua.com/uploadedFiles/Site/About_Us/Ventnor%20Gardens%20Plaza%20Pump%20Station.03.16.pdf	Flood Risk, Climate Risk and Vulnerability Identification
65	North Baltimore Avenue	39.3366		Note: "the facility" in this comment refers to the Ventnor/Margate/Atlantic County/ACUA Ventnor Gardens Plaza Stormwater Pump Station	
66	North Brigantine	39.40461		The Northern end of Brigatine was one of the hardest-hit parts of our region after Sandy. Showcases the de jour post-storm residential planning, consisting of rebuild and home raises.	Safety Concern

Index	Location Name	Lat.	Long.	Comments	Category Names
67	North Brigantine State Natural Area	39.43119	-74.34888	Forsythe Refuge's Brigantine and Barnegat Divisions were originally two distinct refuges, established in 1939 and 1967 respectively, to protect tidal wetland and shallow bay habitat for migratory water birds. In 1984 they were combined under the Edwin B. Forsythe name, in honor of the late conservationist Congressman from New Jersey. Jersey. Str>The refuge's location in one of the Atlantic Flyway's most active flight paths makes it an important link in the vast network of national wildlife refuges administered nationwide by the U.S. Fish and Wildlife Service. Its value for the protection of water birds and their habitat continues to increase as people develop the New Jersey shore for our own use. Forsythe Refuge is a part of the Hudson River/New York Bight Ecosystem and The New Jersey Coastal Heritage Trail. In 1986 it was designated a Wetland of International Importance under The Convention on Wetlands of International Importance-otherwise known as the Ramsar Convention. Str>Https://www.stateparks.com/brigantine_national_wildlife_refuge_in_new_jersey.html	Climate Risk and Vulnerability Identification
68	North Pennsylvania Avenue	39.36822	-74.42712	Important place for area youth	Critical Asset, Flood Risk, Resilient Project Opportunity, Economic and social assets that matter for the community, Long Term Community Vision
69	North Yarmouth Avenue	39.31919	-74.52203	The N Yarmouth and Winchester intersection floods and becomes impassable more and more every year. The N Yarmouth sidewalks on the east side of Winchester are often under water, with water rising to the bottom step of the front stairs.	Flood Risk, Climate Risk and Vulnerability Identification
70	North Yarmouth Avenue	39.31897	-74.52209	flooding outside my house has got worse , i understand that mr rutala applyed for a grant to fix the flooding on winchester ave between 31 & 34 the application has met requirements i have owned my house for 50 years it,s time to correct the flooding out side my home 3206 winchester that corner is sinking i have been in touch with fema and will keep trying to get something done at this location	
71	Parkside Avenue & North New Hampshire Avenue	39.37611	-74.41786	Northern AC? Housing Development? Between Boardwalk and Parkside Ave, New Hampshire Ave to Delaware ave. A residential area of Atlantic City that has experienced significant underinvestment until recently. A good mix of "decaying" lots and new developments, some of which is low-income housing	Resilient Project Opportunity
72	Pleasantville Bus Terminal	39.39075	-74.52274	-	Economic and social assets that matter for the community

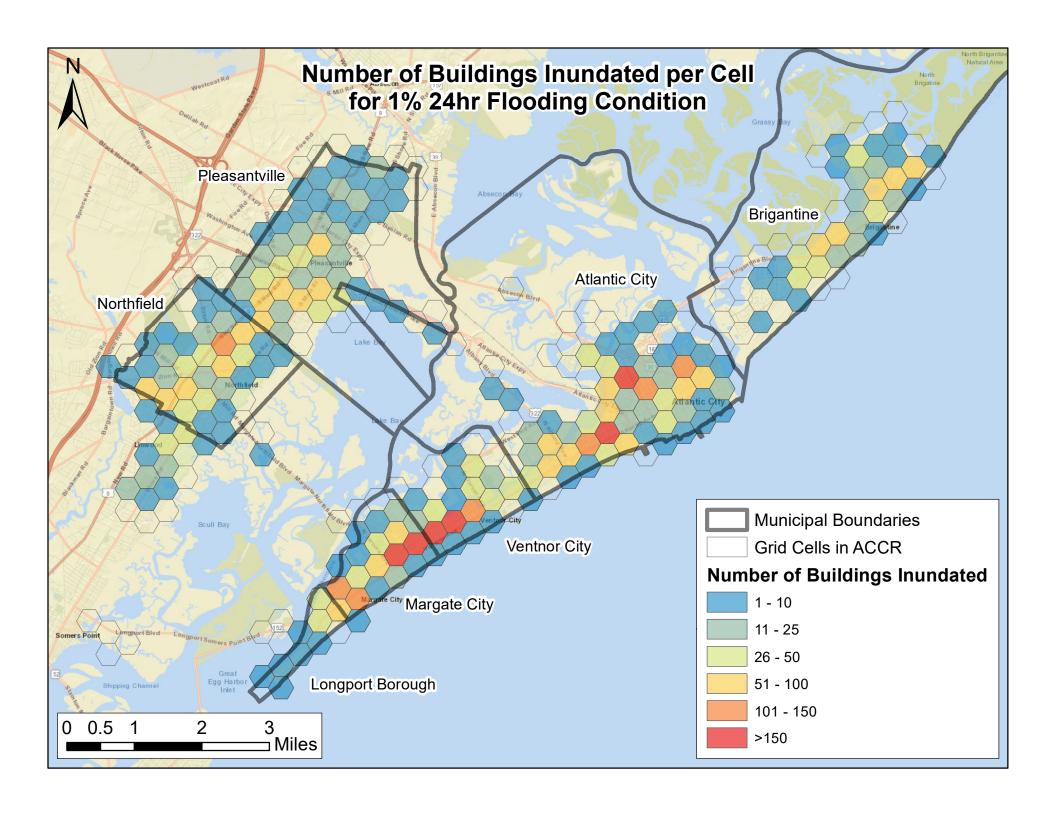
Index	Location Name	Lat.	Long.	Comments	Category Names
73	Pleasantville Bus Terminal	39.39075	-74.52274	Bus services in Pleasantville are important; Pleasantville is a Transit Village	Critical Asset
74	Potential Site Ventnor West Eco-Park	39.34604	-74.49236	The city's Master Plan suggests that the Ventnor-West parcel could feature the following: Kayak launch, Wildlife education area, Birdwatching, Small back-bay boardwalk, Observation area to view butterfly migration, Crabbing and fishing	Long Term Community Vision
75	Route 40	39.37643	-74.48401	regular flooding, buyouts ongoing	Climate Risk and Vulnerability Identification
76	Rt-40/322 at Fox PI	39.3821	-74.49869	Atlantic City Expressway, Routes 30 and 40, Route 152, and Longport/Somers Point Somers Point Causeway are critical highway routes	
77	Rte 40 & West End Ave	39.36066	-74.4627	The Department of Transportation is raising a portion of the road by up to 2.5 feet in a project that will cost around \$27.5 million and take three and a half years to construct, the state agency said in an email last week. A majority of the project will be federally funded. Expected construction start date is 2022.	Resilient Project Opportunity
78	Rte 40/Black Horse Pike	39.36935	-74.47547	Black Horse Pike is local arterial. Mix of vacant land, motels, residential, light industrial. Land uses on the roadway are not an economic driver for region, but the road serves as a key local arterial instead.	Critical Asset
79	Sewer leak at Bader Field May 2020	39.3598	-74.45692	-	Climate Risk and Vulnerability Identification
80	Sewer leak Feb 2021 - Wellington & Dorset Ave	39.34975	-74.48476	Sewer leak Ventnor (near Wellington and Dorset avenues in Ventnor) Feb 2021.	Climate Risk and Vulnerability Identification
81	South Washington Avenue	39.32228	-74.51329	Margate City Firehouse and Margate City Historical Society	Critical Asset
82	Steel Pier	39.35773	-74.41922	-	Economic and social assets that matter for the community
83	Stockton University - Atlantic City Campus	39.35052	-74.45497	Stockton University is an economic and educational asset; home to Coastal Resilience Institute. Major employer in ACCR	Economic and social assets that matter for the community, Long Term Community Vision
84	Stockton University Atlantic City	39.34942	-74.45407	Stockton University/South Jersey Industries. One of the major new economic investments since Sandy aside from Ocean Casino. Located away from the hotels, represents a good example of mixed-use in an area seriously lacking in it.	Economic and social assets that matter for the community
85	Stormwater Management under Boardwalk	39.34172	-74.46744	The Street Runoff is not being controlled	Safety Concern, Failing Infrastructure, Flood Risk, Economic and social assets that matter for the community
86	Trumps Castle Heliport	39.37995	-74.42684	-	Economic and social assets that matter for the community
87	Turning Point Center	39.36567	-74.43646	Turning Point transitional facility / day center for homeless	Economic and social assets that matter for the community, Critical Asset

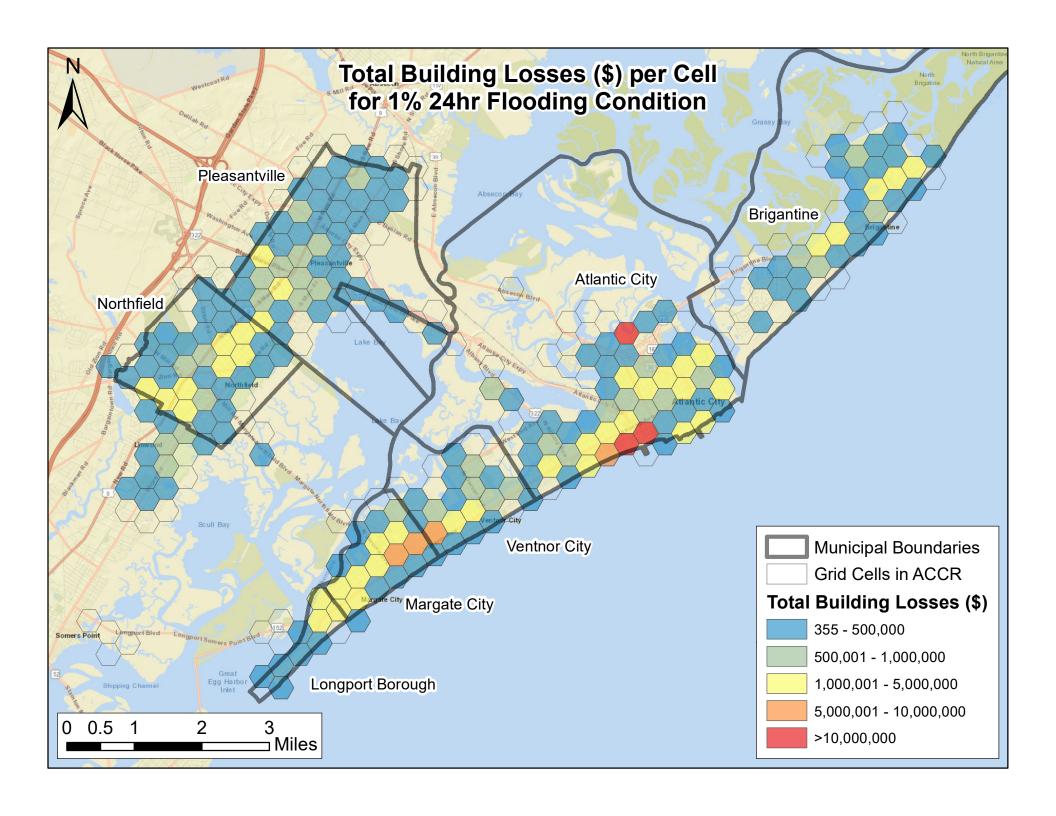
Index	Location Name	Lat.	Long.	Comments	Category Names
88	U.S. 9 & West Delilah Road	39.40793	-74.52027	Area at risk; prone to flooding. Evacuation route. Route 9 is roughly the western boundary of impact (though in many cases it was not this far) and represents the western border of the "back bay area". Showcases the spine of the two mainland communities in our region, Pleasantville and Northfield	Climate Risk and Vulnerability Identification
89	Various private ownership of back bay bulkheads	39.32274	-74.52272		Safety Concern
90	Venice Park Bridge	39.3736	-74.44427	Atlantic City - emergency declaration for the second Venice Park Bridge  Bridges on Ohio Avenue — one that crosses the Venice Lagoon and one that spans the Penrose Canal — were identified as being in need of replacement by the Federal Highway Administration's National Bridge Inventory in 2013.	Safety Concern, Critical Asset, Resilient Project Opportunity, Failing Infrastructure
91	Ventnor City Beach	39.3377	-74.47567	Active USACE beachfill project site – meet USACE QA rep	Resilient Project Opportunity
92	Ventnor City Hall	39.33791	-74.47977	-	Critical Asset
93	Ventnor Fishing Pier	39.33608	-74.4774	Fishing area in Ventnor; component of "blue economy"	Economic and social assets that matter for the community, Long Term Community Vision
94	Ventnor Gardens Plaza Stormwater Pump Station	39.33892	-74.48937	The Ventnor Gardens Plaza stormwater pump station, located at the end of Ventnor Gardens Plaza and Wissahickon Avenue near the intercoastal waterway, will help alleviate flooding in areas of Ventnor and Margate. Much of the stormwater in the area flows under Ventnor streets and empties into the bay at the location of the pump station. Excerpt from: http://www.acua.com/uploadedFiles/Site/About_Us/Ventnor%20Gardens%20Plaza%20Pump%20Station.03.16.pdf	Critical Asset
95	Ventnor Heights	39.34965	-74.48463	floods during high tide – USACE studying area for CAP project	Climate Risk and Vulnerability Identification
96	Veteran Affairs Center	39.37647	-74.53849	Veteran services office a critical asset to Northfield	Economic and social assets that matter for the community, Critical Asset
97	Veteran Affairs Center	39.37647	-74.53849	VA Center	Critical Asset, Economic and social assets that matter for the community
98	WaWa	39.34325	-74.47122	WaWa is a major employer in ACCR	Economic and social assets that matter for the community
99	WaWa	39.4079	-74.5212	WaWa is a major employer in ACCR	Economic and social assets that matter for the community

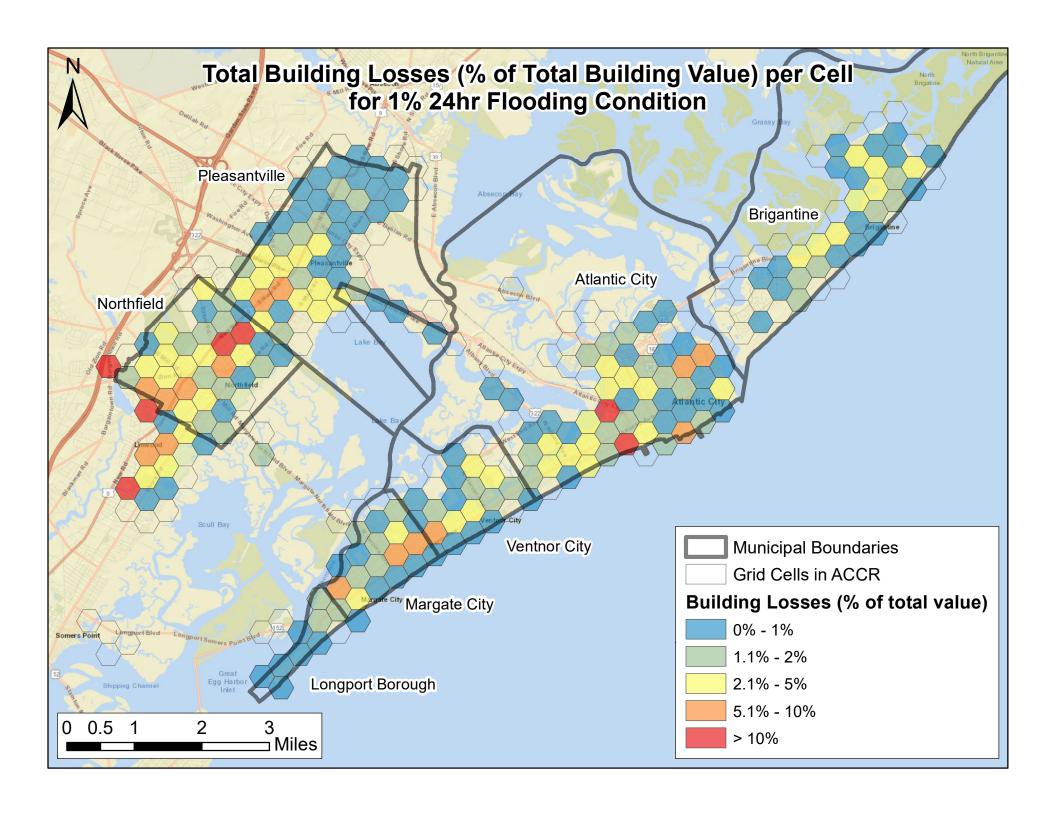
Index	Location Name	Lat.	Long.	Comments	Category Names
100	West End Avenue & Rte 40	39.36102	-74.46339	Flooding cripples part of Route 40. The plan to fix it will cost \$27.5M (3/19/2019): https://pressofatlanticcity.com/news/flooding-cripples-part-of-route-40-the-plan-to-fix-it-will-cost-27-5m/article_0fb70098-dfe1-5830-ac81-a8e9afe514fe.html  Fix for Route 40 flooding in A.C. on track despite pandemic, says Chris Brown (11/19/2020): https://pressofatlanticcity.com/opinion/columnists/fix-for-route-40-flooding-in-a-c-on-track-despite-pandemic-says-chris-brown/article_2177b04f-e97c-5692-8cb5-58f984b9a417.html	
101	Yacht Club Of Pleasantville	39.38371	-74.518	-	Economic and social assets that matter for the community

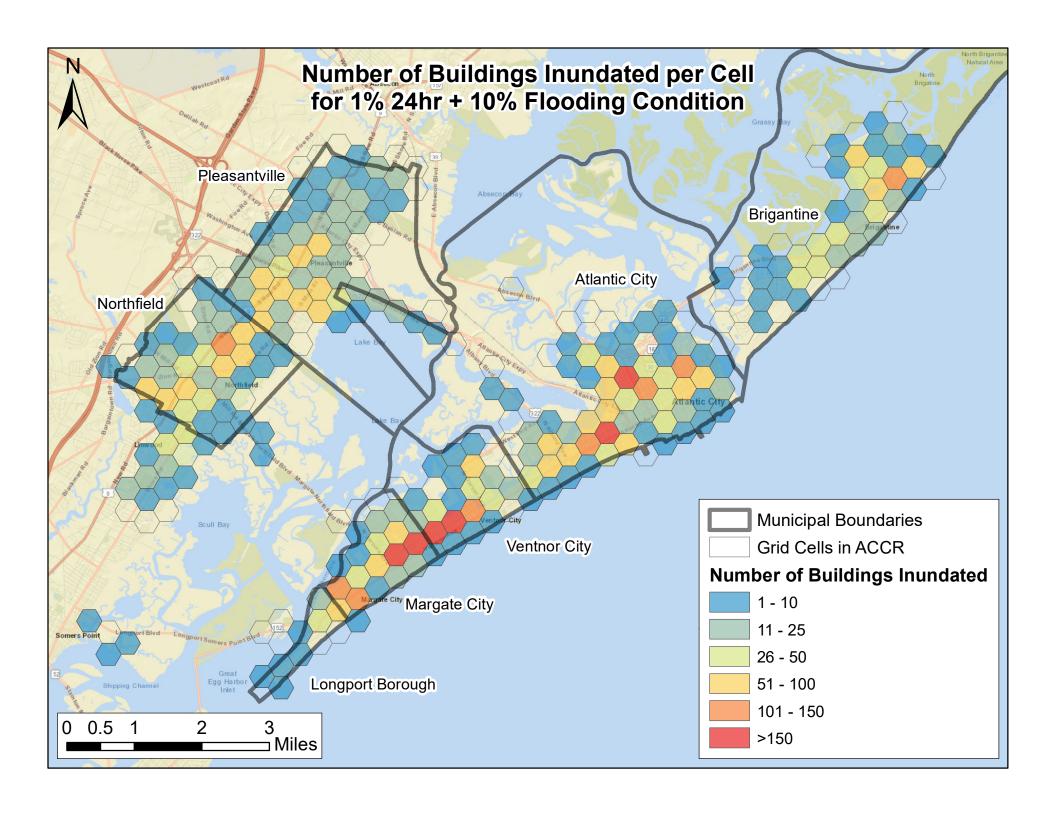
## **APPENDIX**

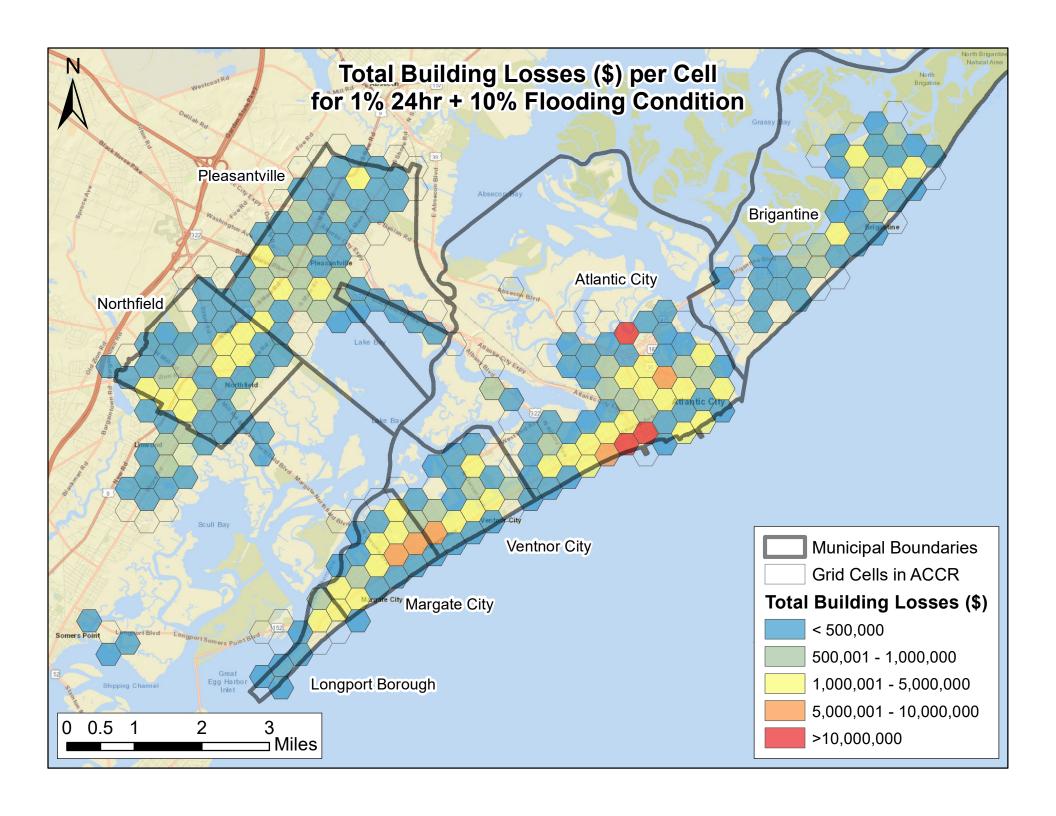
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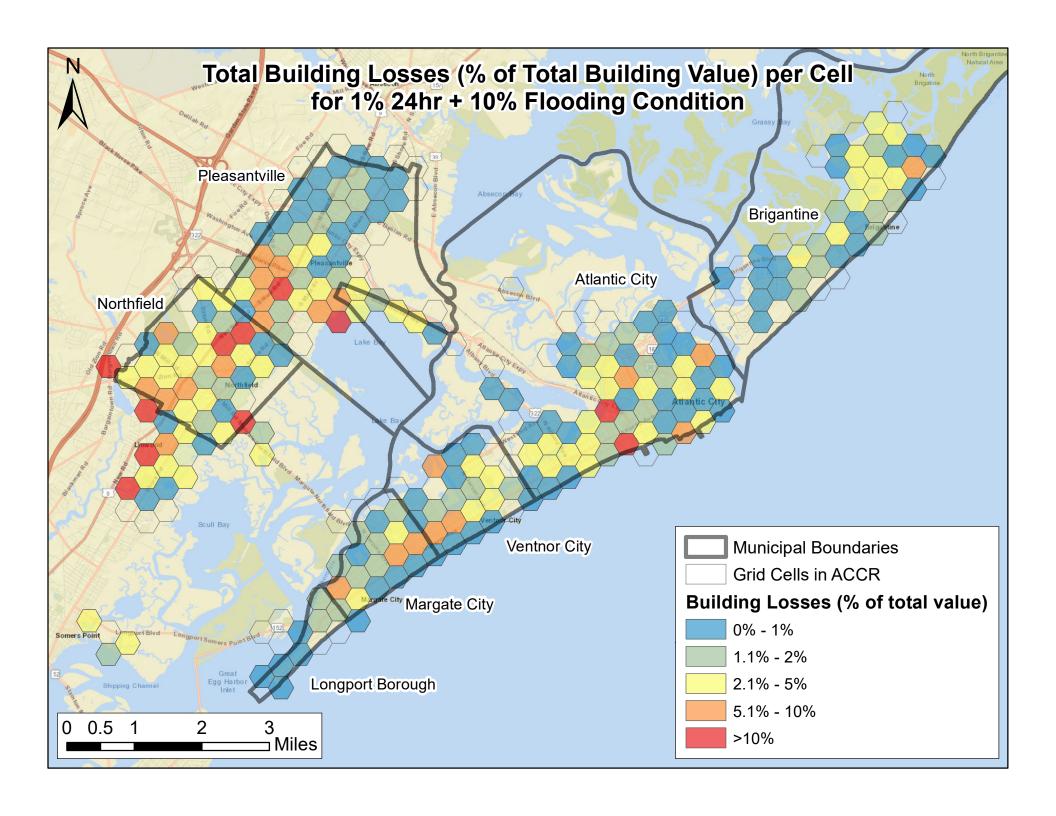












### **APPENDIX**

# F ASSET RISK PROFILES

#### **Introduction to Asset Profiles**

A number of important assets in the ACCR project area were identified. However, many of the important assets were linear in form and function (roads, bus lines, rail, evacuation routes, water distribution, wastewater collection systems, etc.) and their areal extent crossed many flood conditions and intersected with other community assets that showed a wide range of recovery criticality. For this reason, it was very difficult to use the Asset Profile Database Template to collect and store information on such facilities. The following two indented sections quote the NJDEP guidance on Asset Profiles and help illustrate why specific assets were difficult to characterize using the recommended methods.

To present a comprehensive understanding of risk and vulnerability to the Regional Teams, Consultant Teams should utilize monetized, quantitative, and qualitative methods as part of the Resilient NJ risk and vulnerability assessment. Given the variation across regions and potential asset prioritization, the Resilient NJ program is not being prescriptive on which methods to use. However, the Consultant Teams, in coordination with members of the Regional Team, should be able to populate the Asset Risk Profile as described in the Deliverables section of this methodology.

Results from the risk assessment shall be summarized *at the individual level* for prioritized assets as well as through a contextual risk assessment summary for the entire region. Each deliverable is described in more detail below.

#### **Deliverables**

The Asset Risk Profile is a summary page highlighting the risk assessment findings of each prioritized asset. The intent is to capture Hazus, monetized, quantitative, and qualitative findings in one location.

In lieu of asset profiles, certain assets were characterized in other ways:

- Recreational assets, ecosystem assets, and mental health assets: Losses (impacts) were assessed using monetized impacts methods
- Evacuation route flooding, socially vulnerable assets, and increased commuting effects: Losses (impacts) for were assessed using quantification methods
- Water supply distribution systems and wastewater collection systems: Losses (impacts) were assessed using an areawide qualitative review

For these three asset categories the discussion appears in Section 4 of the report, and separate Asset Risk Profiles were not prepared for identified assets.

For Bus Route impacts, Passenger Rail impacts, and Evacuation Route impacts, asset profiles templates are included in this Appendix. Bus Route and Passenger Rail impacts were characterized in a single Asset Risk Profile table. Evacuation Route impacts were assessed in multiple Asset Risk Profile tables, one for each evacuation route. Please note that due to the linear characteristics of these asset categories, impact analysis was conducted for the single worst of the precipitation-based flood conditions provided by NJDEP, known as "MHHW + SLR 2070 (2.4 feet) + (1% annual chance, 24-hour storm event + 10% increase in rainfall)."

#### **Risk Profile Bus Routes**

Asset Assessment					
Asset Description					
Asset	Atlantic County Bus Service				
Asset Type	Infrastructure				
Asset Location	Atlantic City, Pleasantville				
Why Asset is Important	NJ Transit provides bus service along the major arteries and through populated parts of the ACCR region. These connections are significant in communities like Pleasantville, where the Pleasantville bus terminal provides access to other areas of interest in the county. Both Atlantic City and Pleasantville have high rates of households without access to a vehicle making bus transportation in the region a critical asset. Further, bus service is an important interregional connection, as				
	NJ Transit and other private operators provide service to points in the New York and Philadelphia metropolitan areas. Bus service is also an option for early evacuation for households without vehicles.				
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	1 - This asset is important to the community and general travel for residents/ visitors in particular those without access to vehicles. Some residents may use the interregional bus routes to preventatively evacuate the region prior a major storm.				
Implications of Asset Loss	If the bus service was affected due to longer-term inundation or massive structural road damage, the community would need to use other modes of transportation (cars, train). Interruption to bus service can have major social and economic impacts to populations without access to a vehicle. It can further affect early evacuation prior major storms.				
HAZUS Estimated Loss					
Flooding Conditions	HAZUS evaluation not relevant to evacuation routes				
Non-HAZUS Findings					
Flooding Condition A (2%, 2hr Precipitation Event)	The majority of the bus stops along the critical bus stops identified experience flooding <0.5 ft. Areas with flooding up to 1 ft are largely along Ventnor Avenue in Margate City and along N Albany Ave in Ventnor City. This may affect access to bus stops as well as travel from and to the Barrier Island and the Back Bay Regions. Flooding up to 1.5 ft is possible at the intersection Black Horse Pike and N New Road in Pleasantville which can have major impacts not only to local but also regional travel.				
Flooding Condition B (1%, 24hr Precipitation Event)	The majority of the bus stops along the critical bus stops identified experience flooding <0.5 ft. However, compared to scenario A there is a larger number of bus stops which experience flooding between 0.5 ft and 1.5 ft. These areas are along Ventnor Avenue in Margate City and Ventnor City as well as along N Albany Ave. This severely affects access to bus stops as well as travel from and to the Barrier Island and the Back Bay Regions. There is a potential that bus service can be suspended under this scenario for these areas. Further, flooding up >1.5 ft is possible at and near the intersection Black Horse Pike and N New Road in Pleasantville which can have major impacts not				

	only to local but also regional travel.
Flooding Condition C (2070 SLR)	There is only minor flooding (<0.5ft) along all critical bus routes.  The operation of the bus service is likely not affected.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	The majority of the bus stops along the critical bus stops identified experience flooding <0.5 ft. Areas with flooding up to 1 ft are largely along Ventnor Avenue in Margate City and along N Albany Ave in Ventnor City. This may affect access to bus stops as well as travel from and to the Barrier Island and the Back Bay Regions. Flooding up to 1.5 ft is possible at the intersection Black Horse Pike and N New Road in Pleasantville which can have major impacts not only to local but also regional travel.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	The majority of the bus stops along the critical bus stops identified experience flooding <0.5 ft. However, compared to scenario A there is a larger number of bus stops which experience flooding between 0.5 ft and 1.5 ft. These areas are along Ventnor Avenue in Margate City and Ventnor City as well as along N Albany Ave. This severely affects access to bus stops as well as travel from and to the Barrier Island and the Back Bay Regions. There is a potential that bus service can be suspended under this scenario for these areas. Further, flooding up >1.5 ft is possible at and near the intersection Black Horse Pike and N New Road in Pleasantville which can have major impacts not only to local but also regional travel.
Flooding Condition F (2070 SLR + Hurricane Sandy Storm Surge)	The area including the bus routes are flooded (>1.5ft) and service would be suspended.

#### Risk Profile: Passenger Rail

Asset Assessment	
Asset Description	
Asset	Atlantic City Rail Line (passenger)
Asset Type	Infrastructure
Asset Location	Atlantic City, Pleasantville, ACCR
Why Asset is Important	This is the major rail line (owned and operated by NJ Transit) connecting Atlantic City and Philadelphia, PA. The rail line provides several trips daily between Atlantic City and Philadelphia. Local residents in the ACCRegion use the line to access services and businesses in South Jersey and Philadelphia. Some residents also use the rail prior to climate events to preventively evacuate.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	2 - This asset is important to the community for daily access (commute) and general travel for residents. Some residents may use the rail for early preventative evacuation prior to major flooding/climate events. Public transportation typically is terminated just prior to and during storms due to safety reasons, and to protect rolling stock.
Implications of Asset Loss	If the rail line was lost due to long-term inundation or massive structural damage, the community would need to use other modes of transportation (cars, buses). This can have major social and economic impacts to populations without access to a vehicle. It can further affect early evacuation prior major storms
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	·
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	
Flooding Conditions	HAZUS analysis not conducted for rail evacuation routes
Non-HAZUS Findings	
Flooding Condition A (2%, 2hr Precipitation Event)	Minor flooding (<0.5ft) near the Atlantic City train station may affect access to the rail service.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding up to 1 ft near the Atlantic City train station likely to affect access to the rail service.
Flooding Condition C (2070 SLR)	No flooding. The operation of the rail service is not affected.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Minor flooding (<0.5ft) near the Atlantic City train station may affect access to the rail service.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding up to 1 ft near the Atlantic City train station likely to affect access to the rail service.
Flooding Condition F (2070 SLR + Hurricane Sandy Storm Surge)	The area including the rail lines and station are flooded (>1.5ft) and service would be suspended. Damage to facilities may occur.
- 1	1

#### Risk Profiles: 8 major evacuation routes in the project area

- 1) W Brigantine Ave, Brigantine Blvd, NJ87
- 2) Delaware Ave & US 30
- 3) Atlantic Expressway
- 4) US 40 Secondary & N Albany Ave
- 5) Ventnor Ave
- 6) NJ 152
- 7) N Jerome Ave & E Mill Rd.
- 8) S New Road

<u>Criteria for not passable evacuation route</u>: 0.5 ft of flooding prevents safe travel on roads and pedestrian routes (conservative estimate)

#### **Evacuation Route – Brigantine Avenue**

Asset Assessment		
Asset Description		
Asset	Evacuation Route – Brigantine Avenue	
Asset Type	Infrastructure	
Asset Location	Brigantine City, NJ	
Why Asset is Important	Main roadway leading out of the community of Brigantine City During a flood event or other emergency residents rely on this street for evacuation.	
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	This asset is critical to the community for daily access and is a critical evacuation route. No other possible routes exist to leave Brigantine City via ground transportation.	
Implications of Permanent Asset Loss	If the route was lost due to permanent inundation or massive structural damage, the community would be inaccessible. Abandonment of structures would likely ensue; businesses would shutter, and residents would be forced to relocate until access is restored.	
Previous Flooding Event Details		
Historic Flood Event: Hurricane Sa	· · · · · · · · · · · · · · · · · · ·	
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding	
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes	
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.	
Date of Flood Event	10/29/2012	
HAZUS Estimated Loss	110710	
Flooding Conditions	HAZUS impacts not evaluated for evacuation routes	
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding is < 0.5 ft along the majority of the evacuation route.  Flooding is modeled to increase to 0.5ft – 1.0ft near the intersection of Bayshore Ave and W Brigantine Ave. Detours may be necessary to be able to evacuate.	
	Flooding is < 0.5 ft along the majority of the evacuation routes.	
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding is modeled to increase up to 1.0ft along multiple points along the evacuation route (for example between 14 <sup>th</sup> and 18 <sup>th</sup> St S).  Flooding can reach more than 1.5 ft near the intersection of Bayshore Ave and W Brigantine Ave. Major detours may be necessary to be able to evacuate.	
	the evacuation route (for example between 14 <sup>th</sup> and 18 <sup>th</sup> St S). Flooding can reach more than 1.5 ft near the intersection of Bayshore Ave and W Brigantine Ave. Major detours may be necessary to be	
(1%, 24hr Precipitation Event)  Flooding Condition C	the evacuation route (for example between 14 <sup>th</sup> and 18 <sup>th</sup> St S). Flooding can reach more than 1.5 ft near the intersection of Bayshore Ave and W Brigantine Ave. Major detours may be necessary to be able to evacuate.	

The area including the evacuation route is flooded (>1.5ft) and not passable.

#### **Evacuation Route – Atlantic City Expressway**

Asset Assessment				
Asset Description				
Asset	Evacuation Route – Atlantic Expressway			
Asset Type	Infrastructure			
Asset Location	Atlantic City & Pleasantville, NJ			
Why Asset is Important	This is a major highway leading out of the communities of Atlantic City, Pleasantville and the Barrier Island towns in general. During a flood event or other emergency residents rely on this highway for evacuation.			
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	1 - This asset is a high capacity roadway and thus critical for the community (in particular during summer periods) and is a critical evacuation route. Other evacuation routes exist nearby (US 30, US 40 Secondary) but heavy traffic and major delays on other routes can occur if this route is compromised.			
Implications of Permanent Asset Loss	If the route was lost due to permanent inundation or massive structural damage, the community would have some alternative routes for access and evacuation. However, it would impact local traffic and travel times significantly.			
Previous Flooding Event Details				
Historic Flood Event: Hurricane Sa	andy			
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding			
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes			
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.			
Date of Flood Event	10/29/2012			
HAZUS Estimated Loss				
Flooding Conditions	HAZUS not evaluated for evacuation routes			
Non-HAZUS Findings				
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding is <0.5ft near the access point of the Atlantic City Express Way in Atlantic City. This could slow down traffic and affect travel time. Flooding is modeled to increase to >1.5ft in Pleasantville near the N Main St and S Franklin Blvd. This can cause major traffic delays and detours may be necessary to be able to evacuate.			
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding is between 0-1ft near the access point of the Atlantic City Express Way in Atlantic City. This could slow down traffic and affect travel time. Flooding is modeled to increase to >1.5ft in Pleasantville near the N Main St and S Franklin Blvd and past the intersection N New Rd. This can cause major traffic delays and major detours may be necessary to be able to evacuate.			
Flooding Condition C (2070 SLR)	No flooding. The evacuation route is passable.			
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding is < 0.5ft along the majority of the evacuation route.  Flooding is modeled to increase to 0.5ft – 1.0ft near the intersection of Bayshore Ave and W Brigantine Ave. Detours may be necessary to evacuate.			
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding is between 0-1ft near the access point of the Atlantic City Express Way in Atlantic City. This could slow down traffic and affect travel time. Flooding is modeled to increase to >1.5ft in Pleasantville			

	near the N Main St and S Franklin Blvd and past the intersection N New Rd. This can cause major traffic delays and major detours may be necessary to be able to evacuate.
Flooding Condition F (2070 SLR + Hurricane Sandy Storm Surge)	The area including the evacuation route is flooded (>1.5ft) and not passable.

#### **Evacuation Route – Delaware Ave & US 30**

Asset Assessment	
Asset Description	
Asset	Evacuation Route – Delaware Ave & US 30
Asset Type	Infrastructure
Asset Location	Atlantic City, NJ
Why Asset is Important	Main roadway leading out of the community of Brigantine City and eastern part of Atlantic City. During a flood event or other emergency residents rely on this road for evacuation.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	This asset is an important roadway and critical for the community for access (in particular for communities in eastern Atlantic City and Brigantine City) and is a critical evacuation route. It can cause heavy traffic and major delays on other routes if this route is compromised.
Implications of Permanent Asset Loss	If the route was lost due to permanent inundation or massive structural damages, the community would have a few alternative routes for access. However, loss of this route would impact local traffic and traveling times significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	andy
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	
Flooding Conditions	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings	
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding can reach up to 1.5ft along Delaware Avenue near Melrose and Arctic Ave in Atlantic City. Other parts of Delaware Ave (near Absecon Blvd) can reach up to 1ft of flooding. Detours may be necessary to be able to access US 30 and the Absecon Blvd Bridge to be able evacuate.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding can reach >1.5ft along Delaware Avenue near Melrose and Arctic Ave in Atlantic City. Other parts of Delaware Ave (near Absecon Blvd) can reach up to 1ft of flooding. Major detours may be necessary to be able to access US 30 and the Absecon Blvd Bridge to be able evacuate.
Flooding Condition C (2070 SLR)	No flooding. The evacuation route is passable.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1.5ft along Delaware Avenue near Melrose and Arctic Ave in Atlantic City. Other parts of Delaware Ave (near Absecon Blvd) can reach up to 1ft of flooding. Detours may be necessary to be able to access US 30 and the Absecon Blvd Bridge to be able evacuate.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach >1.5ft along Delaware Avenue near Melrose and Arctic Ave in Atlantic City. Other parts of Delaware Ave (near Absecon Blvd) can reach up to 1ft of flooding. Major detours may

	be necessary to be able to access US 30 and the Absecon Blvd Bridge to be able evacuate.
Flooding Condition F (2070 SLR + Hurricane Sandy Storm Surge)	The area including the evacuation route is flooded (>1.5ft) and not passable.

#### **Evacuation Route - NJ 152**

Asset Assessment	
Asset Description	
Asset	Evacuation Route – NJ 152
Asset Type	Infrastructure
Asset Location	Longport Borough, NJ
Why Asset is Important	This is one of the main roadways leading out of the community of Longport Borough, and involves a bridge crossing to the mainland at Somers Point. During a flood event or other emergency residents rely on this road for evacuation.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	2 - This asset is important to the community for daily access and is a critical evacuation route. There is only one other evacuation route to the mainland nearby (N Jerome Ave in Margate). Loss of this evacuation route can cause heavy traffic and major delays on other routes.
Implications of Permanent Asset Loss	If the route was lost due to permanent inundation or massive structural damages, the community would have alternative routes for access. However, it would impact local traffic and traveling times significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	andy
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	
Flooding Conditions	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings	
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding is < 0.5ft near the access point to JFK Memorial Bridge.  Detours may be necessary to be able to access the bridge and evacuate.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding can reach up to 1.5 ft along Ventnor Avenue and near the access point to JFK Memorial Bridge. Major detours may be necessary to be able to access the bridge and evacuate.
Flooding Condition C (2070 SLR)	Minor flooding along some areas on Ventnor Avenue. Detours may be necessary to be able to access the JFK Memorial Bridge and evacuate.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1.0 ft along Ventnor Avenue and near the access point to JFK Memorial Bridge. Major detours may be necessary to be able to access the bridge and evacuate.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1.5 ft along Ventnor Avenue and near the access point to JFK Memorial Bridge. Major detours may be necessary to be able to access the bridge and evacuate.
Flooding Condition F (2070 SLR + Hurricane Sandy Storm Surge)	The area including the evacuation route is flooded (>1.5ft) and not passable.

#### Evacuation Route - N Jerome Ave, E Mill Rd & Tilton Rd

Asset Assessment	
Asset Description	
Asset	Evacuation Route – N Jerome Ave, E Mill Rd & Tilton Rd
Asset Type	Infrastructure
Asset Location	Margate City, NJ
Why Asset is Important	This is one of the main roadways leading out of the community of Margate City. During a flood event or other emergency residents use on this road for evacuation.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	2 - This asset is important to the community for daily access and is a critical evacuation route. There is only one other evacuation route nearby (NJ 152) that does not involve travel north to Atlantic City Expressway. Loss of this road can cause heavy traffic and major delays on other routes if the route is compromised.
Implications of Permanent Asset Loss	If the route was lost due to permanent inundation or massive structural damages, the community would have alternative routes for access. However, it would impact local traffic and traveling times significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	andy
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	
Flooding Conditions	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings	
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding can reach up to 1ft between Ventnor Ave and Margate Blvd along E Mill Rd and Tilton Rd. Detours may be necessary to be able to evacuate.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding can reach up to 1.5ft between Ventnor Ave and Margate Blvd along E and W Mill Rd. Detours may be necessary to be able to evacuate. Flooding of > 1.5 ft may be possible at the intersection of Tilton Rd and New Rd. Major detours may be necessary to be able to evacuate.
Flooding Condition C (2070 SLR)	No flooding. The evacuation route is passable.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1ft between Ventnor Ave and Margate Blvd along E Mill Rd and Tilton Rd. Detours may be necessary to be able to evacuate.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1.5ft between Ventnor Ave and Margate Blvd along E and W Mill Rd. Detours may be necessary to be able to evacuate. Flooding of > 1.5 ft may be possible at the intersection of Tilton Rd and New Rd. Major detours may be necessary to be able to evacuate.
Flooding Condition F (2070 SLR + Hurricane Sandy	The area including the evacuation route is flooded (>1.5ft) and not passable.

Storm Surge)	

#### **Evacuation Route – Ventnor Avenue**

Asset Assessment	
Asset Description	
Asset	Evacuation Route – Ventnor Avenue
Asset Type	Infrastructure
Asset Location	Ventnor City, NJ
Why Asset is Important	This is the main roadway providing a north/south connection among Margate City, Ventnor City and Atlantic City. During a flood event or other emergency residents use this street for evacuation.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	2 - This asset is important to the community for daily access and is a critical evacuation route. It is a major connection between other evacuation routes (N Jerome Ave, NJ 152 & N Albany Ave/ US 40 Secondary/Black Horse Pike). Loss of this route can cause heavy traffic and major delays on other routes.
Implications of Asset Loss	If the route was lost due to permanent inundation or massive structural damage, the community would have alternative routes for access. However, it would significantly impact local traffic and increase travel times significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	•
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	
Flooding Conditions	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings	
Flooding Condition A (2%, 2hr Precipitation Event)	Flooding between 0 and 1ft along the majority of the evacuation route. Flooding is worse in Margate City where a large part of the evacuation route could get flooded up to 1ft. Detours may be necessary to be able to evacuate.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding between 0 and 1ft along the majority of the evacuation route. Flooding is worse in Margate City where a large part of the evacuation route could get flooded up to 1.5ft. Major detours may be necessary to be able to evacuate.
Flooding Condition C (2070 SLR)	Minor flooding (<0.5ft) on the east side of Margate City. Some detours may be necessary to be able evacuate via NJ 152.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding between 0 and 1ft along the majority of the evacuation route. Flooding is worse in Margate City where a large part of the evacuation route could get flooded up to 1ft. Detours may be necessary to be able to evacuate.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding between 0 and 1ft along the majority of the evacuation route. Flooding is worse in Margate City where a large part of the evacuation route could get flooded up to 1.5ft. Major detours may be necessary to be able to evacuate.

The area including the evacuation route is flooded (>1.5ft) and not passable.

#### Evacuation Route – N Albany Ave & US 40 Secondary

Asset Assessment	
Asset Description	
Asset	Evacuation Route – N Albany Ave & US 40 Secondary/Black Horse Pike
Asset Type	Infrastructure
Asset Location	Atlantic City & Pleasantville, NJ
Why Asset is Important	This is one of the highways leading out of the community of Atlantic City. During a flood event or other emergency residents rely on this street for evacuation.
Community Value (1-3) Include a 1-3 sentence justification on why this value was assigned	2 - This asset is important to the community for daily access and is a critical evacuation route. It is located in between other evacuation routes (N Jerome Ave, Atlantic City Expressway). It can cause heavy traffic and major delays on other routes if this route is compromised.
Implications of Asset Loss	If the route was lost due to permanent inundation or massive structural damages, the community would have alternative routes for access. However, it would impact local traffic and traveling times significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	•
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or Affected During a Recent Flood Event?	Yes
Description of Loss or Consequence	Loss was associated with erosion-damaged infrastructure.
Date of Flood Event	10/29/2012
HAZUS Estimated Loss	LIAZIIC not evaluated for evacuation routes
Flooding Conditions	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings  Flooding Condition A (2%, 2hr Precipitation Event)	Flooding can reach up to 1 ft along N Albany Rd. Flooding is modeled to increase up to 1.5ft near the intersection of E Black Horse Pike and N New Rd. Detours may be necessary to be able to evacuate.
Flooding Condition B (1%, 24hr Precipitation Event)	Flooding can reach up to 1 ft along N Albany Rd. Flooding is modeled to increase >1.5ft near the intersection of E Black Horse Pike and N New Rd. Major detours may be necessary to be able to evacuate.
Flooding Condition C (2070 SLR)	No flooding. The evacuation route is passable.
Flooding Condition D (2%, 2hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1 ft along N Albany Rd. Flooding is modeled to increase up to 1.5ft near the intersection of E Black Horse Pike and N New Rd. Major detours may be necessary to be able to evacuate.
Flooding Condition E (1%, 24hr + 10% Precipitation Event + 2070 SLR)	Flooding can reach up to 1 ft along N Albany Rd. Flooding is modeled to increase >1.5ft near the intersection of E Black Horse Pike and N New Rd. Major detours may be necessary to be able to evacuate.

The area including the evacuation route is flooded (>1.5ft) and not passable.

#### Evacuation Route - New Rd & South New Rd

Asset Assessment	
Asset Description	
Asset	Evacuation Route – Rt. 9/New Rd & North New Rd
Asset Type	Infrastructure
Asset Location	Northfield and Pleasantville, NJ
7.0001 2000.11011	This is the main connection between Pleasantville and
Why Asset is Important	Northfield and intersects with several other evacuation routes.
Tring reserve imperioris	During a flood event or other emergency residents can use this
	road for evacuation.
Community Value (1-3)	3 - This asset is important to the community for daily access and
Include a 1-3 sentence	is a critical evacuation route. If this route is compromised risk of
justification on why this value	traffic backing up on routes may be possible.
was assigned	
- U	If the route was lost due to permanent inundation or massive
Insplications of Domeson and Asset	structural damages, the community would have alternative routes.
Implications of Permanent Asset	However, it would impact local traffic and traveling times
Loss	significantly.
Previous Flooding Event Details	
Historic Flood Event: Hurricane Sa	<u> </u>
What type of flooding occurred?	Coastal Storm Surge Flooding & Stormwater Flooding
Has the Asset Been Damaged or	No
Affected During a Recent Flood	NO
Event?	
Description of Loss or	None
Consequence	
Date of Flood Event HAZUS Estimated Loss	N/A
Flooding Conditions	HAZLIS not evaluated for evacuation routes
Flooding Conditions Non-HAZUS Findings	HAZUS not evaluated for evacuation routes
Non-HAZUS Findings	
Non-HAZUS Findings	Flooding between 0-1.5ft on several intersections along the
Non-HAZUS Findings Flooding Condition A	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the
Non-HAZUS Findings	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the intersection of E Black Horse Pike and N New Rd. Detours may
Non-HAZUS Findings Flooding Condition A	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the intersection of E Black Horse Pike and N New Rd. Detours may be necessary affecting time to evacuate.
Non-HAZUS Findings Flooding Condition A	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the intersection of E Black Horse Pike and N New Rd. Detours may be necessary affecting time to evacuate.  Flooding between 0 and >1.5ft on several intersections along the
Non-HAZUS Findings  Flooding Condition A (2%, 2hr Precipitation Event)  Flooding Condition B	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the intersection of E Black Horse Pike and N New Rd. Detours may be necessary affecting time to evacuate.  Flooding between 0 and >1.5ft on several intersections along the evacuation route. Flooding is worse (> 1.5 ft) at two (2) major
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Non-HAZUS Findings  Flooding Condition A (2%, 2hr Precipitation Event)  Flooding Condition B (1%, 24hr Precipitation Event)  Flooding Condition C (2070 SLR)  Flooding Condition D	Flooding between 0-1.5ft on several intersections along the evacuation route. Flooding is worse (up to 1.5 ft) at the intersection of E Black Horse Pike and N New Rd. Detours may be necessary affecting time to evacuate.  Flooding between 0 and >1.5ft on several intersections along the evacuation route. Flooding is worse (> 1.5 ft) at two (2) major intersections of E Black Horse Pike and N New Rd as well New Rd and Tilton Rd. Major detours may be necessary affecting time to evacuate.  No flooding. The evacuation route is passable.
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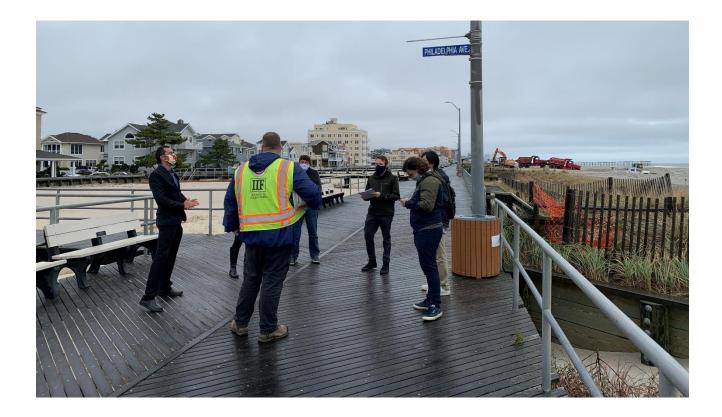
Appendix D—Visioning Report

#### **PROJECT VISIONING REPORT**

#### ATLANTIC COUNTY COASTAL REGION

VENTNOR, MARGATE, LONGPORT, ATLANTIC CITY, BRIGANTINE, PLEASANTVILLE, NORTHFIELD



















**RUTGERS** 

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#### **EXECUTIVE SUMMARY**

The Atlantic County Coastal Region (ACCR) undertook a collaborative and inclusive community visioning process to determine how the Region sees itself functioning in the future, and to identify the qualities, objectives, and goals for the Region.

#### The ACCR Vision

The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where **protections** from natural disasters, flooding, and sea level rise enable the region to thrive; residents' sense of belonging and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination.

#### **The ACCR Mission**

Develop a flexible roadmap that looks out to the year 2070 and presents strategic actions and proposed solutions to reduce the worst effects of increased precipitation, sea level rise, and coastal storms over the next 50 years; and ensure the needs and goals of residents, visitors, and businesses of the Atlantic County Coastal Region are heard and incorporated throughout the development and implementation of the Resilient NJ Regional Resilience and Adaptation Action Plan (RRAAP).

#### **ACCR's Values**

- ❖ Friendly & inclusive: welcoming to diverse residents and visitors year-round
- ❖ A special place in the state, region, and country: preservation and enhancement of ACCR's unique characteristics natural and human-made that it set it apart from other destinations
- **Stronger together:** understanding that the region will continue to experience challenges over time and collaboration leads to greater safety and success
- Thriving communities: numerous economic, educational, and recreational opportunities with a diverse and growing workforce, improved connectivity and mobility, and social equity and environmental justice at the heart of decision-making and investments
- \* Resilience and adaptation: able to minimize negative effects, manage emergencies, recover rapidly when challenges arise, and rejuvenate over time in the face of climate change

#### **ACCR's Goals**

- 1) Protect Critical Infrastructure, Ecology and Cultural Assets
  - a. **Conscientious investment.** Provide infrastructure improvements that create benefits in proportion to the need, considering historical public investment patterns in the region, and without causing displacement.
  - b. **Efficiency and equity.** Ensure response and adaptation strategies to current and future climate change disruptions and damage to infrastructure and communities are efficient and equitable, including infrastructure improvements and nature-based solutions that minimize vulnerability and consequences.
  - c. **Improve regional coordination and build alliances** to share resources and information, access funding, and implement flood resilience measures that drive effective emergency response, promote ecological integrity of local landscapes, and preserve historic and cultural assets of the region.
  - d. **Preserve important plant and animal populations and habitats**, conserve marshlands and wetlands, and promote beneficial reuse of resources (e.g., dredged

materials) to improve viability and biodiversity while reducing impacts of flooding, storm surges, and coastal storms.

#### 2) Protect Residents' Ability to Stay in the Region

- a. **Innovation in design.** Design critical infrastructure to ensure continued service to all communities during and after major storm events and in the face of rising sea levels and intensifying storms that impact urban and natural landscapes.
- b. **Neighborhood character and features.** Preserve and enhance neighborhood features that represent and are cherished by the people who live here.
- c. **Agility and balance.** Be agile in balancing human needs and limitations in land use, environmental, engineering, policy and funding-related decision-making. Improve local expertise and civic engagement in understanding climate hazards and preparedness strategies and related trade-offs for development and investment.
- d. **Education and collaboration.** Facilitate topical education for residents to empower their input and collaboration on project development, prioritization and outcomes, improve information dissemination and planning for the next flood, and ensure access to safe, equitable and quality resources associated with climate resilience.

#### 3) Diversify Economic, Research, and Employment Opportunities

- a. **Hyperlocal workforce.** Create hyperlocal workforce development opportunities to support projects and promote small businesses.
- b. **Diversify economy.** Continue to diversify the economy to include additional water-oriented tourist attractions and businesses, as well as offshore renewable energy and strengthen eco-tourism, hospitality, and retail industries.
- c. **Research and development imperatives.** Strengthen research and educational sectors to not only advance innovation, but also improve and expand public awareness of the region's hazards.

The ACCR used a layered process to establish its vision. This included:

- Steering Committee (SC) meetings and Community Advisory Committee (CAC) meetings
- Reviewing visions & goals from past studies from the ACCR Technical Advisory Committee (TAC)
- Having CAC members fill out a memo of Visioning questions
- Using social media to push surveys with Visioning questions
- Incorporating Visioning into nine (9) Focus Group and Resident Advisory Group meetings
- Holding two Public Events using Poll Everywhere to gather vision and goal feedback
- Distributing informational flyers to community locations to direct people to the website, public meetings, and surveys

In each of these formats, the process started with establishing regional values, included discussion and questions that identified what level of risk the Region would accept, aimed to establish ownership in the visioning process, and considered the balance of social cohesion, the economy, and the environment. The Region identified as a beach-oriented area that embodies all the experiences the Jersey Shore has to offer. The Region indicated that it is unique among Jersey Shore beach communities, given its casinos, entertainment, restaurants, shopping, and a multitude of beach and bay recreational options.

The Region valued being a place where people throughout the State, country, and beyond routinely come to connect – both with each other and with nature. People gather in this Region for conventions,

competitions, pageants, research, collaboration, and innovation. The Region is critical to South Jersey's economy, providing jobs in service, transportation, energy, healthcare, marine, and education sectors. The area values its large employers, and also sees the small businesses as the lifeblood of the Region. The area is rich in ecological resources, and values its marshlands, parks, beaches, and waterways. It is characterized by its diversity of people, destinations, landscapes, activities, and ways of getting around. The Region has continually reinvented itself, and is a place that works together to meet the challenges of the future. The Region is focused on innovation to harness opportunities in green technologies.

Building upon these takeaways, the following general themes emerged:

- ❖ Improve emergency coordination and adapt to sea level rise and changing climate conditions
- ❖ Advance with the times on new technologies, industries, and infrastructure systems
- \* Revitalize tourism, leisure, and recreational opportunities along the beach, bays, and transit hubs
- Diversify economy to include increased focus on climate adaptation and renewable energy

#### I. WHY VISIONING?

ACCR is a progressive Region that values its diversity and inclusion, and it is well-positioned to harness new developments in green technologies and the blue economy. The Region is a world-class tourist destination, critical to South Jersey's economy, and rich in ecological resources. The residents recognize the importance of social cohesion, value knowing their neighbors, and place importance on their robust network of community centers and community-based organizations. The Region is focused on emergency preparedness, and it has adapted to withstand and recover from past disasters.

With so many complexities, strengths and vulnerabilities in the Region, it was imperative that the ACCR undertake a collaborative and inclusive community visioning process. The Vision not only identifies how the Region wants to function in the future, but also identifies the qualities, objectives, and goals for the Region.

Project Visioning is intended to identify what is considered important to the Region and how the Region wishes to look and feel in the future. In terms of the RRAAP, the Vision gives direction to prioritization and risk assessment exercises, which will be used to evaluate the success of the selected Resilience and Adaptation Scenarios. The Vision will also ensure that the RRAAP protects those assets that are the most significant and essential to social cohesion, economy, environment, and ecology.

#### II. HOW ACCR ESTABLISHED ITS VISION

#### a. Methods of Engagement for Project Visioning

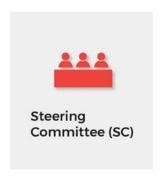
A variety of methods were used to engage the public in establishing an inclusive vision statement that equitably reflects the priorities of stakeholders. These methods included reviews of existing plans, meetings with various committees, focus groups, public open houses, email questionnaires and an online survey.

As part of the Planning Context, a review of existing reports and documents was conducted. One of the goals was to understand the missions and visions of municipalities, government agencies, not-for-profit organizations, and private enterprises prior to the creation of this Visioning Report. A summary of the Visions from these reports can be found in Chapter 1. Examples of the types of resources reviewed include:

- County and Municipal Master Plans, Updates, & Re-Examination Reports (years vary)
- Coastal Resiliency Institute & Marine Science Center Report (2019)
- ➤ Websites of partners and stakeholders including American Red Cross, Atlantic Cape Community College and Stockton University, Sustainable Longport (2020) and Casino Reinvestment Development Authority (2021)
- ➤ AtlantiCare Community Needs Assessment (2019)
- NJ Long-Range Transportation Plan 2030 (2008)

Due to concerns with COVID-19, the Resilient NJ ACCR team held virtual meetings with committees and focus groups to gain a better understanding of their thoughts regarding a vision for the region, sustainable infrastructure and future development. These meetings were arranged with an emphasis on hearing the voices of socially vulnerable populations. Of nine (9) focus group meetings about critical assets and visioning, five (5) were held with socially vulnerable groups.

As defined in the Engagement Plan, the engagement strategy is a layered approach that has multiple touchpoints with stakeholders in the Region organized as follows:





Technical Advisory Committee (TAC)

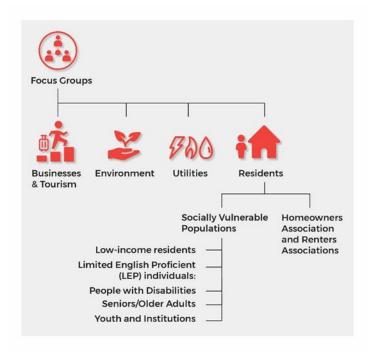




Focus Groups (FG)

- \* Steering Committee (SC): The Steering Committee comprises at least one member from each of the seven (7) municipalities (Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville), at least one member from the County (Atlantic County), one member from a Community Based Organization (the American Red Cross), and one (1) Regional Coordinator, which is an individual that works with all the Steering Committee Members.
  - Methods of Engagement with SC for Visioning: Visioning was an agenda item at the April, May, and June 2021 monthly steering committee meetings; the SC members were asked to complete Visioning Questions in a Visioning Memo; SC Members were invited to two public visioning workshops; and virtual visioning surveys were sent to the SC.
- ❖ Technical Advisory Committee (TAC): Consists of leaders that have expertise in these communities on coastal resiliency, disaster response and recovery, economic recovery, transportation, utilities, tourism, coastal engineering, and funding agencies.
  Methods of Engagement with TAC for Visioning: Past reports were reviewed, and Visions and Goals compiled in the Planning Context report. Additionally, one-on-one meetings were held with some TAC members to discuss Visioning, including meetings with CRDA and The Nature Conservancy. Multiple members of the TAC were invited to specific focus group meetings.
- Community Advisory Committee (CAC): The CAC comprises diverse community representatives from each of the seven municipalities, Atlantic County, and Community Based Organizations that represent socially vulnerable populations. Several nearby coastal communities that were not part of the original Resilient NJ grant application are included on the CAC, including Egg Harbor Township, Somers Point, Absecon, and Linwood. The CAC members have local knowledge of conditions in their communities during and after natural disasters—in both the short- and long-term, such as emergency response, flooding, crime, job loss, road closures, power shortages, loss of business activity, and infrastructure challenges.
  - Methods of Engagement with CAC for Visioning: Ten (10) CAC meetings were held, one (1) with each of the seven (7) municipalities CACs, one (1) with Atlantic County's CAC, one (1) with the American Red Cross's CAC, and one (1) with the CAC for the neighboring municipalities. Visioning was included in each of these one-on-one meetings. In addition, CAC members were asked to complete visioning questions in a Visioning Memo, invited to two public visioning workshops, and sent a visioning survey to complete online.
- ❖ Focus Groups (FG) Consists of members of the communities of Brigantine, Atlantic City, Ventnor, Margate, Longport, Northfield, Pleasantville, and Atlantic County. Focus groups included members of civic associations, business owners, environmental advocates, and utilities staff. There were five (5) focus groups centered on socially vulnerable populations including youth, low-income people, seniors, people with disabilities, and people with Limited English Proficiency.

Methods of Engagement with FG for Visioning: Nine (9) "Community Conversations" and/or Focus Group meetings were held, each of which included Visioning. Participants were invited to two public visioning workshops, and a virtual visioning survey was sent to the FGs.



❖ General Public- In addition to Group meetings the General Public in the ACCR was also engaged for Visioning.

Methods of Engagement with General Public for Visioning: The General Public was invited to two public visioning workshops. These meetings were advertised on the Resilient NJ website, pushed out through social media, advertised in the Press of Atlantic City newspaper, and distributed on flyers in community areas, such as libraries and municipal buildings. The visioning survey was also advertised to the general public using these same methods.

In each of these formats, the process started with establishing regional values and included discussion and questions that identified what level of risk the Region would accept, aimed to establish ownership in the visioning process, and considered the balance of social cohesion, the economy, and the environment.

To determine the regional values of the ACCR, questions were asked of the SC, CAC, Focus Groups, and in the various meetings, memos, polls, and surveys. These questions were:

- ➤ How do you see region thriving 50 years from now? What does next 20 years look like?
- ➤ What characteristic of the region, if lost would completely change the identity of the region?
- ➤ Why do residents choose to live here?
- ➤ Why do tourists choose to visit here?
- > Why do employees choose to work here?
- ➤ What aspects of the region are you proud of?
- ➤ Are there distinct and unique identities within the region?

- ➤ How often would the region be willing to experience nuisance flooding?
- ➤ How often would the region be willing to experience damaging flooding?
- ➤ How often would residents and businesses be willing to experience damages to their own property or place of work due to flooding?
- ➤ What have been the social and structural effects during and after past disasters (Sandy, Nor'easters, COVID-19 pandemic)? What were the major challenges?
- ➤ What were strengths that allowed you to bounce back?
- > Do you believe that the diversity of your community will be affected in the future, if so, how?
- > Do you anticipate homeowners from adjacent towns might relocate to your town as those areas are increasingly affected by climate change? Might that result in future generations within your community selling or moving away due to raising property values?

Key themes emerged from the responses to these questions, summarized in the following section.

#### b. The Balance of Social Cohesion, the Economy, and the Environment

The ACCR Region is proud of its social fabric, diverse economy, and ecological assets. Therefore, throughout the Visioning process discussions often came back to these three (3) sustainability topics. The discussions of community cohesion centered upon residents, visitors, and secondhomeowners. The Region is an area where people throughout the state, and beyond, come together for conferences and to reconnect, and there is a mix of year-round residents, secondhomeowners, and visitors that come to the region predominantly in the summer when the local population balloons. Many discussions revolved around preserving diversity and the relative opportunity for future generations to live in the region in the face of climate change and gentrification. The Region spoke about the challenges after past disasters on the local economy, and how those effects still ripple through the socially vulnerable communities that rely on the service and tourism industries. There was also discussion on the transition in the beachfront communities, where many residents no longer depend on Atlantic City for employment and some commute to Philadelphia for work, or work remotely altogether. The Region emphasized the importance of the casinos, small businesses, the service industry, the transportation industry, development of the wind power industry, healthcare, the marine industry, and educational and not-for-profit institutions to provide income for residents and a tax base for local governments. The Region also emphasized the importance of environmental resilience. Many of the communities spoke on how they were prepared to live with, and adapt to, rising waters and coastal storms as the area adapts to climate change. The area is rich in ecological resources, and values its marshlands, parks, beaches, and waterways.

#### III. KEY TAKE-AWAYS FROM STAKEHOLDERS

Stakeholders helped the team obtain a representative sample of perspectives from voices across the ACCR. These stakeholders included residents, business owners, environmental advocates, staff from institutions, youth, socially vulnerable populations, technical experts, and community leaders. The variety of people who provided input through this process created a cross-section of what people within the ACCR want to see change, stay the same, and improve for the future.

The Region identified as a beachoriented area that that embodies all the experiences the Jersey Shore has to offer. Stakeholders indicated that the ACCR is unique among Jersey Shore communities, beach given boardwalk, casinos, entertainment, restaurants, shopping, marinas, and multitude of beach and recreational options. The Region valued that it is a place where people throughout the State, country, and beyond routinely visit to reconnect.

People gather in the ACCR for conventions, competitions, family vacations. pageants, research opportunities, and innovation. The Region is critical to South Jersey's economy, providing jobs in service, transportation, energy, healthcare, marine, aviation, and education The area values its large employers, and also sees the small businesses as the lifeblood of the ACCR. The area is rich in ecological resources and values its marshlands, parks, beaches, and waterways.

**Figure 1.** Screenshot of example responses from online survey responses to the question: "What does resilience mean to you?"

N N
What does resilience mean to you?
The ability to survive and not be too financially disturbed by a natural disaster.
Protecting the island from destruction and ability to rebuild after disasters.
Being able to continue to live along the coast despite climate change and flooding.
Ability to recover quickly and toughness to cope and rebuild.
Surviving then thriving.
the ability to make positive changes for the sake of the environment and the natural resources that this area
enjoys. The ability to over rule aggressive plans to "over develop" the open spaces that are remaining.
Personal responsibility to be prepared
Resilience for a community means that the community has an ability to overcome catastrophic events,
bounce back or change with the times
Being able to adjust to the changes that may come.
Being able to bounce back no matter what!
The ability to bounce back after a setback.
success over adversity
·
Resilience refers to the capability to experience a problem and to defend against it and recover from it
back up and running quickly
Resilience is the ability to bounce back when dealt with adversity.
To withstand
Ability to withstand change which is unavoidable and normal re climate, the economy, cultural behavior etc.
Recovery from a situation that has negatively impacted you or your surroundings.
Being prepared to go on with your lifeno matter what happens
Springing back from adversity.
The level of recovery after an event
We can withstand bad things happening, and be strong. It seems like a commonly used socio-political term,
used today, which has a negative connotation to me.
preserve life and habitat
The ability to withstand catastrophe
bounce back after weather event
Steadfastness or endurance in the face of less than optimal conditions
Preparation
Ability to attain the 'normal' state soon after an event that caused an abnormal state of affairs.
the ability to withstand or recovery quickly
The ability to adapt.
Ability to adapt to and accommodate changes
Planning to thrive not only survive.
Toughness
An ability to withstand all things that happen, good and not so good. Regenerating and ready for the next
challenge.
THE ABILITY TO RECOVER QUICKLY
Capacity to faster Recovery
It means that damages should minimized during times of flooding resulting in less risk to people and
infrastructure and ensuring that there is ample room for flooding and river adjustment to occur where the
opportunity may exist.
To be able to mentally emotionally cope with a crisis to be prepared
Strengthen and protect natural habitat while maintaining natural resilience. Flexibility to be able to adapt to
change.

It is characterized by its diversity of people, destinations, landscapes, activities, and ways of getting around. The Region has continually reinvented itself, and it is a resilient place that works together to meet the challenges of whatever comes its way whether it has to do with economic shifts, a pandemic, or a major coastal storm.

The Region found being "resilient" in the ACCR means not only being prepared for and surviving challenges and emergencies, but also adapting and thriving in the face of change. See **Figure 1.** Screenshot of example responses from online survey responses to the question: "What does resilience mean to you?" for a screenshot of responses provided in the ACCR online vision and goals survey with respect to the question: "What does resilience mean to you?"

Meeting conversations, real time polling ("PollEverywhere") during the Virtual Open House public meetings and survey responses helped to highlight where vulnerabilities and gaps exist in the ACCR's level of regional resilience as well as what goals are most important as we plan for the future.

This included prioritizing protection of critical infrastructure and ecology as well as creating strategies to promote stability and protect residents' ability to remain in the Region in the future (see Figure 2). Stakeholders identified key resources and assets that need to be safeguarded and strengthened including roads and evacuation routes, health care facilities and shelters, small businesses, grocery stores, banks, and power, water, and telecommunication utilities.

In addition specific places have been identified as needing improvement in the ACCR's vision for the future including low-laying streets in Margate and Ventnor, portions of Brigantine Boulevard and the vehicular beach access route, West End Avenue and areas around the shoreline of Lakes Bay, among others.

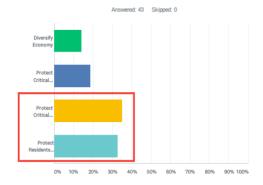
The visioning process highlighted the need to transparently identify, assess and communicate areas vulnerability and areas in need of protection and enhancement and expand education and awareness about emergency preparedness and resilience planning for and adaptation. Discussion on possible investment and disinvestment in areas across the municipalities within the ACCR was also raised to ensure the Resilient NJ process factors in considerations of gentrification, equity, and access into the risk assessment, scenarios development, and drafting of the ACCR's Action Plan.

Stakeholders identified existing coastal research strengths and

**Figure 2.** PollEverywhere (real time polling) and online survey responses indicating salient goals for Atlantic County Coastal Region stakeholders.

What goals should drive the plan?		AM/PM Votes
	Protect Critical Infrastructure	10
High Level Goal	Protect Residents Ability to Stay in the Region	8
	Diversify Economy	4
	Protect Critical Ecology	4

Q9 Which of these goals is most important to you?



ANSWER CHOICES	RESPONSES	
Diversify Economy	13.95%	6
Protect Critical Infrastructure	18.60%	8
Protect Critical Ecology	34.88%	15
Protect Residents Ability to Stay in the Region	32.56%	14
TOTAL		43



willingness to harness green technologies as an opportunity to build on progress of the Stockton

University Coastal Research Center and nearby Jacques Cousteau National Estuarine Research Reserve, but also as a way to not only contribute to state, national, and international climate change imperatives related to renewable energy and greenhouse gas emission reductions, but also a means to jumpstart regional research and development, investment, and innovation.

Building upon these take-ways, the following general themes emerged through the course of the first nine months of the Resilient NJ planning process.

- \* Resilience, Sustainability, and Adaptation
- Technological Advancement
- Travel, Leisure, and Recreation
- Economic Opportunity

#### a. Resilience, Sustainability, and Adaptation

When asked about resilience, the communities and stakeholders within the ACCR shared experiences of the aftermath of major storms. Most reported that past storms knocked out key infrastructure, including transportation, power, internet and phone communication. There was also discussion on housing that was damaged or destroyed, and resulting loans and bills required to complete repair, replacement, and home-raising costs. Some residents shared they felt illequipped to make decisions on how to recover from the aftermath of Superstorm Sandy and believe they will be repaying repair loans for the rest of their lives, which led to discussion on goals for greater transparency, accountability, and knowledge-sharing for navigating decisions, contracts, and investments for mitigating and recovering from flood damage to private property.

The communities recalled that evacuation routes were rendered inadequate or were not usable before and after the storm due to flooding, debris, and/or congestion. Though the ACCR persevered and ultimately rebuilt, residents offered short-term and long-term suggestions, including to raise key evacuation roads, improve coordination and communication among emergency services, and organize a regional debris removal strategy to increase the barrier island's ability to be better prepared and recover more quickly in the future.

Some residents found that public outreach, specifically being available in multiple languages, was lacking before storms like Superstorm Sandy. There were also challenges with training to evacuate those with disabilities and special needs, particularly with respect to autism and the aging population. Conflicting messages from local and state leaders and the remembrance of past experiences (e.g., calls to evacuate for storms that ultimately did not result in damage) have influenced some individuals' decisions to not evacuate in the future. The focus groups and interviews also found that some residents, such as individuals without housing and undocumented residents did not feel safe or were otherwise unwilling or unable to ask for assistance. When it came to rebuilding, there were also unscrupulous contractors that preyed on the vulnerable. Costs for raising houses and damage repairs became out-of-reach for some homeowners, leading them to abandon their properties altogether. Some of the abandoned homes were secondary summer homes ineligible for some of the same funding opportunities available to primary homes for rebuilding or repair. At the same time, the ACCR also witnessed an increase in homelessness after the storms.

Other short-term post-disaster challenges included debris management, power outages, and flooding. Superstorm Sandy washed sand onto streets and into sanitary and storm sewer systems, which damaged infrastructure, including underground pipes.

After Superstorm Sandy, most of the communities in ACCR adopted a "code red" system to warn residents to evacuate on time. Communities also increased outreach regarding the <u>Register Ready</u> program that allows individuals to register with special needs so that emergency responders can provide appropriate services in times of need. Municipalities focused on strategies for elevating houses and roads. An influx of public funding after Sandy paid for critical infrastructure upgrades.

The coastal communities are continually adapting to climate change, especially rising sea levels along the barrier islands and bayside marshes. To reduce flood risk and its related consequences, some stormwater pump stations and backup generators have been added in the region; dune, marsh, and beach replenishment has continued; and bulkhead projects have been built to act as a first line of defense. Stakeholders also identified that raising major roads may be necessary in some areas but will present a challenge in others as connections to surrounding properties must be maintained within the limited available space in these built-out areas.

Evolution of the ACCR's awareness, understanding, and development of regional sustainability, resilience and adaptation is also reflected by the New Jersey Economic Development Authority and Stockton University's identification of Atlantic City and broader Absecon Island as an ideal location for a laboratory and innovation hub focused on coastal resilience research and development. The Coastal Resiliency Institute & Marine Science Center would provide cutting edge research in off-shore wind energy, the blue economy, resilience, and sea level studies. This facility is at the top of Stockton's capital improvements initiatives.

The larger region has also been identified as an excellent place for off-shore wind deployment. These developments are part of the ACCR's resilience story, in which microgrids, reuse of dredged material, an eco-park, large scale solar projects, and green hydrogen have also been raised as components of the vision for a resilient future.

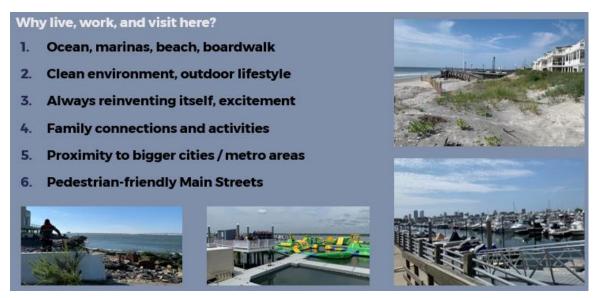
#### b. Technological Advancement

As a component for achieving a more resilient future, technological advancement in wind power, green technologies, and climate science is important to stakeholders, as identified through visioning discussions. The SC and CAC repeatedly discussed the 'Blue Economy' as an opportunity for advancing wind energy and marine industries while providing greater access to more affordable and reliable energy in the region. Utility companies and CAC members suggested renewable energy combined with microgrids could reduce electricity shortages during storms and speed up recovery.

The operation and maintenance facilities for Ørsted and Atlantic Shores will be in Atlantic City. These facilities will comprise multimillion-dollar investments on the waterfront. The Atlantic Cape Community College received a grant to build a wind power safety training center. The college also applied for a grant to begin a turbine technician training center with the support of unions and elected officials. Stockton has memorandums of understanding with Ørsted and Atlantic Wind to do water research and testing. Research and workforce development are key goals for the ACCR as a result of these technological advancements.

The Federal Aviation Administration (FAA) is also spurring technological advancement, with Embry Riddle Aeronautical University (ERAU) agreeing to serve as an academic partner in the development of an operational plan for an Atlantic County Aviation Maintenance and Technical Academy. In 2018, the Atlantic County government and Atlantic County Economic Alliance (ACEA) were awarded a \$120,000 Innovation Challenge grant from NJEDA to develop a plan for the academy. A key goal of the proposed Atlantic County academy is to help broaden and diversify the regional economy to facilitate development of an aviation economic hub centered around the FAA Tech Center, the Atlantic City Airport, and the National Aviation Research and Technology Park.

Figure 3. Summary of responses from online survey to the question: "Why do people live, work, and visit here?"



#### c. Travel, Leisure, and Recreation

The tourism and hospitality sectors make up a core part of the local economy. This includes general travel (transportation and relevant services), leisure (beaches, hotels, and supporting facilities), and recreation (casinos, boardwalks, aquatic activities, etc.). Focus groups and committees expressed pride in the tourism and hospitality sectors that are vital to Atlantic City's economy. Many of the region's residents are drawn to Atlantic City and surrounding communities due to the world-class beaches, boardwalk, and nightlife. Participants recalled fond memories of seeing the boardwalks of Atlantic City full of summer tourists and working in the casinos and restaurants that catered to tourists.

A sizable number of stakeholders in the ACCR work in the casinos and businesses in Atlantic City as their livelihoods. The industry has provided jobs and household income to an area that relies heavily on tourism to fuel its economy. Nearly every group knew people who currently work in or had worked for a business in Atlantic City. The city is a host to events and conventions that attract out of town visitors, such as the Miss America Pageant, an event that proudly originated in the city. The Casino Reinvestment Development Authority (CRDA) indicated that some of the vacant lots that it owns within the city will be converted to surface parking-lots for special events like the 2021 Atlantic City Airshow.

ACCR stakeholders shared feeling a connection to the surrounding water, beaches, and nature and expressed a desire to focus on these critical assets. The overall health of the marshes was highlighted by stakeholders for bay recreation like watersports and boating. In addition, stakeholders envision improving transportation assets in and around the ACCR to protect accessibility to jobs, tourism and recreation opportunities. They suggested raising the major bridges and roadways leading into the islands, dredging the back bay area for flood resistance, and protecting the rail line and Atlantic City International Airport from flooding. The loss of power in past disasters had a negative effect on jobs when large employers like the casinos in Atlantic City and small businesses along the coast went without power and could not open to the public.

#### d. Economic Opportunity

Representatives of local small business owners, major casinos, the hospital, the airport, utilities, institutions, and commercial ventures in the ACCR participated in focus groups, public meetings, and surveys. The range of commodities and services these different businesses represent reflect the diversity in opportunities within the ACCR. CRDA spoke about how high paying engineering and technical jobs with good benefits at organizations like NASA and Boeing would attract talent into the Region. CRDA was in favor of further supporting the "Blue Economy" and incentives to increase homeownership within Atlantic City and the Region.

Utility companies operating within the ACCR were interviewed in a focus group. They discussed cooperation on maintaining and repairing critical infrastructure would be mutually beneficial for the residents and companies. Such cooperation would create redundancy on the utility grid, allowing utilities to stay online or to resume operation more quickly following major storms. The faster services return, the more quickly the economy can restart after a storm. To avoid disruption to the economy stakeholders also raised the opportunity for having preparedness programs and tabletop response drills incorporated into regional planning and coordination as part of increasing future resilience.

#### IV. SUMMARY OF VISIONING EXERCISES

#### a. Social

Community cohesion was a key theme of the CAC meetings. Stakeholders said that this is an area where people throughout the state and beyond came together for conferences and to connect. The region is a mix of tourists and visitors, second homeowners and year-round residents. CAC members stressed the importance of preserving diversity and allowing multiple generations to stay in the area as it evolves. The municipalities expressed a desire to attract additional year-round populations.

Residents, particularly year-round residents, desired transparency and clear communication from local officials during emergencies. The residents indicated their desire to continue to live and work within these unique and diverse communities. The ACCR has embodied the natural beauty and cultural identity of the shore for generations, and it is an area where people know and help their neighbors and work together to adapt when facing challenges. Residents voiced a need for consistent regional communication that reaches all populations and considers language barriers. Leaders are coordinating to address short- and long-term social challenges, like establishing temporary shelters, safeguarding supply chains and transportation access, and creating a culture of preparedness in the region. Additionally, stakeholders raised other complex challenges the ACCR wants to guard against or manage better in future disasters, like

unscrupulous contractors taking advantage of residents, onboarding and management of volunteers, providing adequate resources and services for coping with the mental health effects in the aftermath of climate events, homelessness, and abandoning of homes and properties.

#### b. Economic

The ACCR stakeholders value their historic boardwalk, world-class beaches and bays, vibrant casinos, and large-scale conventions and events, which are all are sources of income for the economy. The stakeholders wish to preserve their tourism economy and build upon it with innovation and growth in the blue economy, aviation, wind power, healthcare, and institutional sectors. The Region wishes to remain a world class tourist destination, with casinos, entertainment, conventions and events, restaurants, shopping, and a multitude of beach and bay recreational options, while preserving quiet residential neighborhoods and the small-town feel and character of the Region's Main Streets.

As seen in **Figure 4**, participants in the Virtual Open House real-time polling exercise saw emerging technologies based on clean energy initiatives and other quality of life improvements (including bicycle infrastructure, shared services, and more resilient homes and businesses) as opportunities that would benefit the ACCR in the future. The theme improving day-to-day economic and social stability as a part of improving shortand long-term resilience was raised repeatedly through the visioning process.

In the aftermath of major events, the ACCR realizes the importance of getting critical infrastructure back in service as quickly as possible for the local economy. Therefore, regional debris management coordination and the need for emergency contracts is key, as well as protecting and elevating evacuation routes and transportation infrastructure. There also needs to be

Figure 4. Real-time polling results from 6/15/21 Virtual Open House (morning) on what could benefit the ACCR in the future.



What services, improvements and technologies do you see your community benefiting from in the future?

- Emerging technologies based on clean energy initiatives
  - +5 upvotes
- Bicycle infrastructure
  - o +3 upvotes
- Shared Services
  - o + 2 upvotes
- Great community to work "remotely" improved broadband
  - o + 2 upvotes
- Improved airport service, more airlines
  - o + 1 upvote
- Multi-jurisdictional coordination
  - + 1 upvote
- More resilient businesses and homes

reliable power, and coordination for all critical utilities including internet, phone, power, water, and sewer. Stakeholders voiced the need to protect and design critical infrastructure to withstand floodwater in a way that it can come and go, such as fortifying roads and subsurface utility lines and installing stormwater pump stations and valves on outfalls.

As the economy of the ACCR diversifies, stakeholders also envision workforce training as part of the region's future so residents can transfer skills and be prepared for jobs in wind power, aviation, healthcare, climate adaptation, and other emerging industries. The addition of jobs in these industries along with existing residents support small businesses, retail, restaurants, and casinos as well as the local tax base.

#### c. Environmental

The ACCR accepts that it must learn to live with rising waters as the coastal areas adapt to climate change. The ACCR supports research and investment in the blue economy and ecosystem services for promoting sustainable energy and long-term resilience. The area is rich in ecological resources, and values its marshlands, parks, beaches, and waterways. The conservation of marshlands is of key importance to the ACCR along with management of erosion and sediment transport, particularly in Brigantine and Longport. The ACCR supports both structural and non-structural solutions to flooding and discussed examples where marshlands were more effective than bulkheads in certain locations. The ACCR values its parks, trees, and green infrastructure and sees itself on the cutting edge of green technologies and nature-based solutions.

#### V. THE FINAL VISION, MISSION AND GOALS

#### a. The Vision Statement

In conclusion, the final Vision Statement of the ACCR is as follows:

The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where **protections from natural disasters, flooding, and sea level rise** enable the region to thrive; residents' **sense of belonging** and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that **honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination**.

#### b. The Mission Statement

The final Mission of the ACCR is as follows:

Develop a flexible roadmap that looks out to the year 2070 and presents strategic actions and proposed solutions to reduce the worst effects of increased precipitation, sea level rise, and coastal storms over the next 50 years; and ensure the needs and goals of residents, visitors, and businesses of the Atlantic County Coastal Region are heard and incorporated throughout the development and implementation of the Resilient NJ Regional Resilience and Adaptation Action Plan (RRAAP).

#### c. ACCR Values & Goals

The values and goals of the ACCR are as follows:

- o Friendly & inclusive: welcoming to diverse residents and visitors year-round
- A special place in the state, region, and country: preservation and enhancement of ACCR's unique characteristics – natural and human-made – that it set it apart from other destinations
- o **Stronger together:** understanding that the region will continue to experience challenges over time and collaboration leads to greater safety and success
- o **Thriving communities:** numerous economic, educational, and recreational opportunities with a diverse and growing workforce, improved connectivity and

- mobility, and social equity and environmental justice at the heart of decision-making and investments
- Resilience and adaptation: able to minimize negative effects, manage emergencies, recover rapidly when challenges arise, and rejuvenate over time in the face of climate change

#### **ACCR Goals**

#### 1) Protect Critical Infrastructure, Ecology and Cultural Assets

- a. **Conscientious investment.** Provide infrastructure improvements that create benefits in proportion to the need, considering historical public investment patterns in the region, and without causing displacement.
- b. **Efficiency and equity.** Ensure response and adaptation strategies to current and future climate change disruptions and damage to infrastructure and communities are efficient and equitable, including infrastructure improvements and nature-based solutions that minimize vulnerability and consequences.
- c. **Improve regional coordination and build alliances** to share resources and information, access funding, and implement flood resilience measures that drive effective emergency response, promote ecological integrity of local landscapes, and preserve historic and cultural assets of the region.
- d. **Preserve important plant and animal populations and habitats**, conserve marshlands and wetlands, and promote beneficial reuse of resources (e.g., dredged materials) to improve viability and biodiversity while reducing impacts of flooding, storm surges, and coastal storms.

#### 2) Protect Residents' Ability to Stay in the Region

- a. **Innovation in design.** Design critical infrastructure to ensure continued service to all communities during and after major storm events and in the face of rising sea levels and intensifying storms that impact urban and natural landscapes.
- b. **Neighborhood character and features.** Preserve and enhance neighborhood features that represent and are cherished by the people who live here.
- c. **Agility and balance.** Be agile in balancing human needs and limitations in land use, environmental, engineering, policy and funding-related decision-making. Improve local expertise and civic engagement in understanding climate hazards and preparedness strategies and related trade-offs for development and investment.
- d. **Education and collaboration.** Facilitate topical education for residents to empower their input and collaboration on project development, prioritization and outcomes, improve information dissemination and planning for the next flood, and ensure access to safe, equitable and quality resources associated with climate resilience.

#### 3) Diversify Economic, Research, and Employment Opportunities

- a. **Hyperlocal workforce.** Create hyperlocal workforce development opportunities to support projects and promote small businesses.
- b. **Diversify economy.** Continue to diversify the economy to include additional water-oriented tourist attractions and businesses, as well as offshore renewable energy and strengthen eco-tourism, hospitality, and retail industries.
- c. **Research and development imperatives.** Strengthen research and educational sectors to not only advance innovation, but also improve and expand public awareness of the region's hazards.

Appendix E—Scenario Development Memos



To: Matt Baumgardner & Emily Goldstein, NJDEP

From: Eric Fang and the ACCR Consulting Team

Date: February 23, 2022

Re: Resilient NJ Atlantic County Coastal Region (ACCR)

**Overview of Scenarios** 

#### Overview

Our team has organized the three scenarios to help the Steering Committee and Stakeholders clarify their thinking about the different approaches to addressing the region's most salient adaptation challenges, and as a tool to help determine regional priorities.

While these scenarios encompass a diverse suite of actions, each scenario addresses the seven challenges facing the region, as identified through the engagement process, risk assessment and planning analysis:

- Shoreline Protection
- Stormwater Management
- Access and Transportation
- Power and Communications
- Equitable Economic Development
- Public Facilities
- Vulnerable Populations

The three scenarios also embody the key elements of the ACCR vision: "The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where protections from natural disasters, flooding, and sea level rise enable the region to thrive; residents' sense of belonging and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination."

These actions are focused on building the region's capacity as a region, which we believe is fundamental in addressing long term resilience of the region's seven municipalities.

Each of the three scenarios is structured around a different conceptual approach to adaption and implementation. Each includes implementable actions incorporating ongoing initiatives as well as more innovative methods and visionary strategies for long term resiliency.

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#### **All Scenarios**

Common to all three are a set of six actions that address shared challenges in a way that would yield multiple benefits.

- The Absecon Bay Living Bay Master Plan provides a framework to establish conditional monitoring, prioritize actions for habitat restoration, and create a means to streamline permit reviews.
- Establishment of the "Absecon Bay Keepers", a non-profit organization dedicated to stewardship of Absecon Bay, and working on behalf of the people and wildlife that depend on the Bay through environmental action, advocacy, and education.
- Implement a regional initiative to translate all emergency preparedness
  materials to multiple languages spoken in the region. Atlantic City is one of the
  country's most diverse communities in terms languages spoken and this
  initiative would entail translation to over eight languages.
- Implement a program focused on the evaluation and improvement of preparedness actions for socially vulnerable populations focusing on Shelters, Evacuation, Outreach, and Education and Social Services and Wellness.
- Adaptation Action Plan for all Atlantic City Housing Authority and Pleasantville
  Housing Authority Communities and the region's Senior Communities. The
  Action Plan would include measures such as elevating electrical and
  mechanical equipment, installation of solar panels, reprogramming vulnerable
  ground level residential units, and developing long term strategies for the
  most vulnerable communities, such as Walter Buzby.
- Raise approaches to all bridges to maintain the viability of the five evacuation routes servicing Absecon Island and Brigantine.

#### Scenario 1

Scenario 1 is oriented toward gray infrastructure solutions. This scenario relies on a mix of actors for implementation, but is more centralized in nature, looking primarily on Federal and State-led partnerships with local municipalities to address coastal protection.

On the Absecon Bay side, this scenario calls for the implementation of the recommendations featured in the USACE's Back Bays Study which proposes a Cross-Bay Barrier, a continuous floodwall along the northern edge of Absecon Island in Atlantic City, and the construction of the Great Egg Harbor Inlet Storm Surge Barrier adjacent to the Downbeach area. This scenario adopts this same approach along the entire length of Brigantine's Absecon Bay shoreline, which is not within the line of protection in the Back Bays Study Plan. On the ocean side, this scenario calls for installing a sheet pile dune core to fortify the dunes in the Absecon Island municipalities and Brigantine. It also calls for constructing a sea wall on the northern end of Brigantine, which has been identified as a critical gap.

Stormwater is perhaps the risk the community feels most acutely on a regular basis. To address the increasing frequency of more intense rain events, Scenario 1 proposes



a combination of new pump stations and raising selected roads with a focus on those that feed into evacuation routes.

To maintain post-disaster continuity of electrical and communications service, this scenario proposes a suite of three actions: a) hardening all above ground utility poles and burying power lines where possible; b) installing new generators at selected public buildings and using these to power new microgrids; and c) expanding the Midtown Microgrid study, an ongoing, funded initiative, to nearby local merchants on Atlantic Avenue to allow for the continued provision of food and healthcare services in post-disaster situations. Maintaining continuity of services by local retail establishments is also provided for in this scenario through a program to protect each of the area's primary commercial corridors and retail centers.

#### Scenario 2

Scenario 2 adopts a mix of gray and green adaptation solutions. This scenario also relies on a mix of actors but looks toward the State, County and the region's municipalities to partner on needed resiliency improvements.

On the ocean side, Scenario 2 continues the beach nourishment program with a gradual elevation increase to address surge and sea level rise over time. To address vulnerability on the Absecon Bay side, this scenario proposes utilizing the assets within the control of the individual municipalities. This scenario proposes raising the roads closest to, and paralleling the shoreline in all five Absecon Island municipalities and Brigantine. This would involve linking multiple streets to form a continuous multipurpose levee. This levee is envisioned to include a Greenway trail for pedestrians and/or cyclists, thus offering recreational benefits as well.

As a companion to the Greenway, this scenario proposes a "Absecon Bay Blueway". This would be a network of interconnected kayak/canoe trails connecting different parts of Absecon Bay and potentially linking to the Great Bay to the north and the Great Egg Harbor Bay to the south. The Blueway could not only help raise awareness of the bay and its ecological importance to the region, but also provide a new recreational outlet and contribute to the region's economic development.

For stormwater management, this scenario features a Feasibility Study and Pilot Program "Blue Street," an innovative "smart infrastructure" approach to managing ground water to mitigate flooding. This approach, which couples subsurface sensors coupled with pump stations to lower ground water in advance of major precipitation events has been successfully deployed in similar contexts in the U.S. The purpose of the study would be to identify the locations it might be most effective in this region, and fund a pilot project in Atlantic City.

To maintain post disaster continuity of electrical and communications service, Scenario 2 proposes a community microgrid study to identify optimal locations for microgrids in each of the region's municipalities. The study would focus on public facilities, casino/hotels and other major sites that could support emergency power



generation and microgrids that would supply power to vulnerable populations, essential small businesses, and medical facilities in the immediate vicinity. This study would require coordination with Atlantic City Electric (ACE).

#### Scenario 3

Scenario 3 is oriented more toward nature-based adaptation solutions. This scenario also takes a more diverse approach to implementation, relying on state, local, non-profit and private sector partnerships, and looking to leverage private investment to help finance needed resiliency improvements.

Scenario 3 takes a public-private approach to bayside protection. The key concept is to allow increased densities and encourage assemblage of individual single family bayfront lots in order to attract private investment. New development projects would be required to implement shoreline improvements that would provide long term protection to upland areas. These improvements could include living shorelines, site raising, etc. This strategy is based on a phenomenon that has been occurring organically in the Downbeach communities and Brigantine, where improvements to bayside shoreline protection have been taking place as individual properties change hands and the northern end of Atlantic City. On the ocean side, Scenario 3 proposes offshore breakwaters to mitigate storm surge.

Scenario 3 also proposes revising the zoning in two corridors within the region to allow for greater density. The two areas identified, along the Black Horse Bike north of Florence Avenue in Pleasantville, and Atlantic Avenue in Atlantic City, are less vulnerable relative to other area neighborhoods, are along major established corridors, and enjoy access to transit. Zoning changes would be coupled with development of vision plans for integrating public realm and flood mitigation improvements to make these areas more attractive for development. Greater density in these areas would allow for economic development opportunities and also expand opportunities for housing for those potentially displaced as more vulnerable areas become too expensive to protect.

This Scenario also encourages rezoning properties adjacent to Atlantic City Harbor for maritime oriented/'blue economy' uses. The goal is to better take advantage of the one location in the entire region with a harbor able to support blue economy related uses. Using zoning ordinance, would allow the area to transform over time while preserving nearby historic neighborhoods. Attracting blue economy enterprises in this area would open the possibility for partnerships with the State, which is actively encouraging these types of industries. Such partnerships would not only create new jobs, but would also attract the private capital needed to make needed improvements in shoreline protection that would protect upland neighborhoods.

The Coast Guard occupies a strategic location on the Absecon Inlet, at the mouth of the Harbor. Should the Coast Guard decide to decommission this site, this study would position the City to ensure that the land is redeveloped for uses that will support maritime related/blue economy uses.



For stormwater management, this scenario features a "Living Streets Feasibility Study and Pilot Project." This would not only include the "Blue Streets" program described in Scenario 2, but also a focus on "Green Streets" to identify locations where green infrastructure measures such as stormwater streets, swales, as well as porous pavement would be most effective. Incorporating Green Streets would allow for natural infiltration to mitigate downstream flash flood risks taking pressure off municipal storm sewer systems. The "Living Streets Feasibility Study and Pilot Project" would also fund a pilot living streets pilot project in Atlantic City.

To improve the region's ability to maintain post disaster electrical and communications service, Scenario 3 takes a more decentralized approach, looking to encourage actions by private property owners by requiring installation of solar panels for all renovation and new construction projects above a specified dollar amount to increase energy resiliency during power outage. This scenario also features an incentive program to encourage installation of solar trellises at surface parking lots and batteries at all buildings to increase the capacity for individual property owners to maintain electrical power independently of the grid in post-disaster situations. Encouraging installation of batteries would also allow for bi-directional charging for electric vehicles which would address potential gas shortages in post-disaster situations.

Appendix F—Scenario Visualization Products

















































## Thank you for being here.

You could be anywhere else right now, but you took the time to join this meeting and we want you to know that it is appreciated by our team.

Your participation in this meeting and other engagements will support our continued effort towards a Resilient NJ and your feedback from today's session can directly result in more funding opportunities for the scenario solutions we will review today.



# PROJECT VISION & ENGAGEMENT

# Resilient New Jersey Atlantic County Coastal Region Vision Statement:

"The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where protections from natural disasters, flooding, and sea level rise enable the region to thrive; residents' sense of belonging and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination."



### what we heard:

## this region matters.

This region is a diverse community, with a competitive economy, great places to visit and gather, iconic beaches and rich history make it worth protecting.











# The Region is proud of its social fabric, diverse economy, and ecological assets

- A world class destination where people routinely come to connect both with each other and with nature
- People gather in this Region for conventions, competitions, pageants, research, collaboration, and innovation
- Critical to South Jersey's economy, providing jobs in service, transportation, energy, healthcare, marine, and education sectors
- Values its large employers, and also sees the small businesses as the lifeblood of the Region
- Rich in ecological resources, and values its marshlands, parks, beaches, and waterways
- Characterized by its diversity of people, destinations, landscapes, activities, and ways of getting around
- Has continually reinvented itself, and is a place that works together to meet the challenges of the future
- Focused on innovation to harness opportunities in green technologies



# RESILIENCE & ADAPTATION SCENARIOS

## Resilience & Adaptation Scenario Goals

- 1. Respond to the vision identified by the region
- 2. Reduce anticipated flood impacts in 2070
- 3. Include actions that respond to immediate flooding concerns within the region
- 4. Protect or enhance natural resources and ecosystem function, as well as public access
- 5. Address the needs of socially vulnerable populations



# SCENARIOS ARE BASED ON THE REGION'S ASSETS, VISIONS & RISKS

#### They will help answer these key questions:

- 1. What do we want to protect?
- 2. How can the region evolve to protect what we value?
- 3. Which vulnerable areas are at risk?



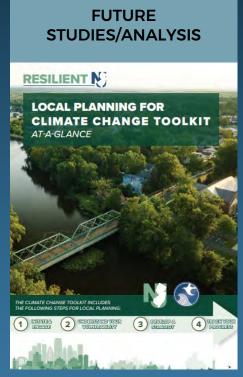
### RESILIENCE AND ADAPTATION SCENARIOS

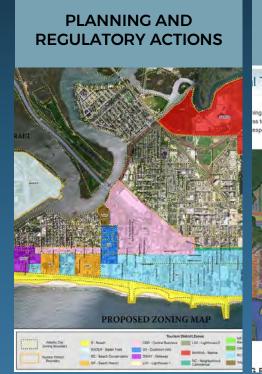
What is a Resilience and Adaptation Scenario? A suite of actions that will work collectively to increase resiliency over time.

What actions should be included?













## RESILIENCE CHECKLIST

Vision Evaluation of Risk and Risk Reduction Cost Efficiency Capacity to Implement Environmental/Ecological Adaptation Over Time Outreach and Partnerships Health and Populations Socio-Economic





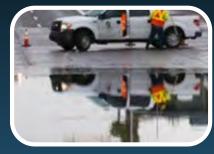
## **KEY CHALLENGES TO ADDRESS**



SHORELINE PROTECTION



STORMWATER MANAGEMENT



ACCESS & TRANSPORTATION



POWER & COMMUNICATIONS



EQUITABLE ECONOMIC OPPORTUNITY



**PUBLIC FACILITIES** 



COMMUNITY MEMBERS

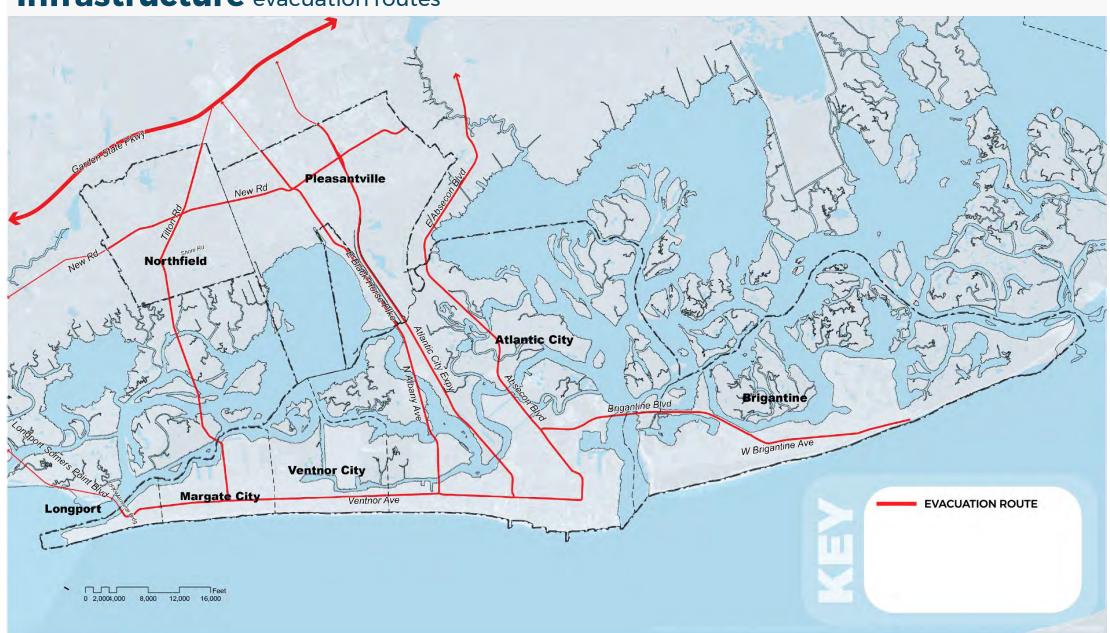
# WHATARE WE TRYING TO PROTECT?

# Natural Resources rivers, marshes, beaches & wildlife Pleasantville Northfield **Atlantic City** Ventnor City W Brigantine Ave Margate City Ventnor Ave Longport WETLAND/MARSH

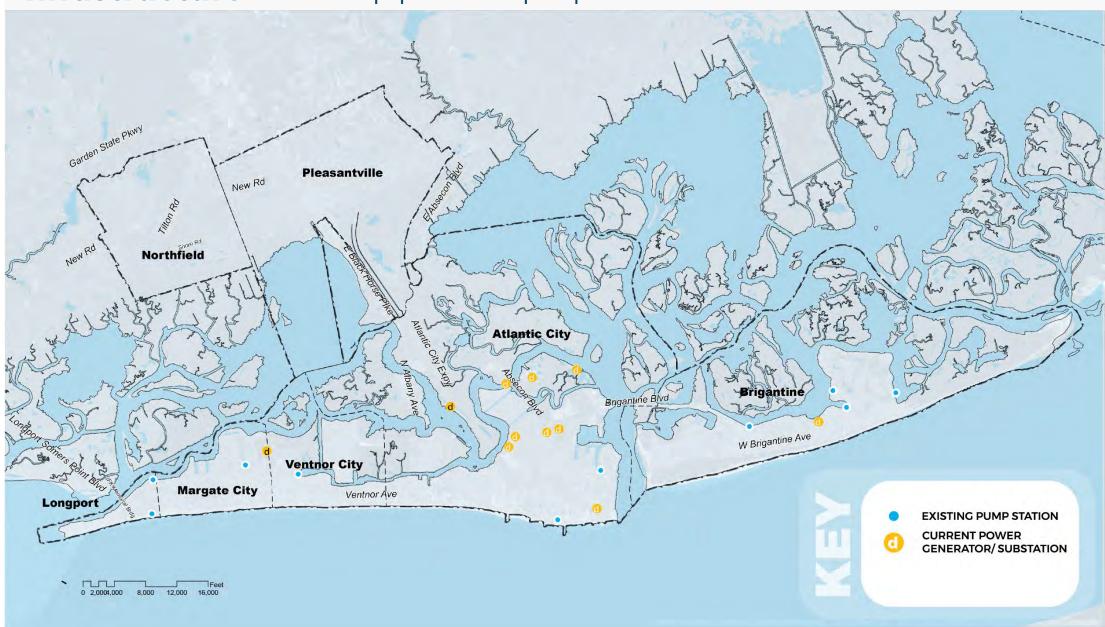
0 2,0004,000 8,000 12,000 16,000

**VEGETATED DUNE COMMUNITIES** 

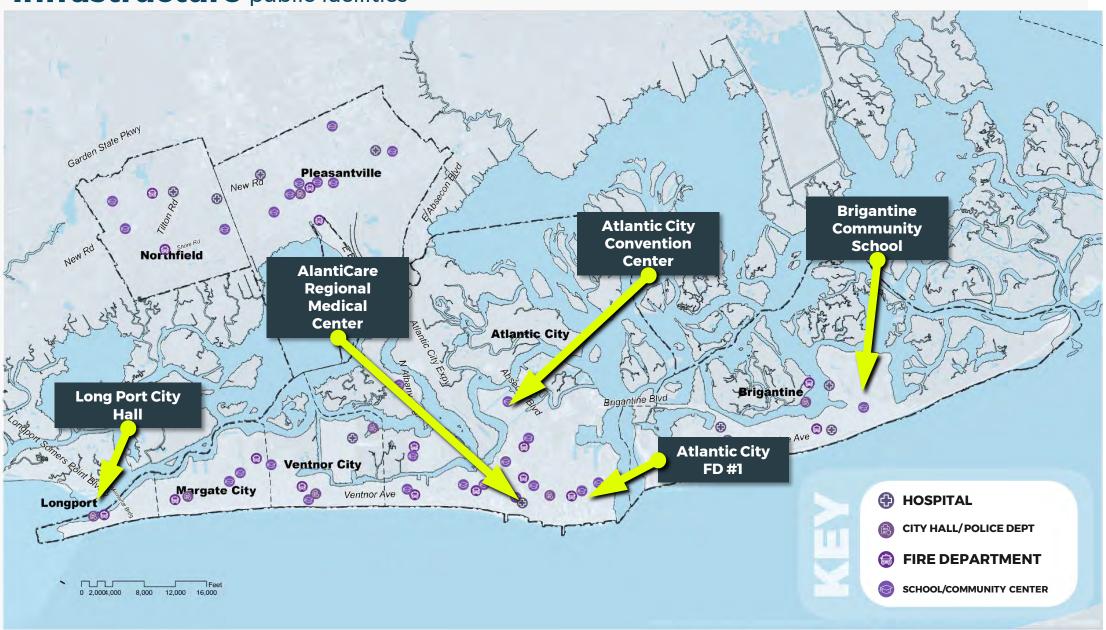
#### **Infrastructure** evacuation routes



#### Infrastructure electrical equipment and pump stations



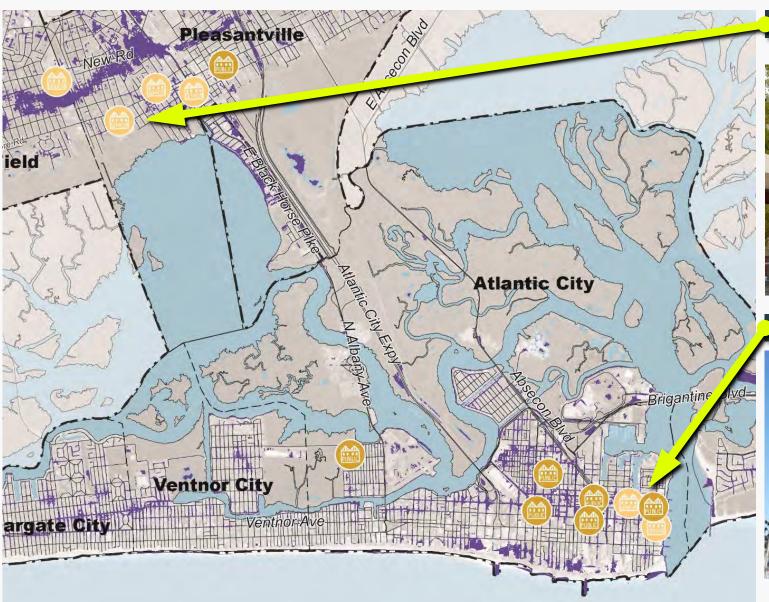
#### **Infrastructure** public facilities





**Economic Development** marinas North Field **Atlantic City** Brigantine W Brigantine Ave **Ventnor City** Mary ∢City Island Aqua Park at Margate City State Marina at Atlantic City North Point Marina at Brigantine

#### Economic Development vulnerable populations



#### **Meadowview Nursing Home**



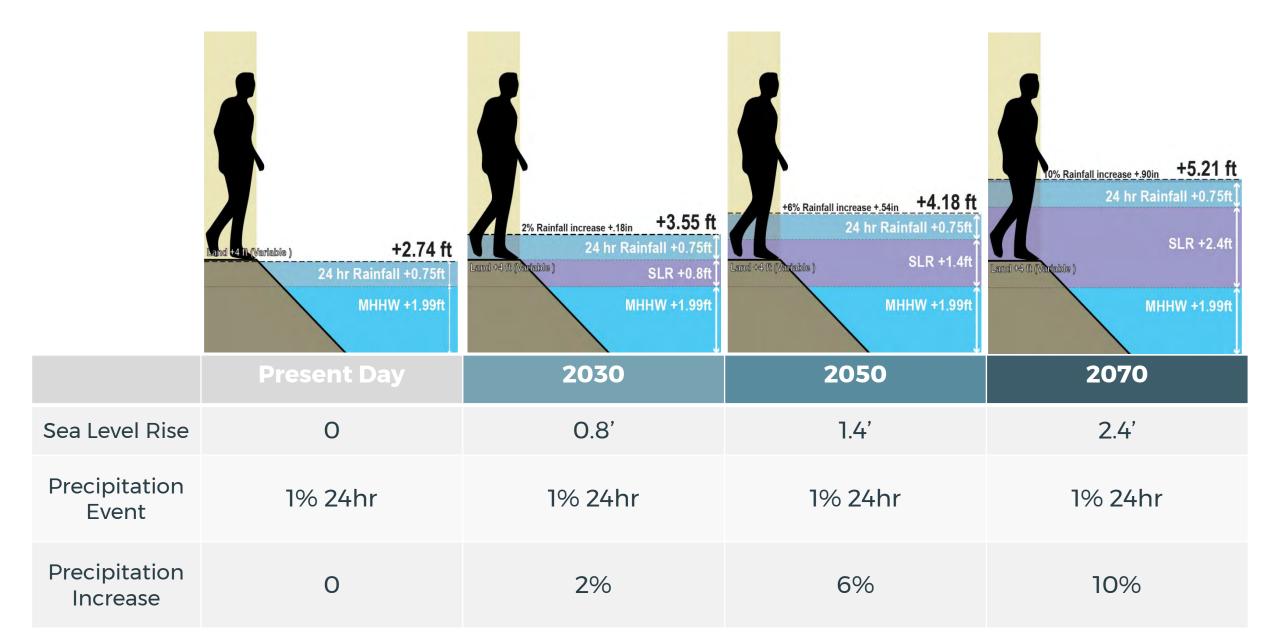
**Charles P. Jefferey at Atlantic City** 





# WHAT ARE WE TRYING TO PROTECT OUR REGION FROM?

# What are we preparing for?



# 1% / 24-HOUR RAINSTORM: 2030

The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2030

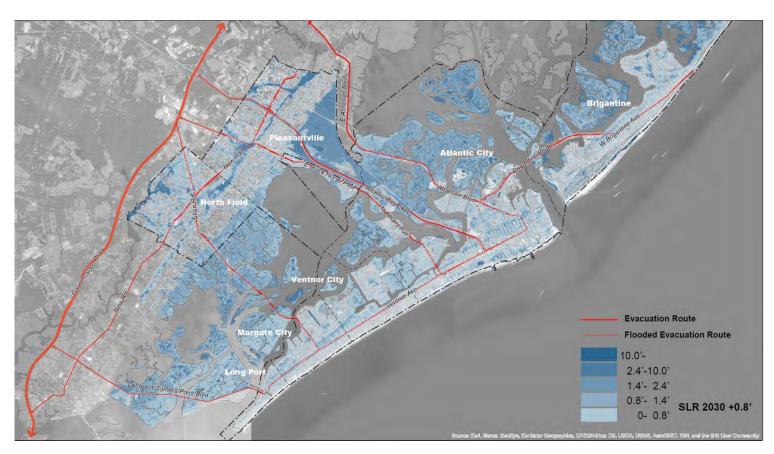
- Sea Level Rise of 9.6"
- 2% Increase in annual precipitation

2% Rainfall increase +.18in +3.55 ft

24 hr Rainfall +0.75ft

Land +4 ft (Variable) SLR +0.8ft

MHHW +1.99ft



# 1% / 24-HOUR RAINSTORM: 2050

The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2050

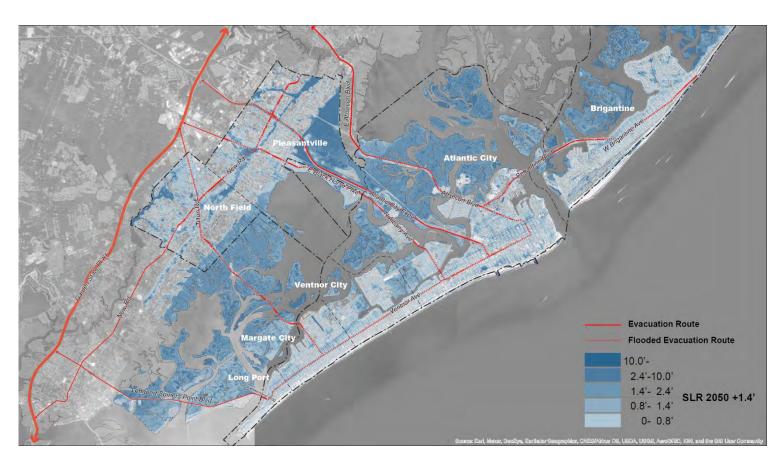
- Sea Level Rise of 16.5"
- 6% Increase in annual precipitation

+6% Rainfall increase +.54in +4.18 ft

24 hr Rainfall +0.75ft

SLR +1.4ft

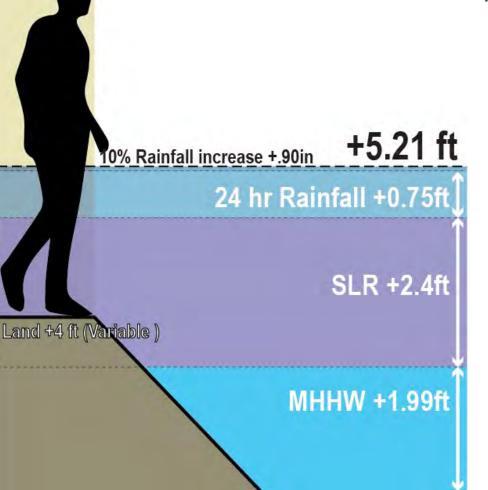
MHHW +1.99ft

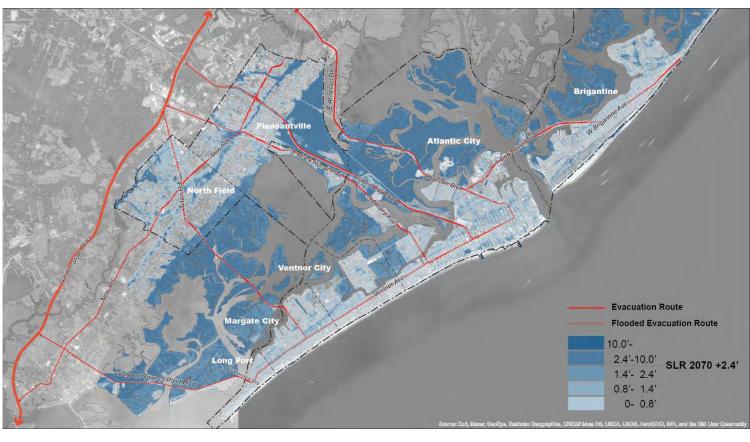


# 1% / 24-HOUR RAINSTORM: 2070

The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2070

- Sea Level Rise of 24"
- 10% Increase in annual precipitation





# SCENARIOS

# RESILIENCY CRITERIA

**Natural Resources** 



"Mix of Actors but Public Sector Leads on key projects"



"Mix of Actors but looks to State, County and Municipalities

• Blue way



"Mix of Actors but looks to leverage private investment to

	"Mix of Actors but <u>Public Sector</u> Leads on key projects"	to partner on needed resiliency improvements "	help finance needed resiliency improvements"
Year	Scenario 1	Scenario 2	Scenario 3
Implementation	Centralized		Decentralized
Approach	Oriented toward Grey Infrastructure solutions	<ul> <li>Mix of Blue and Green solutions</li> </ul>	Oriented toward nature-based solutions
Leadership	Relies on Federal State and Local partnerships	Relies on State and Local partnerships	<ul> <li>Relies on State, Local, Non-Profit and Private Sector Partnerships</li> </ul>
Shoreline Protection	<ul> <li>US Army Corps Back Bay Plan featuring floodwalls and floodgates</li> </ul>	<ul><li>Raised bayside and</li><li>Continued Beach Nourishment</li></ul>	<ul><li>Private investment</li><li>Offshore breakwaters</li></ul>
Stormwater Management	Raised Streets and Pump Stations	Blue Streets & pump stations	Living Streets
Power and utilities	<ul> <li>Expand current microgrid Atlantic City plan</li> <li>New Microgrids centered on community facilities</li> </ul>	<ul> <li>Community Microgrids based on new solar generation at community facilities</li> </ul>	Decentralized Solar and battery power plan
Vulnerable	Translate all emergency preparedness material to the region's eight languages		
Populations	Adaptation Action Plan for all Atlantic City Housing Authority Communities and Senior Communities		
Economic			Encourage Blue economy uses at
Development	Gardners Basin		
Capacity Building	Absecon Bay Keepers		
Access	<ul> <li>Raise approaches to all bridges to secure</li> <li>Raise Black Horse Pike</li> </ul>		
Natural Desources	Absecon Bay Living Bay Master Plan		

#### REGION-WIDE ACTIONS FOR ALL SCENARIOS

#### Absecon Bay Living Bay Master Plan

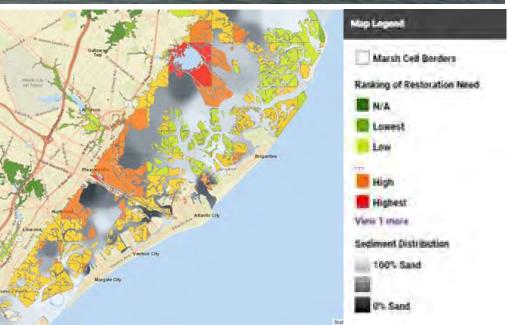
#### **Challenges**

- Prolonged inundation, erosion and loss due to sea level rise in Back Bay Marches will weaken protection of the surrounding communities and infrastructure from damage due to storm surge.
- Long term maintenance of the back bay tidal marshes requires coordinated and securely funded intervention.
- Implementing coastal resiliency projects within the region will likely face delays due to a backlog of applications

#### **Goals**

- Provide a framework to establish condition monitoring,
- Prioritize actions to restore habitats through thin-layer sand deposition in targeted locations and living shoreline improvements and coordinated use of resources (dredge sand) and funding.
- Create a means to streamline permit reviews resiliency projects, establish broader or more flexible limits for General Permits and expand use of In-Lieu-Fee mitigation option.
- Public Education to recognize the importance and value of back bay tidal wetlands in protecting the region from storm surge.





#### REGION-WIDE ACTIONS FOR ALL SCENARIOS

#### Establish a new non-profit organization, the Absecon Bay Keepers

Absecon Bay Keepers will be a non-profit organization focused on stewardship of Absecon Bay, and working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.



#### Carry out the mission through a combination of:

- formal and nonformal environmental education programs designed to raise awareness of the residents and visitors to the region.
- Work to protect, preserve and restore the various fish and wildlife habitats that exist within the watershed.

#### Act as steward for Absecon Bay by:

- Promoting responsible, sustainable development.
- Working with local, county and state planners to ensure that land-use planning decisions reflect up-to-date science.
- Provide a resource to assist local, state and federal agencies to identify threats to the resiliency of the Bay and the abutting communities;
- Promoting comprehensive planning to guide the future of Absecon Bay

#### REGION-WIDE ACTIONS FOR ALL SCENARIOS

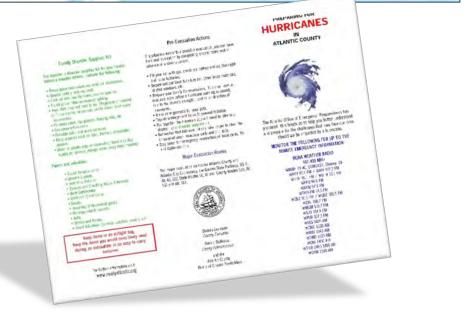


#### Languages other than English spoken at home, by census track:





Translate all Emergency Preparedness Materials into the multiple languages to reach all of the region's communities.



#### ACTIONS FOR ALL SCENARIOS

# Adaption Action Plan for Atlantic City & Pleasantville Housing Authority Communities and the Region's Senior Centers

#### **Continuity of Service**

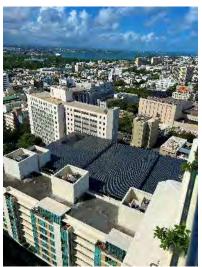
- Elevate Electrical and Mechanical Equipment
- Solar Trellises on all surface parking lots
- Solar Panels on all rooftops
- Battery to provide off-grid capacity at night
- Porous paving and green infrastructure planting to aid in stormwater management

#### **Flood Mitigation**

Reprogram Ground Level



Rooftop Solar



Solar Trellises



Relocated Mechanical Equipment









Altman Towers Whittington Senior Living

Walter Buzby

Stanley Village

Charles P Jefferies

# SCENARIO ONE



## SCENARIO 1





#### BAYSIDE SHORELINE PROTECTION



1 Rely on the plan proposed in the USACE Back Bay Plan, Great Egg **Harbor Inlet SSB** to protect bayside from storm surge events Install sheet pile dune core Extend board-walk / levee New bulkhead TO PROTECT THE **INSTALL SHEET NORTH END OF PILE DUNE CORE BRIGANTINE EXTEND BOARDWALKS AS EGG HARBOR** tic City **A CONTINUOUS** STORM SURGE BAPPIER Brigantine Brigantine Blvd **Ventnor City** gate City

#### **STORMWATER MANAGEMENT**

- Raise Roads to +12 Navd 88 & Pump Stations to Manage stormwater (assumptions - 24 Hour Storm Event)
- 2 New Pump Stations



# SCENARIO 1

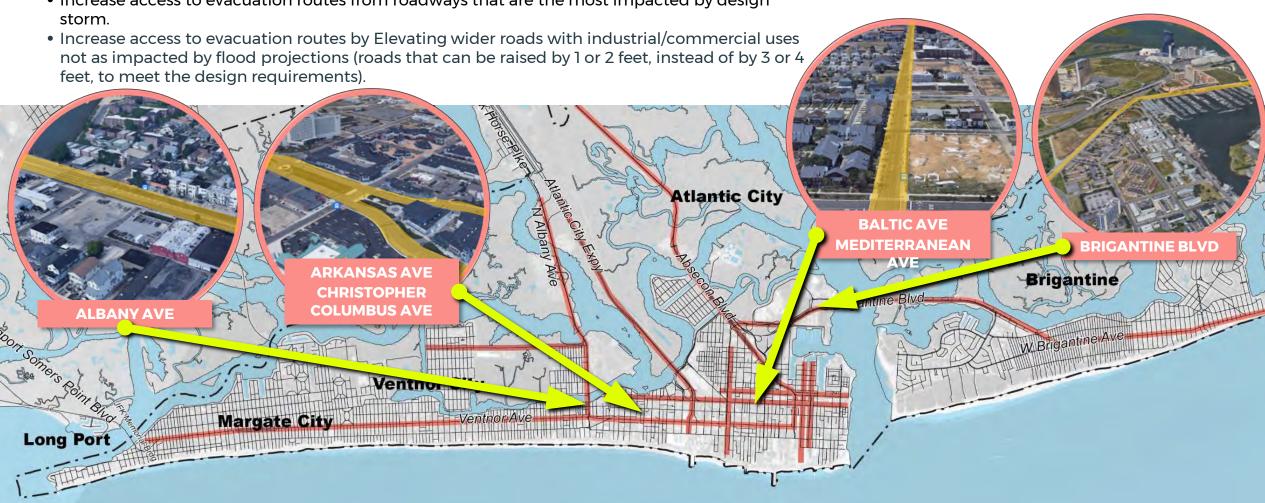
#### **STORMWATER MANAGEMENT**



#### **1** Elevate Evacuation Routes

#### Challenge

• Increase access to evacuation routes from roadways that are the most impacted by design storm.



- Harden all above grade utility poles, and bury utilities where possible
- 2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters).



- 2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters)
  - Atlantic City Hall to operate the city's 911 system

#### **Challenge:**

• After a disaster/major event causing power outage, communities need power to restart/rebuild.

#### Action:

• Program to install microgrids built on solar, V2G, or other renewables provide distributed energy and

can be targeted/subsidized.



### SCENARIO 1

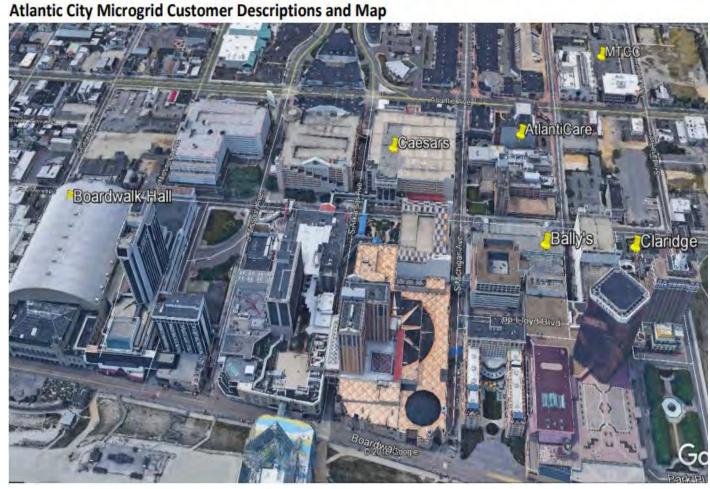
#### POWER AND COMMUNICATIONS

2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters)

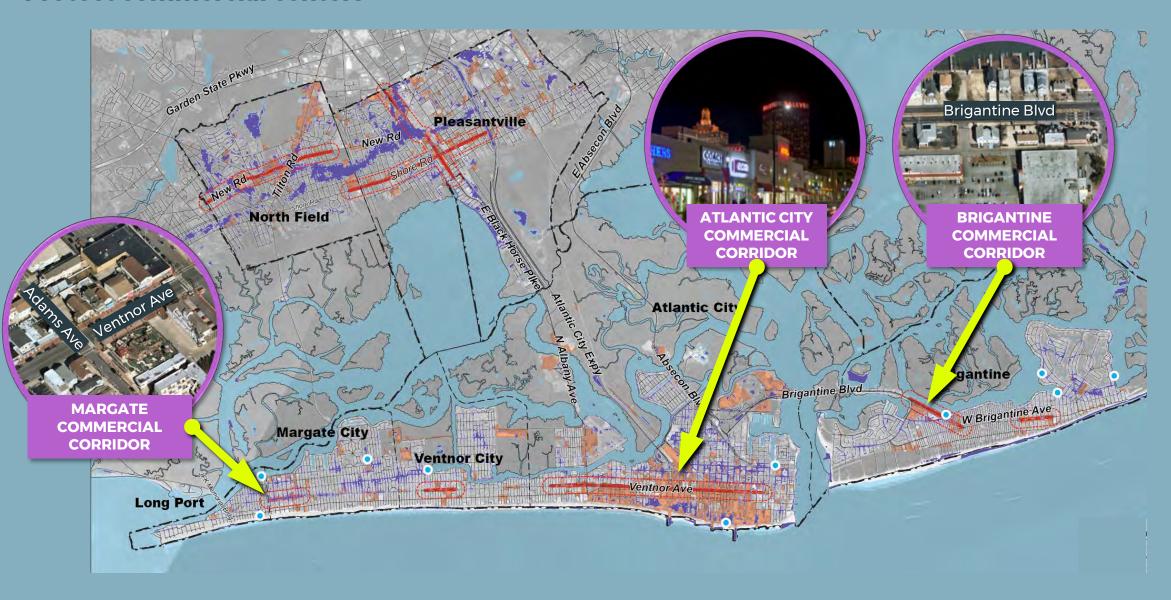
Expand Midtown Microgrid to nearby local merchants



Coordinate with developer to expand microgrid to local merchants on **Atlantic Ave** that are critical after emergency events/outages.



#### **Protect commercial centers**



#### **EQUITABLE ECONOMIC DEVELOPMENT**

University District Overlay



#### University District Overlay (Proposed)

- Reserve 15 acres of Bader Field for future educational use
- Remainder of the Bader Field site is planned as a Tech Park (potentially for private sector climate- and resilience-focused companies, e.g., engineering, research and development, architecture, planning).
- Bader Field's location and low-laying elevation, any proposed development would require a mix of flood-proofing and resilience measures such as incorporating living shoreline to ensure the site's ability to withstand the coastal environment.

#### Next steps:

1) Incubator: Begin 40-month effort to fully develop and buildout the Coastal Resiliency Institute.



# SCENARIO TWO

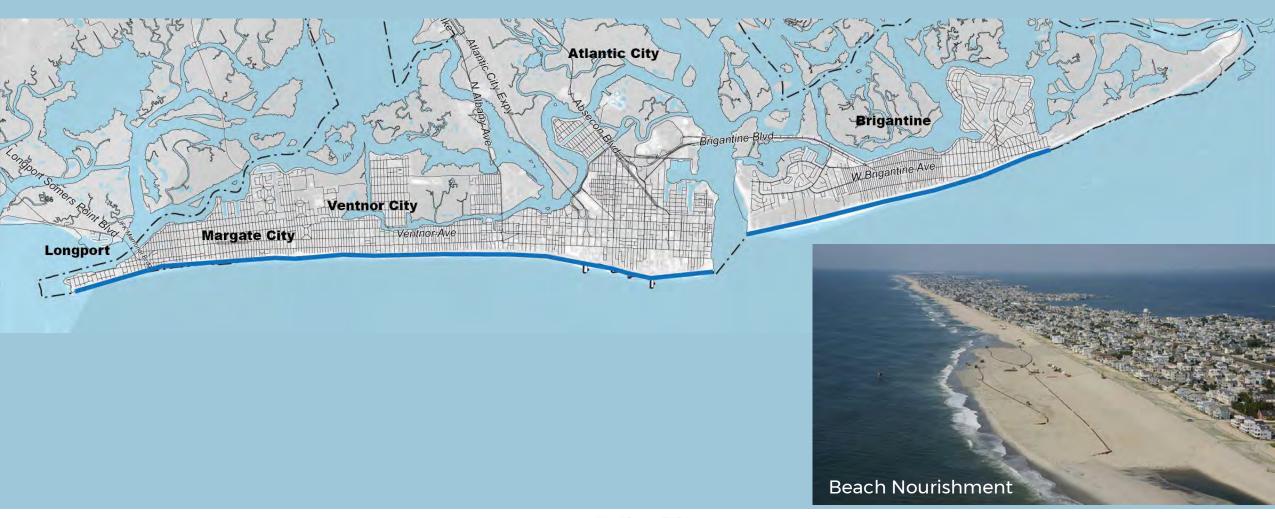




Resilient **Y** 

#### OCEANSIDE SHORELINE PROTECTION

• Continue beach nourishment program, with gradual elevation increase to address increased height of surge over time



#### BAYSIDE SHORELINE PROTECTION

Raise sections of streets along the bayside to form a continuous bayside flood protection system: Winchester Ave, Sunset Ave, North Annapolis Ave, Chelsea Court, North Harrisburg Ave







Network of interconnected kayak/canoe trail (Blue way) connecting the Atlantic County bays developed in conjunction with new recreational trail (Green way) along the Blackhorse Pike and roads paralleling the shoreline.

VENTNOR PUBLIC

BOAT RAMP

SUNSET

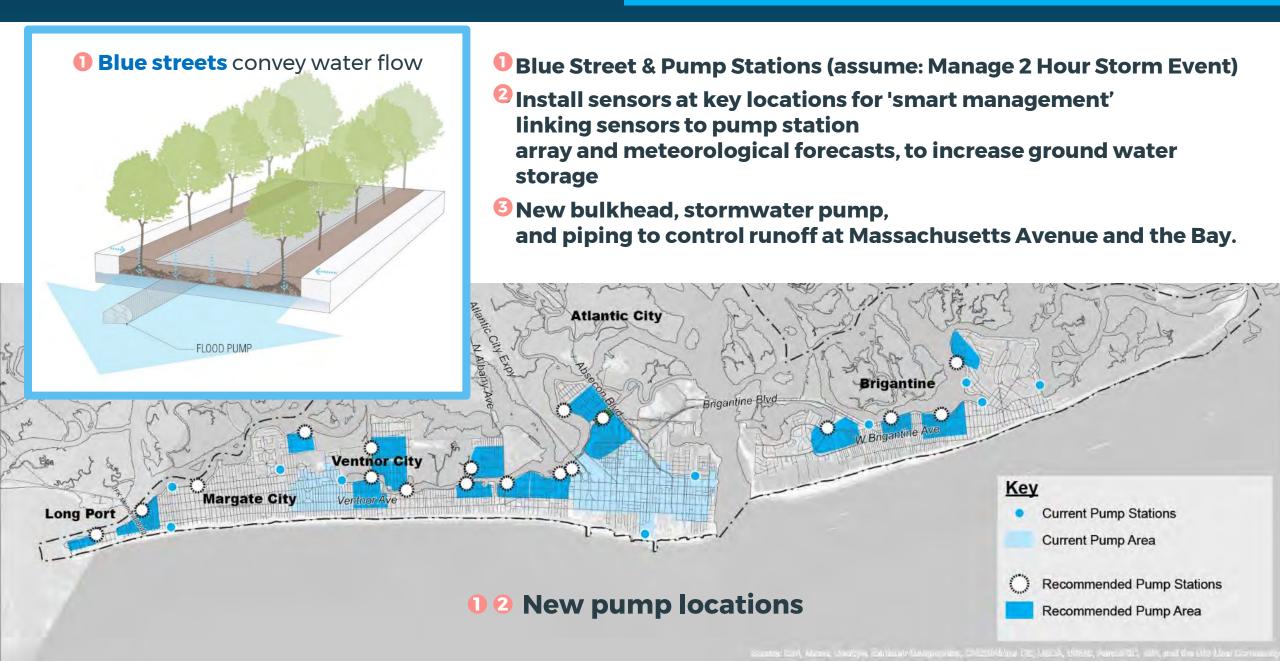
CANAL

BLUE WATER

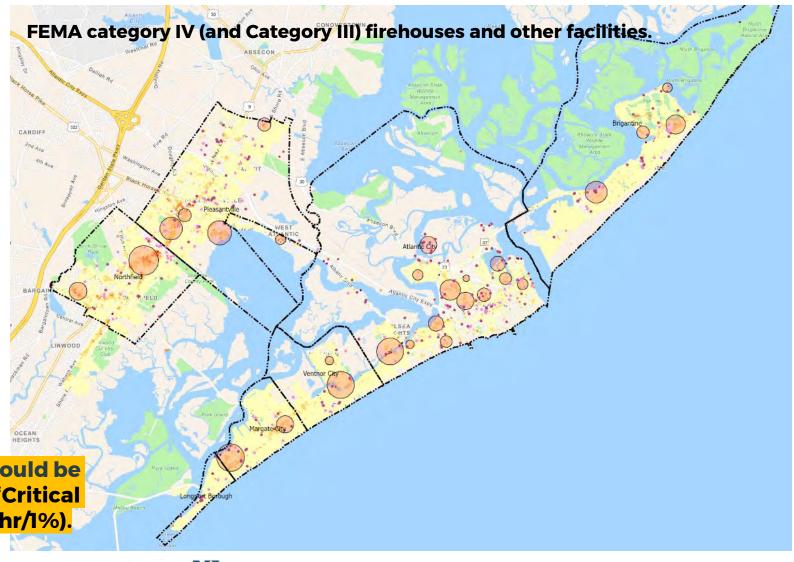




#### STORMWATER MANAGEMENT



- Community Microgrid SystemsStudy
- Microgrids can be centered around casinos /hotels or other major sites that can provide emergency services / support.
- Coordinate with Atlantic City Electric (ACE) for access/logistics.
- Extend to essential small businesses in immediate vicinity.



The microgrid clusters would be associated with facilities that are "Critical Assets at Risk of Flooding" (24hr/1%).



1 Encourage Renewable/Solar on Rooftops and Surface Parking Lots

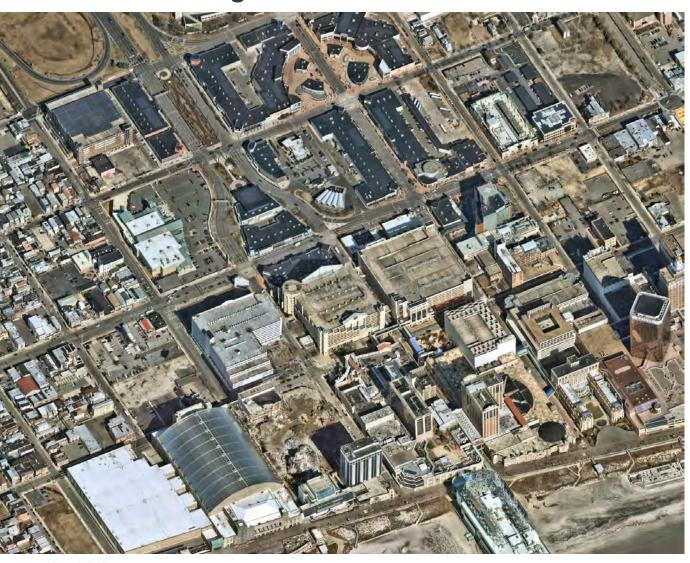
Focus on opportunities to provide renewable / solar sources for microgrids on roofs, parking, vacant lots.







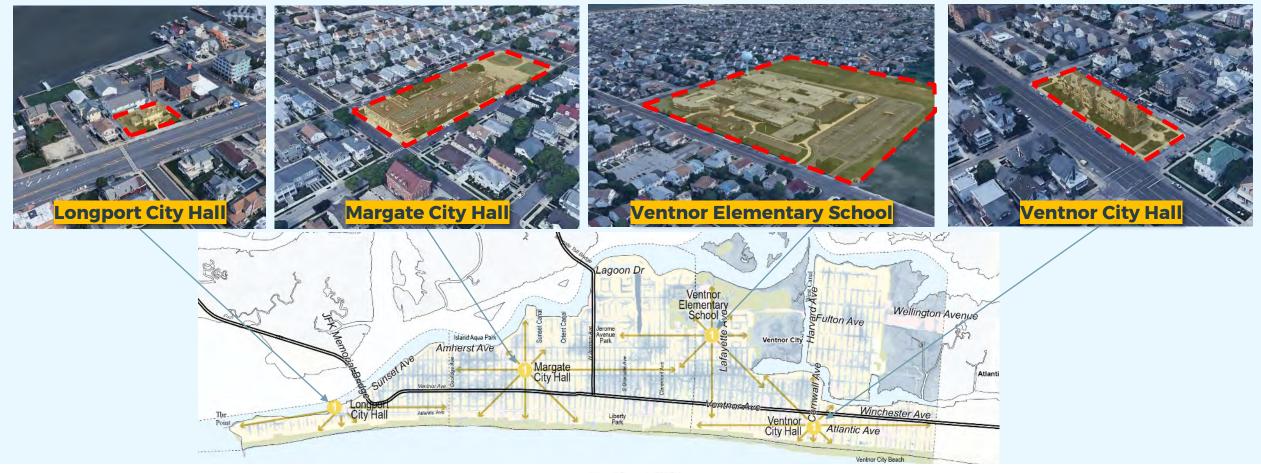






#### Community Microgrid Study:

The new microgrids will have an equity component in leveraging existing facilities to provide continuous power to adjacent vulnerable population





## SCENARIO EQUITABLE ECONOMIC DEVELOPMENT

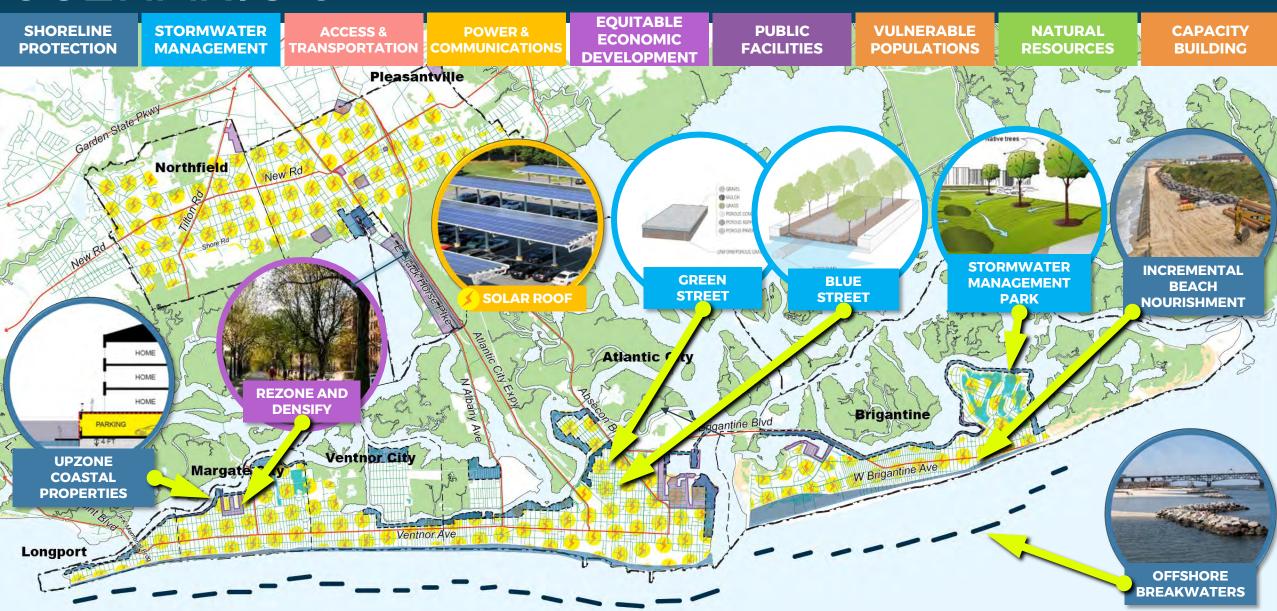
- 1 Up zone areas in less vulnerable areas to incentivize affordable housing
- 2 Invest in / Incentivize Increased density + Affordable Housing in High and Dry Areas within each Municipality Walking Distance from Transit and Jobs





## SCENARIO THREE







#### SHORELINE PROTECTION

- 1 Up zone all properties with bayside frontage for multiparcel assemblages with requirements for enhanced shoreline protection measures.
- 2 Construct Offshore Breakwaters + incremental dune elevation through three-year renourishment cycles



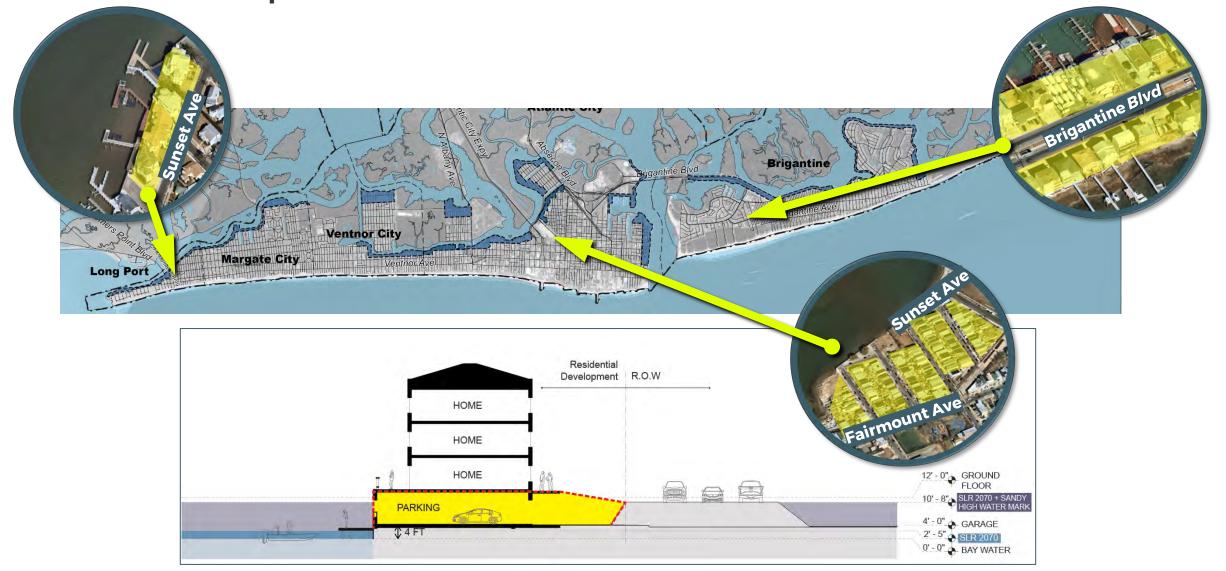
#### OCEANSIDE SHORELINE PROTECTION

2 Construct Offshore Breakwaters + incremental dune elevation through three-year nourishment cycles





1 Upzone all properties with bayside frontage for multiparcel assemblages with requirements for e nhanced shoreline protection measures.



1 Blue Acres program for homes north of Greenfield Ave and south of Bay Drive and east of Edgely Ave



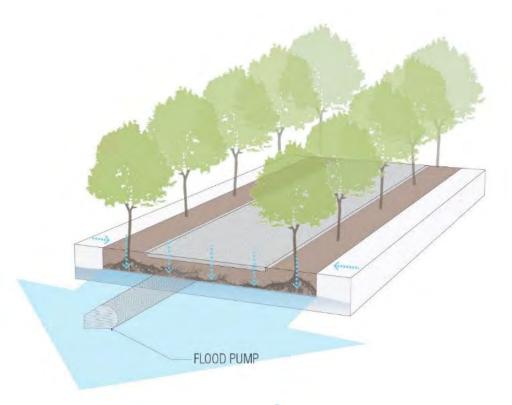


#### STORMWATER MANAGEMENT

- **Living Streets** Upgrade existing streets for subsurface conveyance without pipes. Networked Green Infrastructure offer groundwater reduction through evapotranspiration and structural soils.
- 3. Use the roadway infrastructure to function as a performative network to **mitigate downstream** flash flood risks and facilitate infiltration:

#### Green streets allow infiltration.





**Blue streets** convey water flow

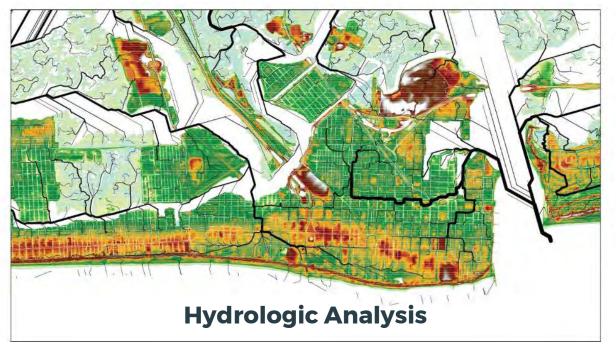


#### STORMWATER MANAGEMENT

#### Living Streets

- Upgrade existing streets as for subsurface conveyance without pipes
- Networked Green Infrastructure for groundwater reduction through evapotranspiration and structural soils.





- 1. Start with Hydrologic analysis of the existing topography informs the location for the implementation of street adaptations.
- **2. Collect, store, and slow water** using the depth of the public right of way.



3 Adapt existing parks and the golf course to serve as stormwater management. Link pump stations' effluent to new wetland parks (rather than discharge to the bay)



#### **STORMWATER MANAGEMENT**

©Create new 'storm water management parks' on city-controlled land. Link pump stations' effluent to new wetland parks





#### POWER AND COMMUNICATIONS

#### **Develop policies/incentives that promote** energy resiliency at all residences / business during emergencies.

- Support weatherization of homes that can retain heat or cooling during a power outage
- Support solar with battery (nanogrid) at all buildings
- Encourage bi-directional charging for electric vehicles at all buildings



Rooftop Solar







- Rezone all parcels adjacent to Basin and marina for Industrial / Blue Economy related land uses
- 2 Decommission U.S. Coast Guard Station Atlantic City and redevelop for Blue Economy land use
- 3 Waterfront Special District / Development Corridor
- 4 Leverage Black Horse Pike Road raising project to create new boulevard as corridor for economic development in Pleasantville



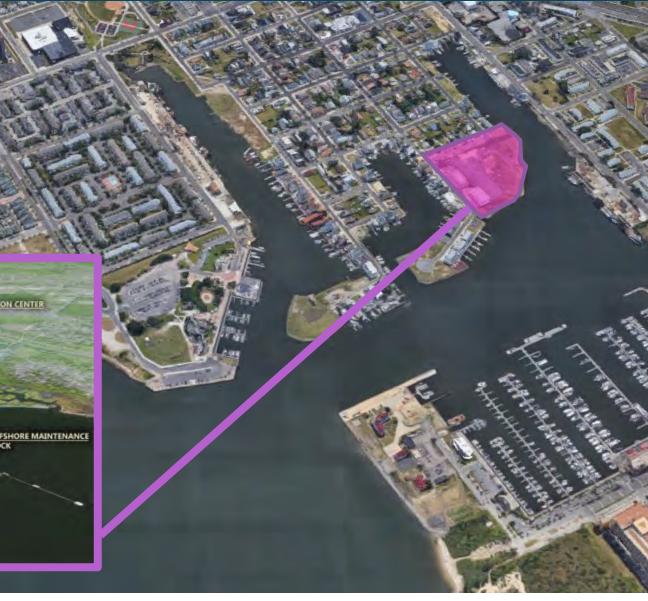
#### **EQUITABLE ECONOMIC DEVELOPMENT**

Rezone area around Gardners Basin and Delta Basin to allow for Industrial / Blue Economy related land uses

SOLAR POWER

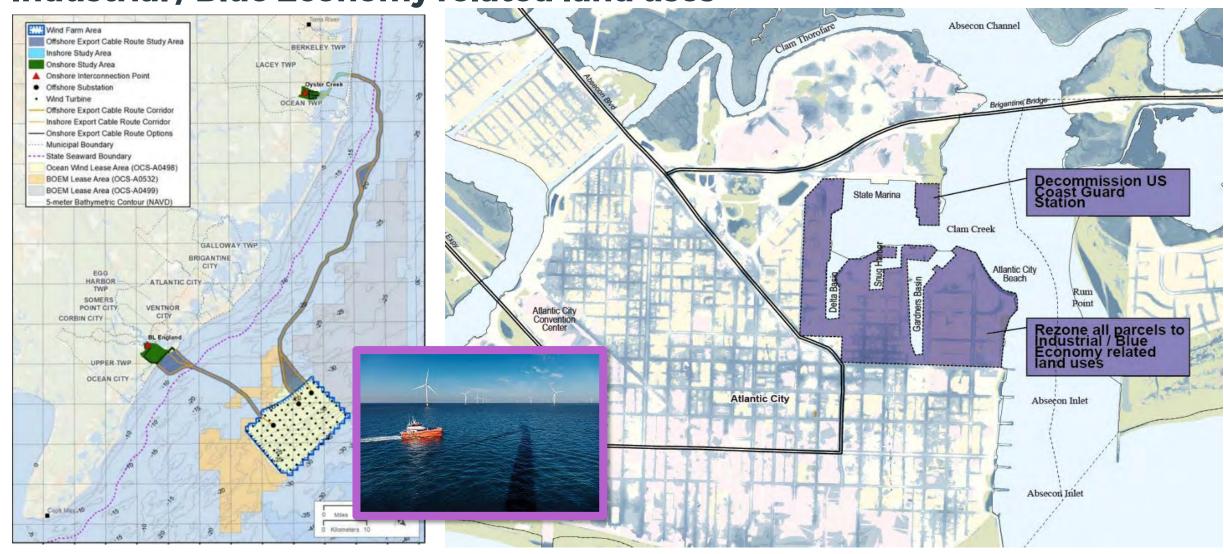
BATTERY STORAGE

OFFSHORE WIND COMPONENT





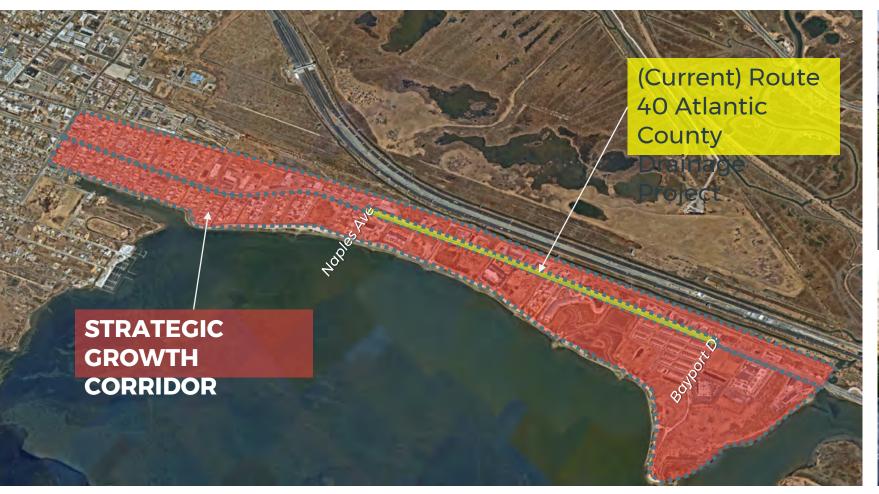
#### Rezone area around Gardners Basin and Delta Basin to allow for Industrial / Blue Economy related land uses



## SCENARIO 3 SHORELINE PROTECTION EQUITABLE ECONOMIC DEVELOPMENT

#### Black Horse Pike strategic growth corridor

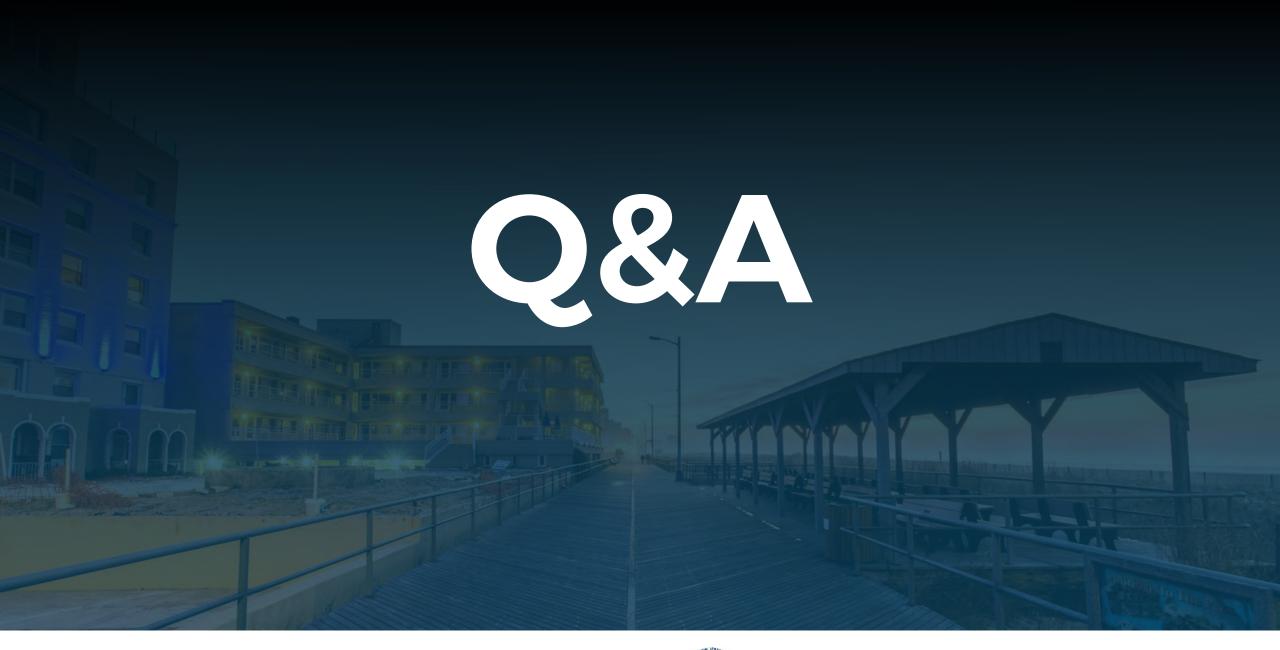
• Leverage *Black Horse Pike Road raising project (*Route 40 Atlantic County Drainage Project) to create new boulevard as corridor for economic development in Pleasantville









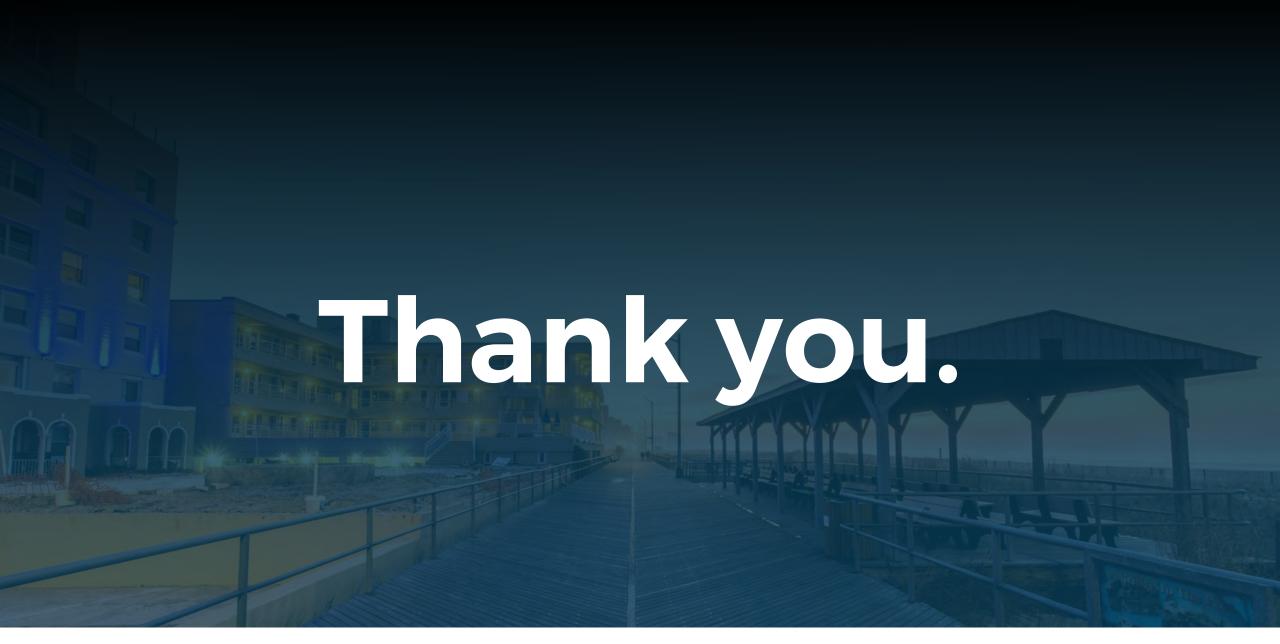




## Stay in Touch

- Email us: <a href="mailto:resilientaccr@dep.nj.gov">resilientaccr@dep.nj.gov</a>
- Join a resident advisory / focus group session
- Visit: resilient.nj.gov/accr























#### **PERKINS EASTMAN**



























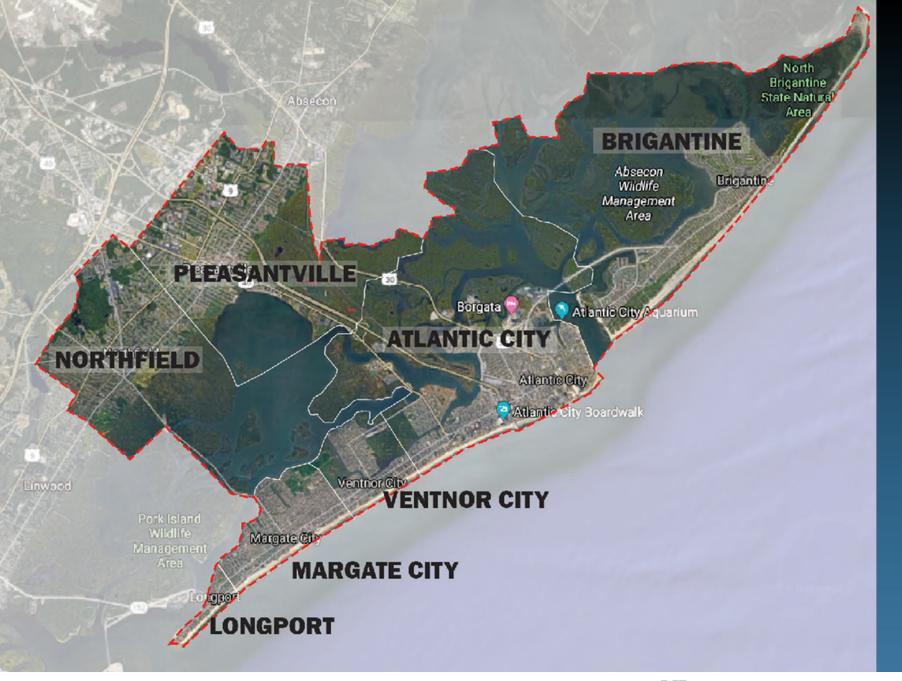
## SCENARIOS ARE BASED ON THE TEAM'S UNDERSTANDING OF THE REGION'S:

- **Vision** What do we value, and how can we see the region evolving to meet the challenges of the future?
- Assets What do we want to protect?
- Risk and Vulnerability Which areas are at risk?



# PROJECT VISION & ENGAGEMENT











## Layered Engagement Strategy

- ❖ Monthly Meetings with Steering Committee- 12 to Date; plus one-on-ones
- ❖ Multiple TAC Meetings and included TAC in Steering Committee Meetings
- ❖ 10 Community Advisory Committees- Meetings Quarterly
- ❖ Public Meetings conducted in English and Spanish, AM and PM options
- ❖ Website, Surveys, Flyers, Social, Media
- 9 Focus Groups/Resident Advisory Groups

#### **ENGAGEMENT PLAN**



Steering Committee (SC)



Technical Advisory Committee (TAC)



Community
Advisory
Committee (CAC)

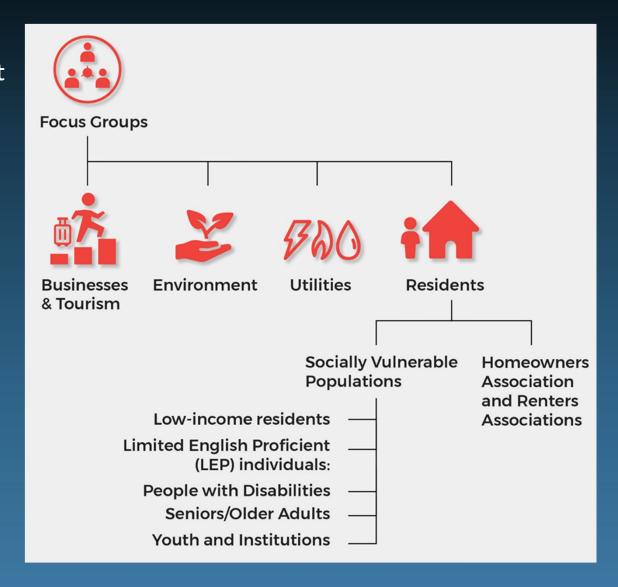


Focus Groups (FG)



## Layered Engagement Strategy

- ❖ Atlantic City and Pleasantville are both majority-minority populations with 40 percent and 23 percent of the population living below the poverty line, respectively.
- Ventnor City -culturally diverse with Hispanic and Asian population
- Longport, Margate, and Brigantine have large senior populations (65+): 43%, 39%, 29%, respectively.
- Though a smaller overall population, Atlantic City also has concentrations of seniors.
- Languages- Spanish, Hindi, Vietnamese, and Tagalog (Filipino).
- About 16 percent of households in Atlantic City and 11 percent in Pleasantville have Limited English Proficiency,
- About 24 percent of total households in Atlantic City and 36 percent of households in Pleasantville speak Spanish at home





# This Region is Critical to New Jersey, the Nation, and Beyond

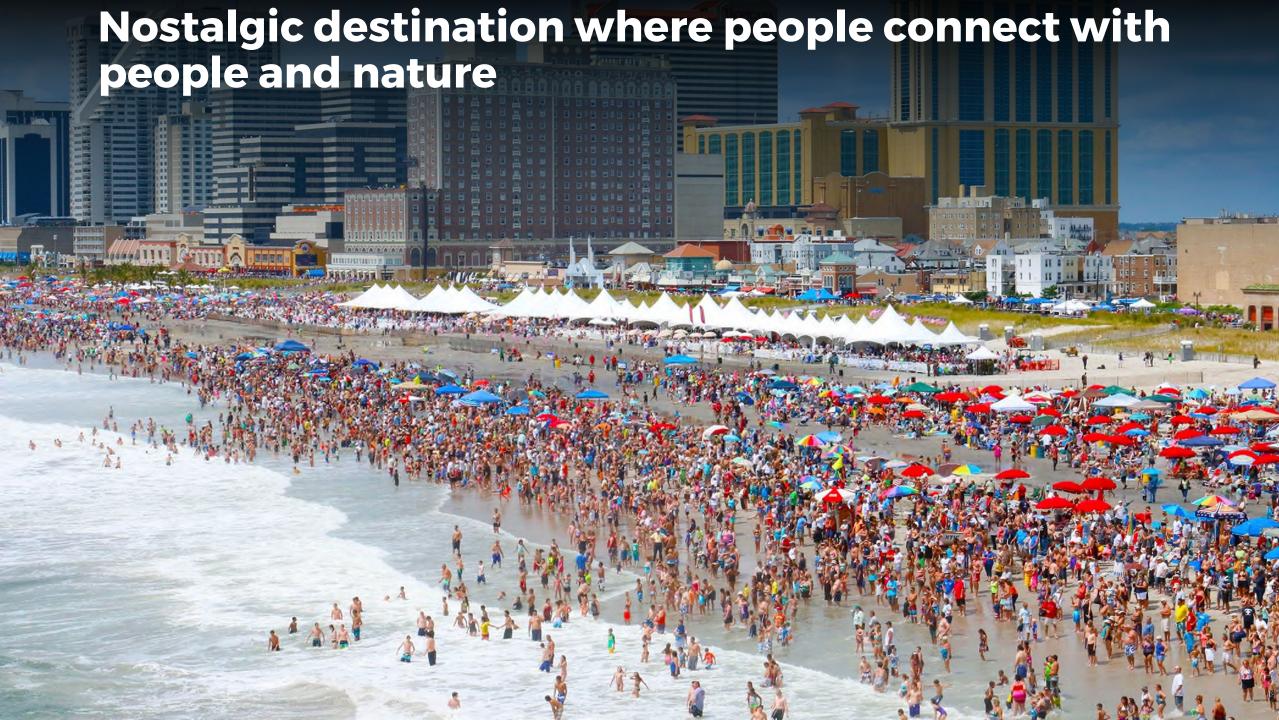












### With a diversity of housing in proximity to the water

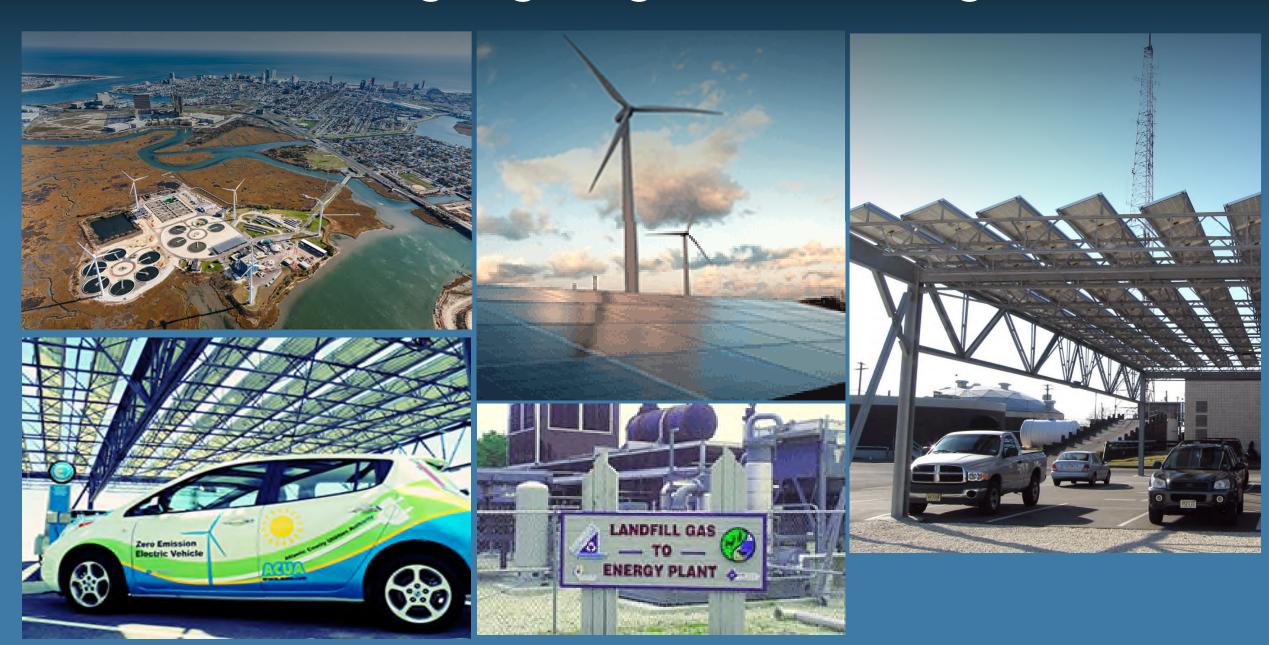


### Where businesses are welcome





### Is on the cutting edge of green technologies



### It is a region characterized by diversity



### A region that feels the effects of chronic flooding and climate events















## The Region is proud of its social fabric, diverse economy, and ecological assets

- Connections with Nature
- Rich in ecological resources
  - Marshlands
  - Parks
  - Beaches
  - Waterways
- Characterized by its Diversity
  - People
  - Destinations
  - Landscapes
  - Activities
  - Modes of Transportation
- Innovation in Green Technologies

A resilience ecosystem. ACCR has increasingly integrated systems.



## This is a Region that Continually works together to move Projects Forward

- These Communities all work well together
  - Band together annually to submit one Application to FEMA to Elevate Homes
  - Coastal towns are leaders in the CRS program
  - Close working relationships with the Army Corps and FEMA
  - The ACCR recognizes that what affects one municipality will affect the other
- The Region has a Proven Capacity to move Innovative Projects forward
  - Model for energy efficiency with land based and offshore wind installations;
  - Significant solar installations
  - Natural gas jitneys and fueling station
  - EV charging stations
  - Energy efficient buildings;
  - Energy savings improvement plans Ventnor, Atlantic City, and Pleasantville
  - Upcoming GWO certified wind training center,
  - Two offshore wind O & M centers,
  - Midtown microgrid, community solar, and Smart Cities Technology being implemented in Atlantic City



## Resilient New Jersey Atlantic County Coastal Region Vision Statement:

"The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where protections from natural disasters, flooding, and sea level rise enable the region to thrive; residents' sense of belonging and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination."

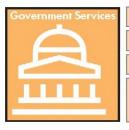


## WHATARE WE TRYING TO PROTECT?



### **Asset Categories**

### **Categories of Asset Types**



City Halls	Municipal Buildings	
Court Houses	Police Departments	
Fire Departments	Post Offices/Delivery	
Department of Public Works	Office of Emergency Management	



Bridges	Power Plants	
Bike Share Stations	Prisons	
Brownfields	Rail	
Bus Stops & Routes	Recycling Centers	
Contaminated Sites	Roads	
Culverts	Superfund Sites	
Drainage Systems	Trails and Paths	
Evacuations Routes	Utilities/Cell &Internet	
Flood Control Structures	Water Towers	



Banks/Financial	Individual Businesses	
Business Districts	Industrial Structures	
Commercial Structures	Large Employers	



Beaches	Open Space	
Ecosystems	Parks	



Animal Shelter	Hospitals	
Assisted Living Facilities	Mental Health Facilities	
Dentist Offices	Nursing Homes	
Doctors' Offices	Drug Treatment Services	
Farmer's Markets	Recreation Centers	
Food Assistance	Urgent Care Facilities	



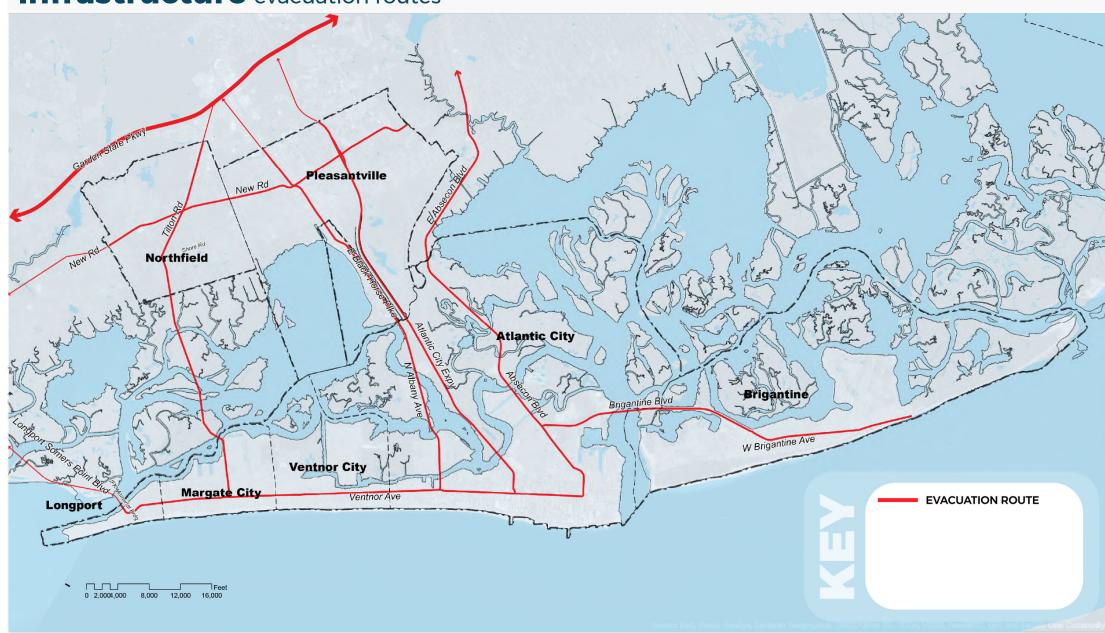
Art Studios	Libraries	
Boardwalks	Marinas	
Festivals	Parades	
Community Centers	Places of Worship	
Shuttle Services	Schools	
Fairs	Social Networks	



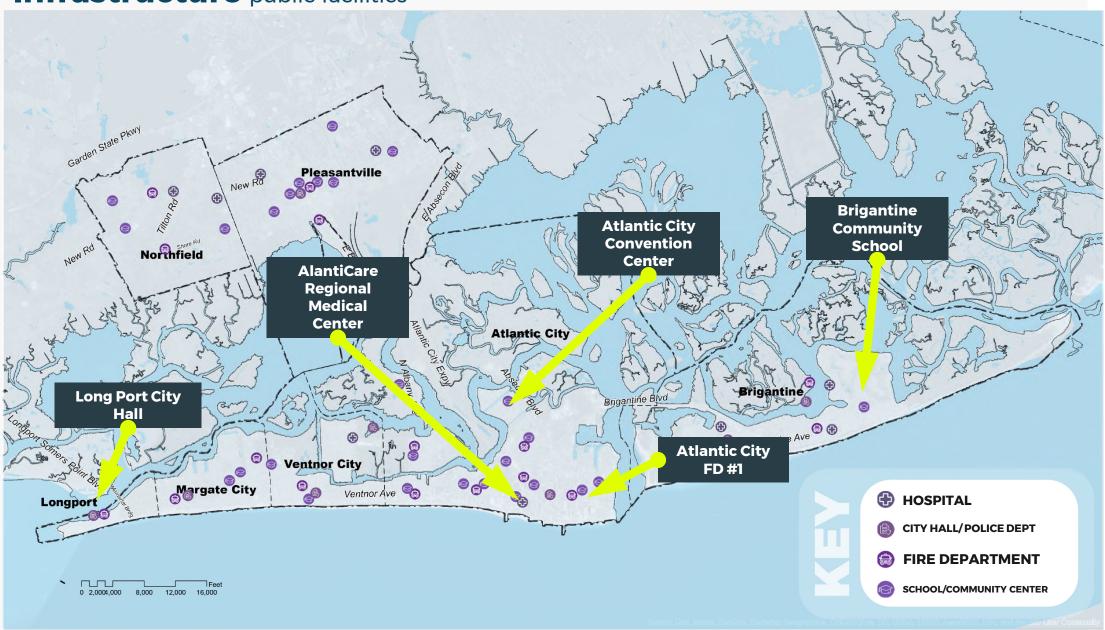
Apartments	Shelters	
Single Family Homes	Townhouses/Rowhomes	
Duplexes	Trailer Parks	
Multiplexes	Repetitive Loss (RL)	
Identification of Buildings with NFIP Policies	and Severe Repetitive Loss (SRL) Properties	



### Infrastructure evacuation routes



### Infrastructure public facilities

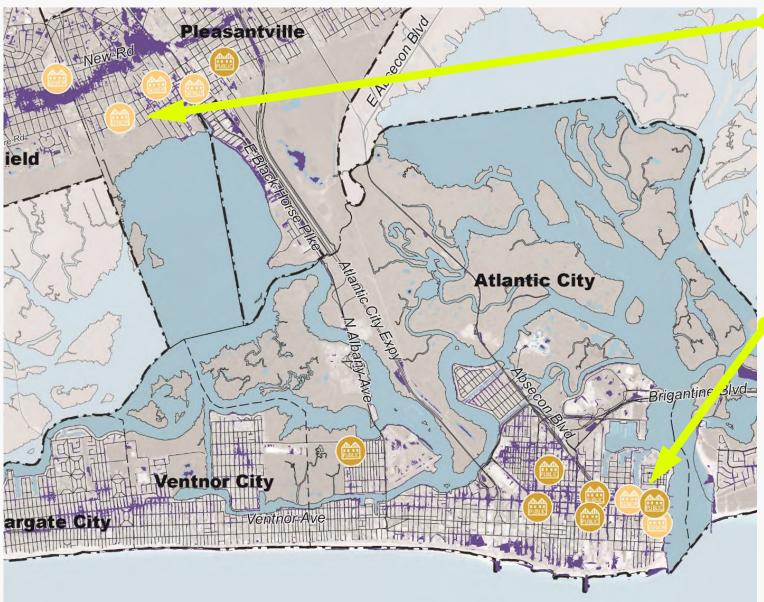


### Natural Resources rivers, marshes, beaches & wildlife



### **Economic Development** commercial corridors Main Street at Pleasantville Garden State PKWY Pleasa North Field **Atlantic City** Brigantine W Brigantine Ave Margate City Ventnor City **Long Port** Ventnor Avenue at Atlantic City West Brigantine Ventnor Avenue at Ventnor City Avenue at Brigantine

### **Equity** vulnerable populations



### **Meadowview Nursing Home**



**Charles P. Jefferey at Atlantic City** 





## WHAT ARE WE TRYING TO PROTECT OUR REGION FROM?

### 1% / 24-HOUR RAINSTORM: 2030

The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2030



• 2% Increase in annual precipitation

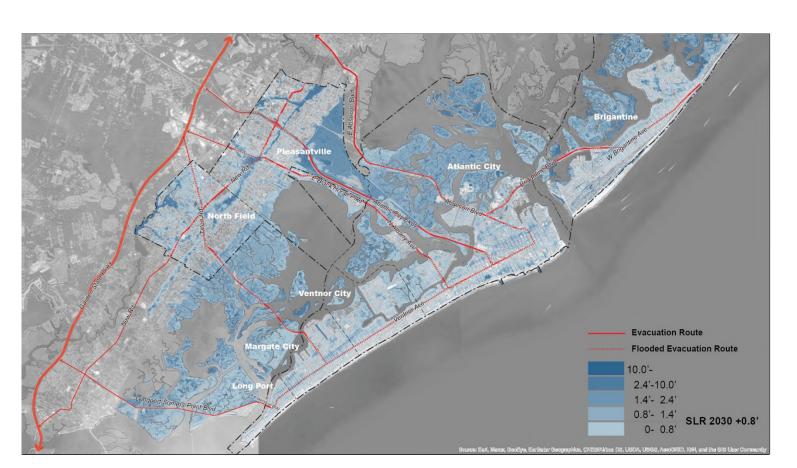
2% Rainfall increase +.18in +3.55 ft

24 hr Rainfall +0.75ft

Land +4 ft (Variable )

SLR +0.8ft

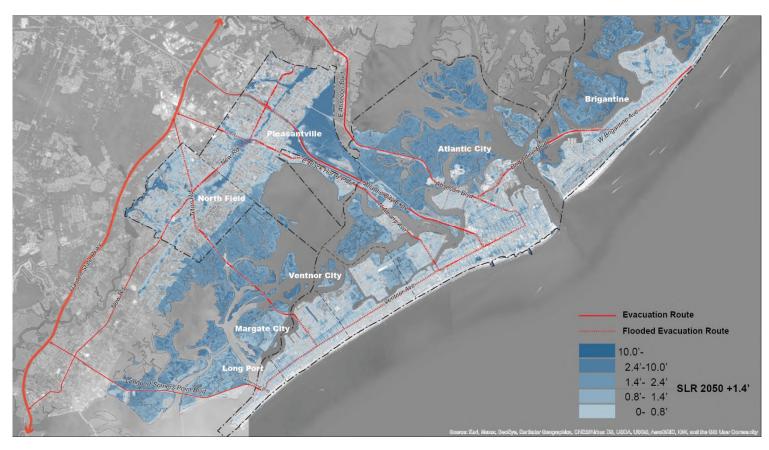
MHHW +1.99ft



### 1% / 24-HOUR RAINSTORM: 2050

The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2050

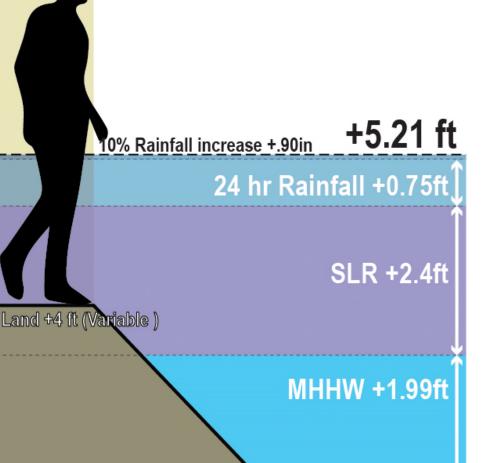
- Sea Level Rise of 1.4'
- 6% Increase in annual precipitation

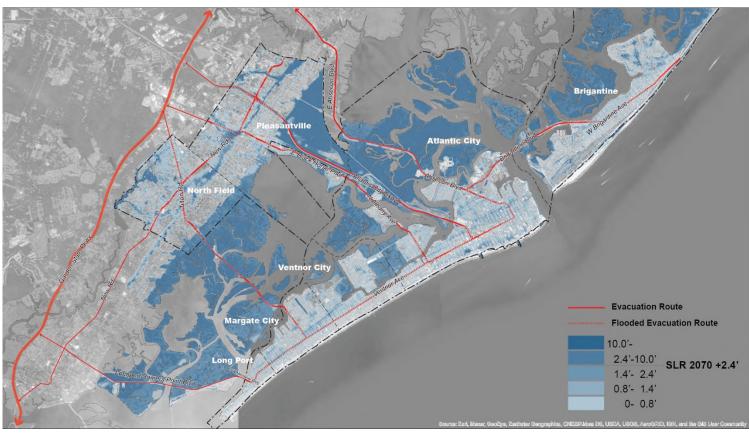


### 1% / 24-HOUR RAINSTORM: 2070

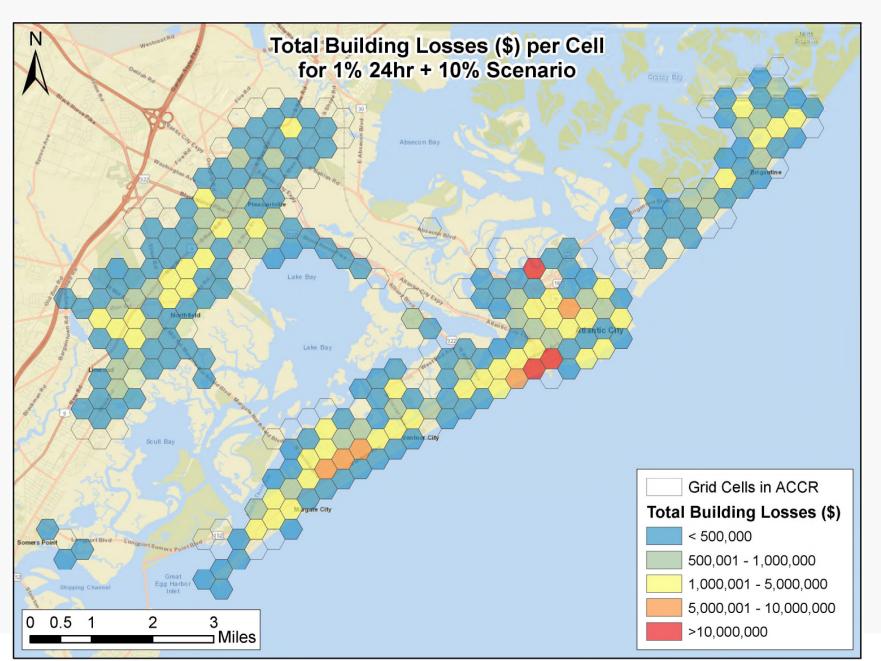
The amount of **rain** that will accumulate in a **24-hour** period for a **storm** with a **1**-in-100 (or **1**%) chance of occurring in 2070

- Sea Level Rise of 2.4'
- 10% Increase in annual precipitation



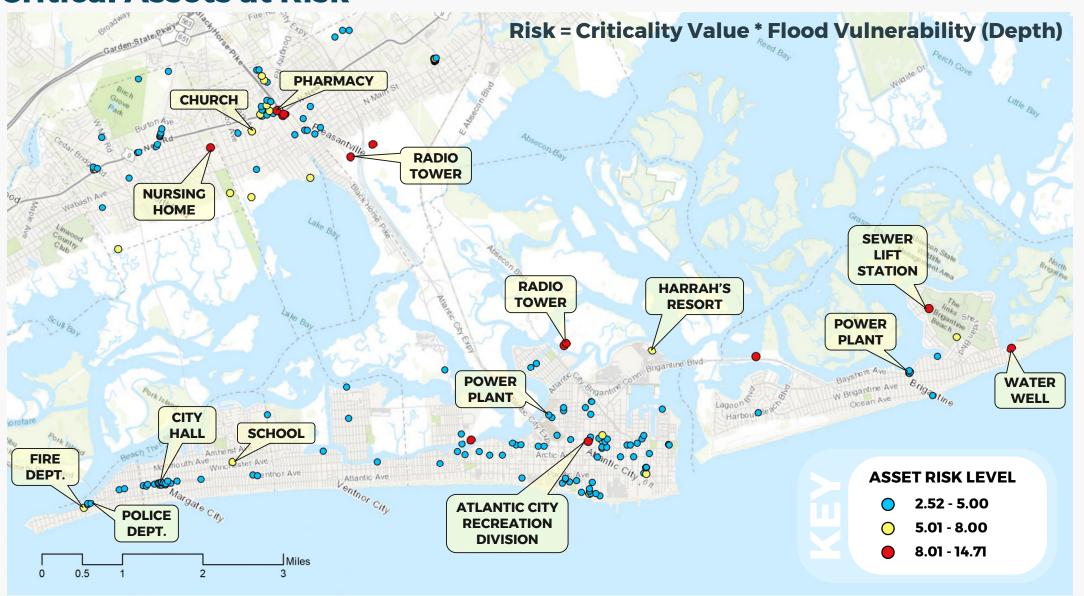


### **HAZUS Results for 1% 24hr Rainfall Event in 2070**



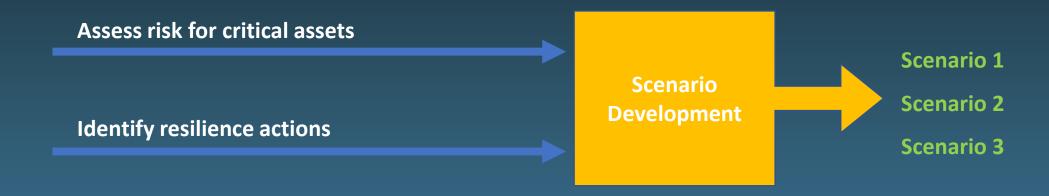


### **Critical Assets at Risk**



### Risk Assessment Supports Scenario Development

- The risk assessment task serves to prioritize the most critical and economically impacted assets
- It indicates general locations that are most important to protect from flooding.
- In parallel with risk analysis, applicable resilience actions have been identified.
- Scenario development illuminates how resilience actions apply to the most important assets and their locations.





# RESILIENCE & ADAPTATION SCENARIOS

### Resilience & Adaptation Scenario Goals

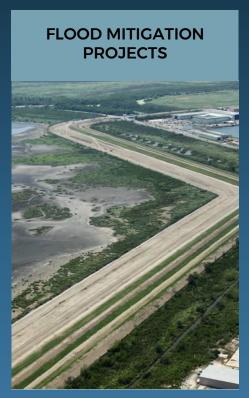
- 1. Respond to the vision identified by the region
- 2. Reduce anticipated flood impacts in 2070
- 3. Include actions that respond to immediate flooding concerns within the region
- 4. Protect or enhance natural resources and ecosystem function, as well as public access
- 5. Address the needs of socially vulnerable populations



### RESILIENCE AND ADAPTATION SCENARIOS

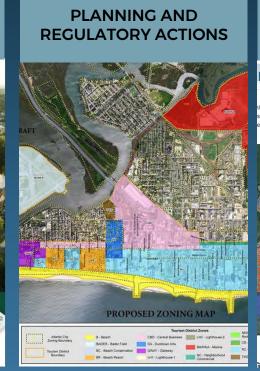
What is a Resilience and Adaptation Scenario? A suite of actions that will work collectively to increase resiliency over time.

What actions should be included?







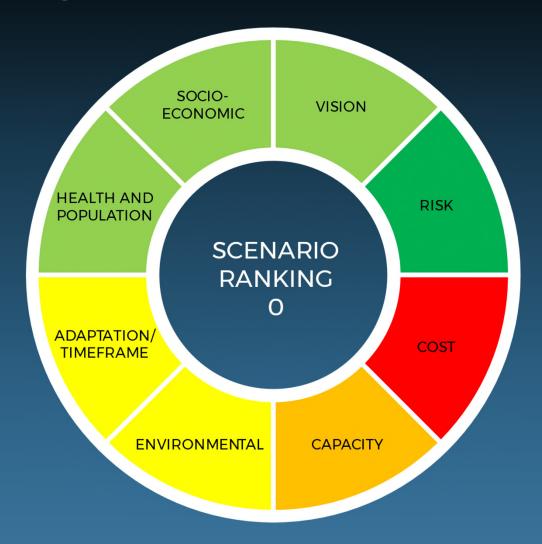






### RESILIENCE CHECKLIST

- 1. Consistency with the Vision
- 2. Evaluation of Risk and Risk Reduction
- 3. Cost Efficiency
- 4. Capacity to Implement
- 5. Environmental/Ecological
- 6. Adaptation Over Time
- 7. Outreach and Partnerships
- 8. Health and Populations
- 9. Socio-Economic





### **Key Challenges to Address**



### SCENARIOS



### THREE SCENARIOS

"Mix of Actors but <u>Public</u> <u>Sector</u> Leads on key projects" "Mix of Actors but looks to State, County and Municipalities to partner on needed resiliency improvements" "Mix of Actors but looks to <u>leverage private</u> <u>investment</u> to help finance needed resiliency improvements"

Year	Scenario 1	Scenario 2	Scenario 3
Implementation	Centralized		Decentralized
Approach	Oriented toward Gray Infrastructure solutions	<ul> <li>Mix of Gray and Green solutions</li> </ul>	Oriented toward nature-based solutions
Leadership	Relies on Federal State and Local partnerships	Relies on State and Local partnerships	<ul> <li>Relies on State, Local, Non-Profit and Private Sector Partnerships</li> </ul>
Shoreline Protection	<ul> <li>US Army Corps Back Bay Plan featuring floodwalls and floodgates</li> </ul>	<ul><li>Raised bayside and</li><li>Continued Beach Nourishment</li></ul>	<ul><li>Private investment</li><li>Offshore breakwaters</li></ul>
Stormwater Management	Raised Streets and Pump Stations	Blue Streets & pump stations	Living Streets
Power and utilities	<ul> <li>Expand current microgrid Atlantic City plan</li> <li>New Microgrids centered on community facilities</li> </ul>	<ul> <li>Community Microgrids based on new solar generation at community facilities</li> </ul>	Decentralized Solar and battery power plan
Vulnerable Populations	<ul> <li>Translate all emergency preparedness material to the region's eight languages</li> <li>Adaptation Action Plan for all Atlantic City Housing Authority Communities and Senior Communities</li> </ul>		
Economic Development			Encourage Blue economy uses at Gardners Basin
<b>Capacity Building</b>	Absecon Bay Keepers		
Access	<ul> <li>Raise approaches to all bridges to secure</li> <li>Raise Black Horse Pike</li> </ul>		
<b>Natural Resources</b>	Absecon Bay Living Bay Master Plan     Blue way /Green way		

### Absecon Bay Living Bay Master Plan

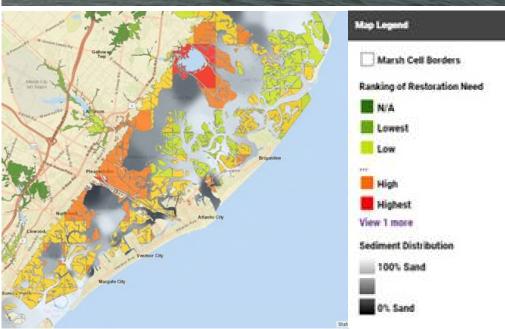
### **Challenges**

- Prolonged inundation, erosion and loss due to sea level rise in Back Bay Marches will weaken protection of the surrounding communities and infrastructure from damage due to storm surge.
- Long term maintenance of the back bay tidal marshes requires coordinated and securely funded intervention.
- Implementing coastal resiliency *projects within the region will likely face delays due to a backlog* of applications

#### **Goals**

- Provide a framework to establish condition monitoring,
- Prioritize actions to restore habitats through thin-layer sand deposition in targeted locations and living shoreline improvements and coordinated use of resources (dredge sand) and funding.
- Create a means to streamline permit reviews resiliency projects, establish broader or more flexible limits for General Permits and expand use of In-Lieu-Fee mitigation option.
- Public Education to recognize the importance and value of back bay tidal wetlands in protecting the region from storm surge.





### **Establish a new non-profit organization: the Absecon Bay Keepers**

Absecon Bay Keepers will be a non-profit organization focused on stewardship of Absecon Bay, and working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.



### • Carry out the mission through a combination of:

- formal and nonformal environmental education programs designed to raise awareness of the residents and visitors to the region.
- Work to protect, preserve and restore the various fish and wildlife habitats that exist within the watershed.

### Act as steward for Absecon Bay by:

- Promoting responsible, sustainable development.
- Working with local, county and state planners to ensure that land-use planning decisions reflect up-to-date science.
- Provide a resource to assist local, state and federal agencies to identify threats to the resiliency of the Bay and the abutting communities;
- Promoting comprehensive planning to guide the future of Absecon Bay

### REGION-WIDE ACTIONS FOR ALL SCENARIOS



Translate all Emergency
Preparedness Materials
into the multiple
languages to reach all of
the region's
communities.

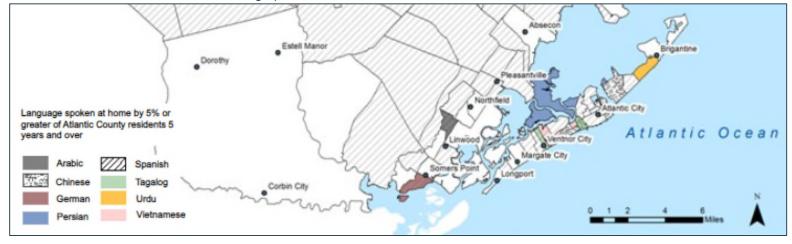






### Languages other than English spoken at home, by census track:

Data Source: 2010 ACS, Janet Lau, Cartographer



### REGION-WIDE ACTIONS FOR ALL SCENARIOS

### **Evaluate and Improve Preparedness Actions for SVPs**

### Shelters

- Designated shelter for people w/ disabilities; children w/ special needs
- Power outlets for medical devices & accessible bathrooms
- Program focused on single parents
- Support services for residents w/ pets
- Food services to accommodate allergies/special diets

### Evacuation

- Evacuation vehicles to accommodate people with medical issues or medical devices
- Evacuation personnel training/planning (e.g., movement of medical equipment, people w/ disabilities, older adults in high-rise buildings)

### Outreach and Education

- Consistent region-wide evacuation plan information (social media and non-digital channels)
- Training on how to digitize documents/storage of essential documents for evacuation
- Monthly information sessions about resources and programs available for disaster preparation and assistance (e.g., access to food, medicine, medical devices, blankets etc.

#### Social Services and Wellness

- Ensure social services (e.g., homeless shelters) are more accessible throughout the region
- Organize special teams to help community members access social service programs and mental health assistance during response/recovery phases.





# Adaptation Action Plan for Atlantic City & Pleasantville Housing Authority Communities and the Region's Senior Centers

#### **Continuity of Service**

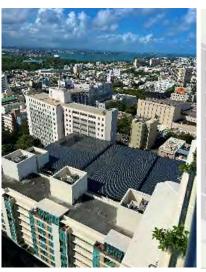
- Elevate Electrical and Mechanical Equipment
- Solar Trellises on all surface parking lots
- Solar Panels on all rooftops
- Battery to provide off-grid capacity at night
- Porous paving and green infrastructure planting to aid in stormwater management

#### **Flood Mitigation**

Reprogram Ground Level



Rooftop Solar



Solar Trellises



Relocated Mechanical Equipment









Whittington Senior Living

Walter Buzby

Stanley Village

### ACTIONS FOR ALL SCENARIOS

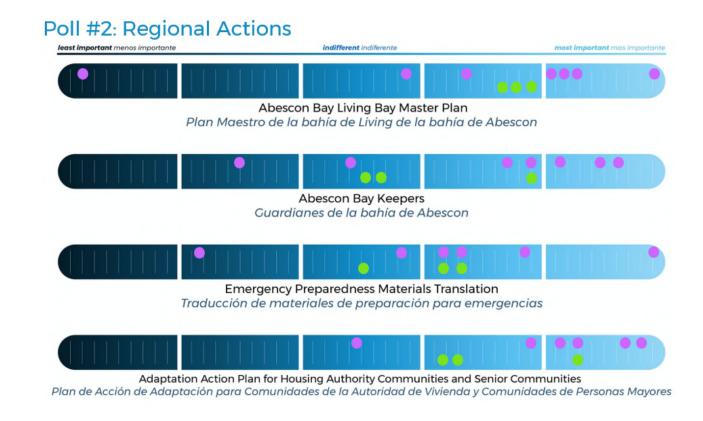
# Steering Committee / Public Feedback

#### **Steering Committee**

- General support for Living Bay Master Plan.
- Raised importance of reusing clean dredge material (clogging at outfalls) at low lying development locations (e.g., Bader Field, The Cove and Borgata)
- Adaptation Plan for Housing **Authority Communities - Walter Buzby and Stanley Village** upgrades/rebuild - short-term investment opportunity to incorporate adaptation measures into current projects

#### **Public Meeting**

- Overall support for each of the regional actions.
- Preference for Living Bay Master Plan and Adaptation Action Plan for Housing Communities and Senior Communities.



# SCENARIO ONE







## BAYSIDE SHORELINE PROTECTION



## OCEANSIDE SHORELINE PROTECTION

1 Rely on the plan proposed in the **USACE Back Bay Plan, Great Egg** Harbor Inlet SSB to protect bayside from storm surge events Install sheet pile dune core Reinforce dunes New bulkhead **NEW BULKHEAD** TO PROTECT THE **NORTH END OF INSTALL SHEET BRIGANTINE** (and **PILE DUNE CORE** terminal groin) **REINFORCE** EGG HARBOR Atlantic C ty **DUNES STORM SURGE** BAPPIER Brigantine Brigantine Blvd **Ventnor City** gate City ∠ong Port

## **STORMWATER MANAGEMENT**

- Raise Roads to +12 Navd 88 & Pump Stations to Manage stormwater (assumptions - 24 Hour Storm Event)
- **2** New Pump Stations



## STORMWATER MANAGEMENT



#### **1** Elevate Evacuation Routes

#### Challenge

• Increase access to evacuation routes from roadways that are the most impacted by design storm.



- Harden all above grade utility poles, and bury utilities where possible
- 2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters).



Clam Cre

New Hampshire Ave

Gardners Basin

Jersey Ave

- 2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters)
  - Atlantic City Hall to operate the city's 911 system

### **Challenge:**

After a disaster/major event causing power outage, communities need power to restart/rebuild.

#### Action:

• Program to install microgrids built on solar, V2G, or other renewables provide distributed energy and

can be targeted/subsidized.



Atlantia Ocean

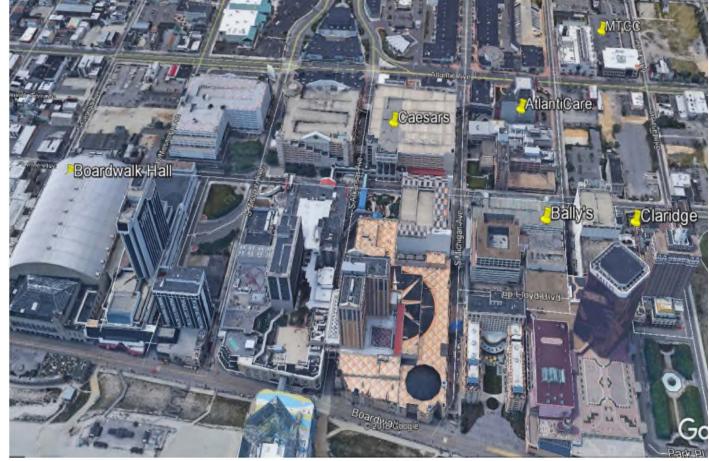
## POWER AND COMMUNICATIONS

2 Install New microgrid/emergency generator at public buildings (many used for emergency shelters)

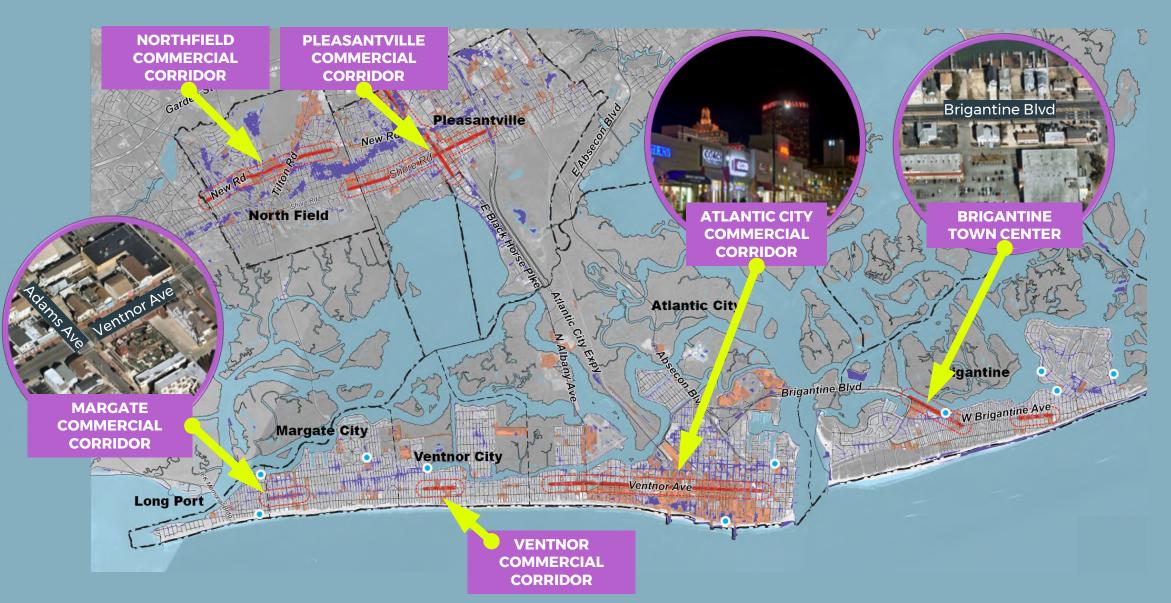
Expand Midtown Microgrid to nearby local merchants on Atlantic Ave to maintain post disaster services



**Atlantic City Microgrid Customer Descriptions and Map** 



### **Protect commercial centers**



Bader Field Coordinated Dredge-Site Raising Compact

Coordinated program to dredge spoils from all ongoing and future dredging projects in the region to raise the Baders Field site. This will provide important synergies between local projects to improve storm water capacity and maintain navigational channels, and this ongoing economic development initiative. Redevelopment of Bader Field is of regional importance in providing a new potential engine of growth and jobs as well as a location for those displaced over time by the impact of climate change.



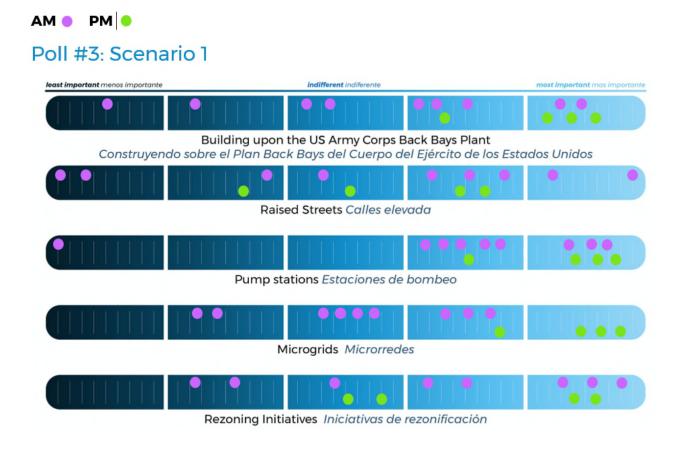
# Steering Committee / Public Feedback

#### **Steering Committee**

- USACE Back Bays Study communities have adopted resolutions that mention short-term improvements and the need for USACE support
- Prefer other options for ocean protection (do not extend boardwalk; consider steel bulkhead with floodgates)
- Road raising raise some road where necessary that are below 5' to 6' or 7'
- Support burying power lines
- Use AC Midtown Microgrid as a model
- Install emergency generators at all critical facilities, EOCs, shelters, and schools
- Include recommendations for resiliency improvements for the ACMUA water treatment plant in Pleasantville and the ACUA sewer plant in Atlantic City.

#### **Public Meeting**

 Preference for Pump Stations and US Army Corps Back Bays Plan.



# SCENARIO TWO





Resilient

## BAYSIDE SHORELINE PROTECTION

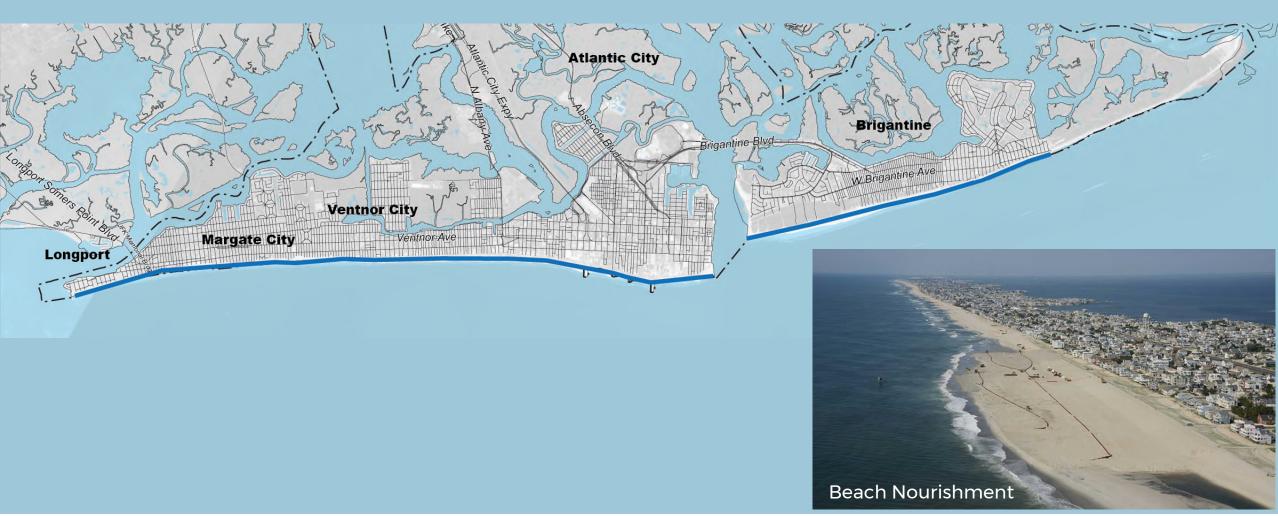
1 Raise sections of streets along the bayside to form a continuous bayside flood protection system: Winchester Ave, Sunset Ave, North Annapolis Ave, Chelsea Court, North Harrisburg Ave





# OCEANSIDE SHORELINE PROTECTION

• Continue beach nourishment program, with gradual elevation increase to address increased height of surge over time



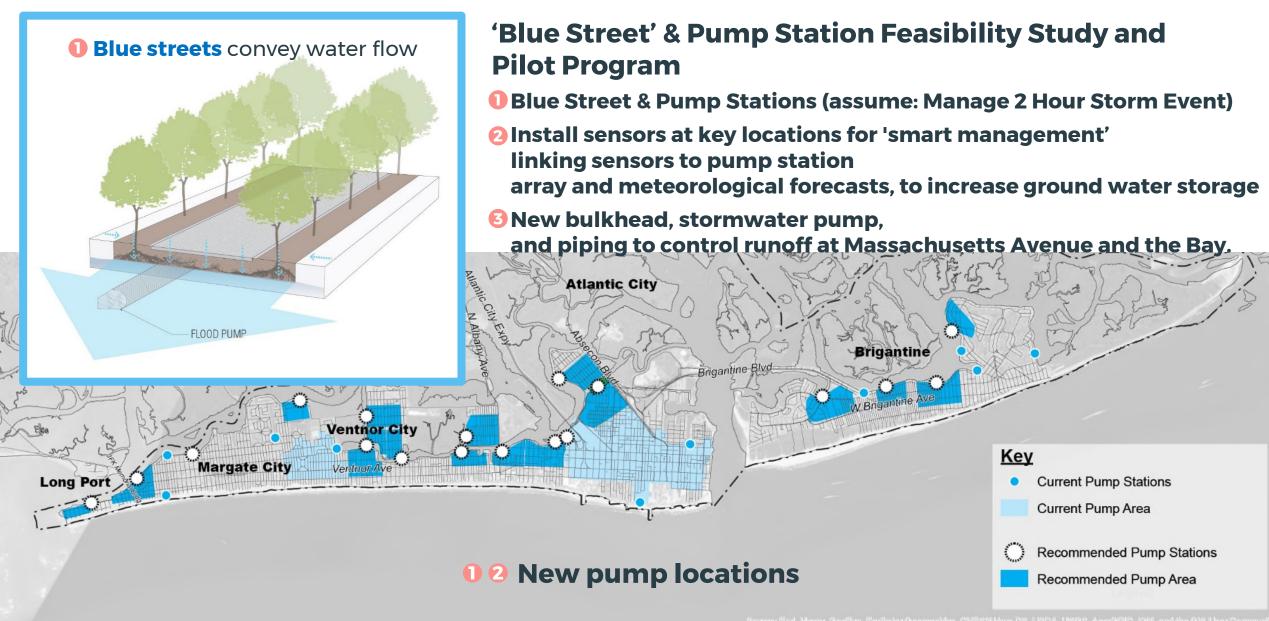
**SHORELINE** 

**PROTECTION** 

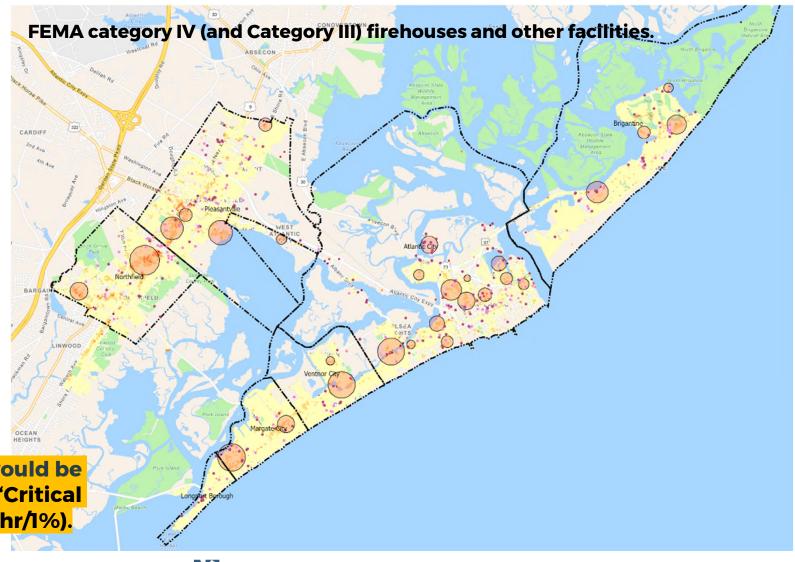




## STORMWATER MANAGEMENT



- Community Microgrid SystemsStudy
- Microgrids can be centered around casinos /hotels or other major sites that can provide emergency services / support.
- Coordinate with Atlantic City Electric (ACE) for access/logistics.
- Extend to essential small businesses in immediate vicinity.

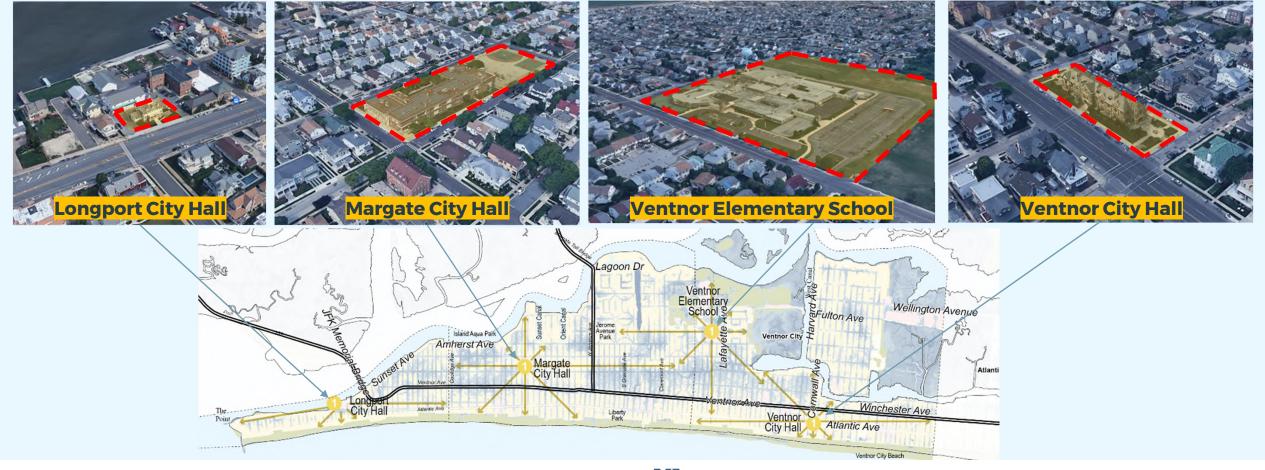


The microgrid clusters would be associated with facilities that are "Critical Assets at Risk of Flooding" (24hr/1%).



## **Opening Study:**Opening Study:

The new microgrids can leverage existing facilities to provide continuous power to adjacent vulnerable populations





Encourage Renewable/Solar on Rooftops and Surface Parking Lots

Focus on opportunities to provide renewable / solar sources for microgrids on roofs, parking, vacant lots.













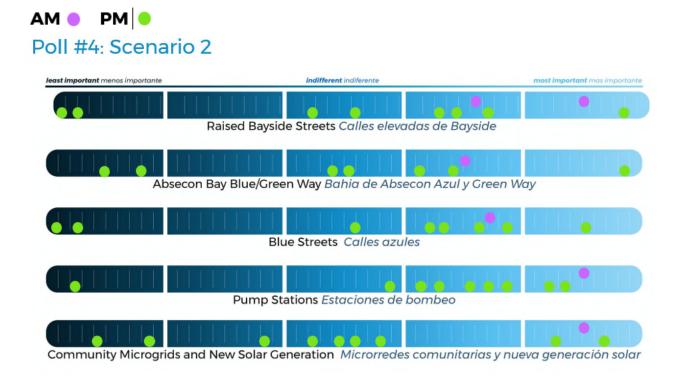
# Steering Committee / Public Feedback

#### **Steering Committee**

- Support for breakwaters
- Stormwater utilities provide for a source of funding to maintain flood protection systems
- Raised bayside streets and relationship to elevating homes. Develop State program to front the cost to elevate house and pay the local match for FEMA grants to make it affordable to homeowners who need to assistance.
- Build on the fact that ACCR is a model for energy efficiency
  - offshore wind installations
  - solar
  - natural gas jitneys
  - EV charging
  - energy efficient buildings
  - GWO certified wind training center
  - Two offshore wind O & M centers
  - Smart Cities Technology in AC

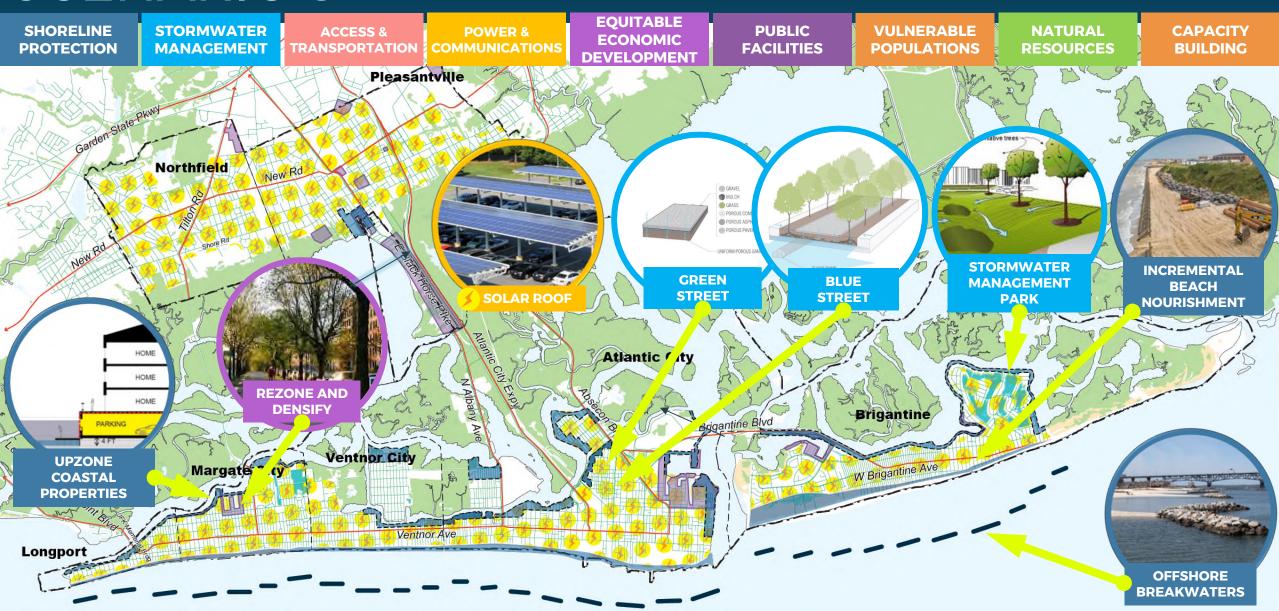
#### Public Meeting

- Preference for **Pump Stations**
- Interest in Raised Bayside Streets and Blue Streets.



# SCENARIO THREE



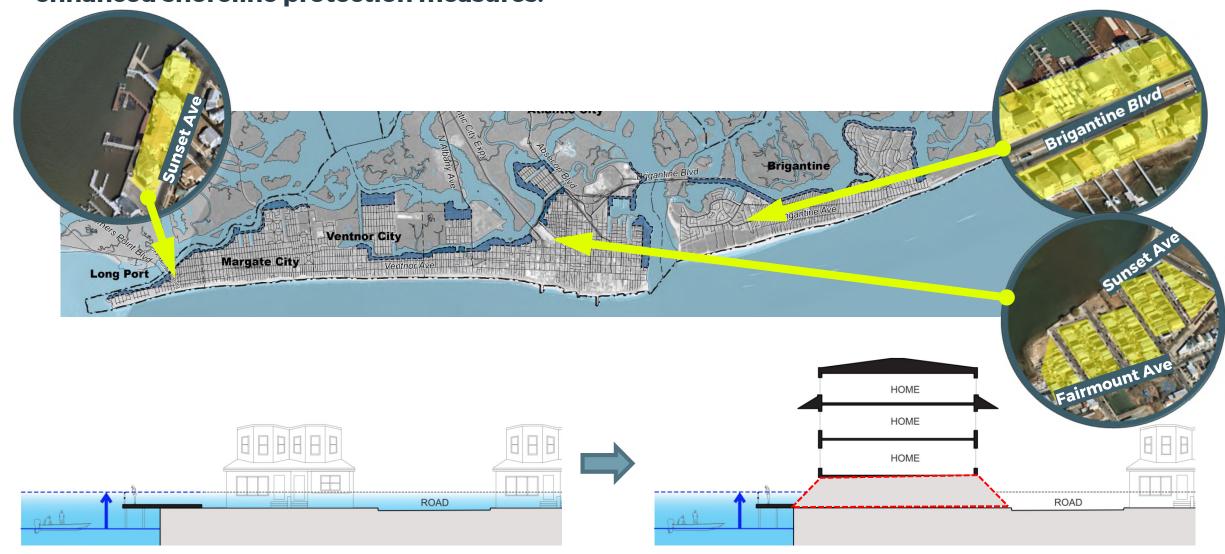




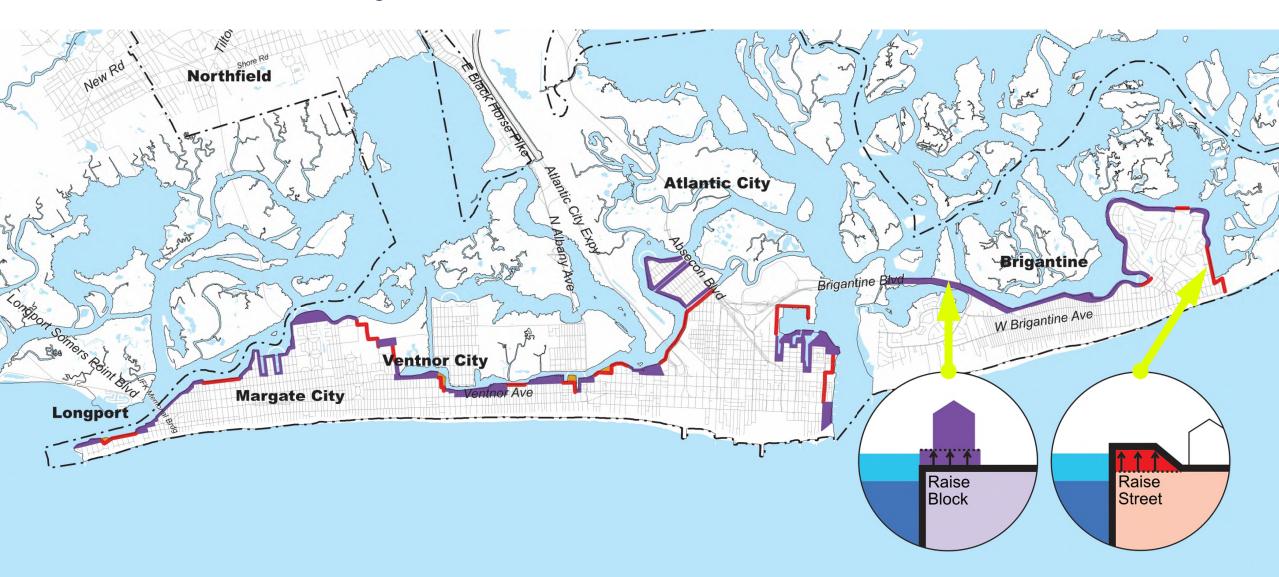
- 1 Up zone all properties with bayside frontage for multiparcel assemblages with requirements for enhanced shoreline protection measures.
- 2 Construct Offshore Breakwaters + incremental dune elevation through three-year renourishment cycles



1 Upzone all properties with bayside frontage for multiparcel assemblages with requirements for enhanced shoreline protection measures.



# **Absecon Resilient Bayshore**



# OCEANSIDE SHORELINE PROTECTION

2 Construct Offshore Breakwaters + incremental dune elevation through three-year nourishment cycles

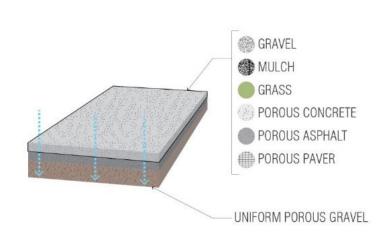


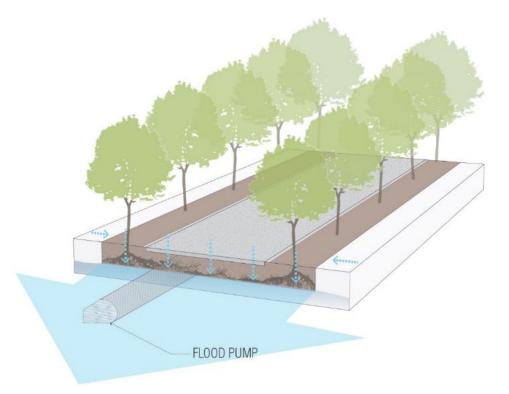


### **Living Streets Feasibility Study and Pilot Program**

- **Living Streets** Upgrade existing streets for subsurface conveyance without pipes. Networked Green Infrastructure offer groundwater reduction through evapotranspiration and structural soils.
- Use the roadway infrastructure to function as a performative network to **mitigate downstream** flash flood risks and facilitate infiltration:

**Green streets** allow infiltration.





**Blue streets** convey water flow

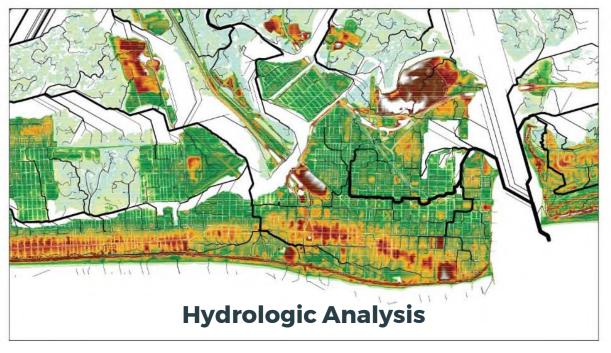


## STORMWATER MANAGEMENT

## Living Streets

- Upgrade existing streets as for subsurface conveyance without pipes
- Networked Green Infrastructure for groundwater reduction through evapotranspiration and structural soils.





- 1. Start with Hydrologic analysis of the existing topography informs the location for the implementation of street adaptations.
- **2. Collect, store, and slow water** using the depth of the public right of way.



Oredge the Brigantine golf course's lakes to maintain stormwater management function



## STORMWATER MANAGEMENT

©Create new 'storm water management parks' on city-controlled land. Link pump stations' effluent to new wetland parks

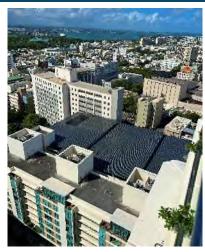


**Canover's Creek** 



## POWER AND COMMUNICATIONS

- Require installation of solar panels for all renovation and new construction projects above a specified dollar amount to increase energy resiliency during power outages
- Adopt Incentive Program to encourage installation of solar trellises at surface parking lots and batteries at all buildings to encourage bi-directional charging for electric vehicles



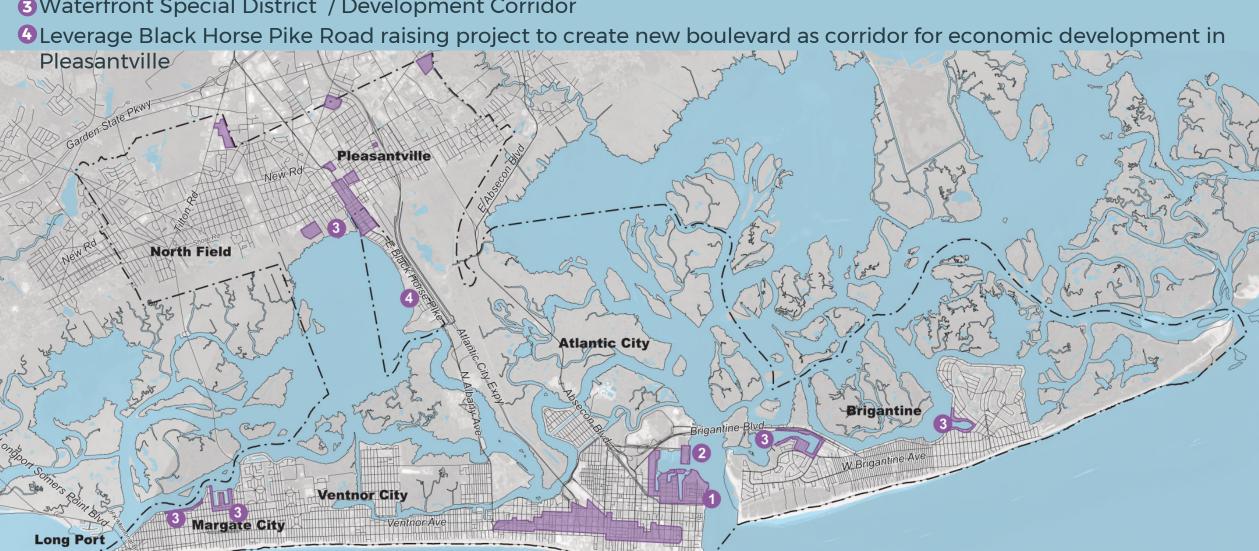




**Solar Trellises** 



- Rezone all parcels adjacent to Basin and marina for Industrial / Blue Economy related land uses
- 2 Decommission U.S. Coast Guard Station Atlantic City and redevelop for Blue Economy land use
- 3 Waterfront Special District / Development Corridor



# SCENARIO 3

### **EQUITABLE ECONOMIC DEVELOPMENT**





# Rezone area around Gardners Basin and Delta Basin to allow for Industrial / Blue Economy related land uses







# SCENARIO 3 SHORELINE PROTECTION EQUITABLE ECONOMIC DEVELOPMENT

### Black Horse Pike strategic growth corridor

• Leverage *Black Horse Pike Road raising project* (Route 40 Atlantic County Drainage Project) to create new boulevard as corridor for economic development in Pleasantville







- **1** Upzone areas in less vulnerable ('High and Dry') areas with access to housing and jobs to incentivize increased development
- 2 Study potential for increased density to accommodate more affordable housing options for the region's existing residents (workforce etc.)





### SCENARIO 3

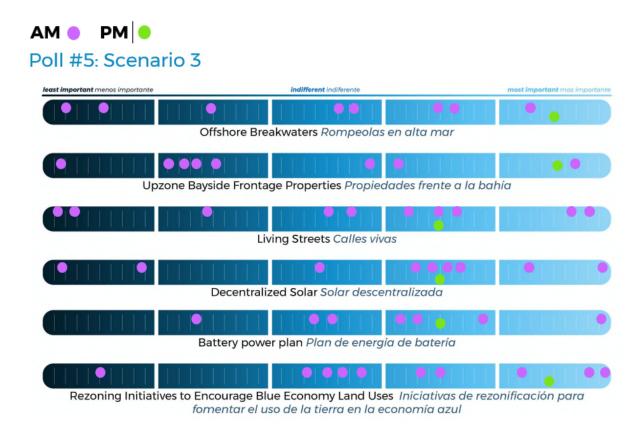
### Steering Committee / Public Feedback

#### **Steering Committee**

- Support for offshore breakwaters
- Municipalities should be encouraged to adopt stormwater management regulations (cisterns, blue roofs, and rain gardens)
- Living Streets select locations, potential pilot in Atlantic City
- Encourage community solar, wind power, roof top solar, tree and landscaped areas, open space
- Gardner's/Delta Basin Maritime/Blue Economy - mixed use (not just industrial).
   Adjacent to stable neighborhood;
   Minimum disruption to social fabric.
- Encourage the development of a Resiliency and WIND Institute in Atlantic City to bolster the economy and to continue R & D efforts.
- Additional vacant sites for Blue Economy.

#### **Public Meeting**

 Preference for Decentralized Solar, Rezoning to Encourage Blue Economy Land Uses, and Living Streets.



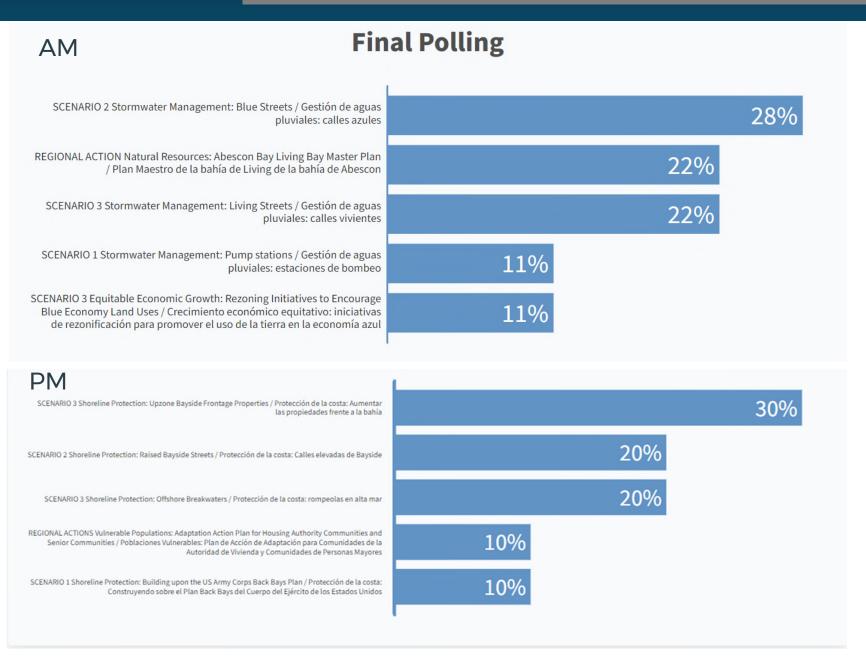
### All Scenarios

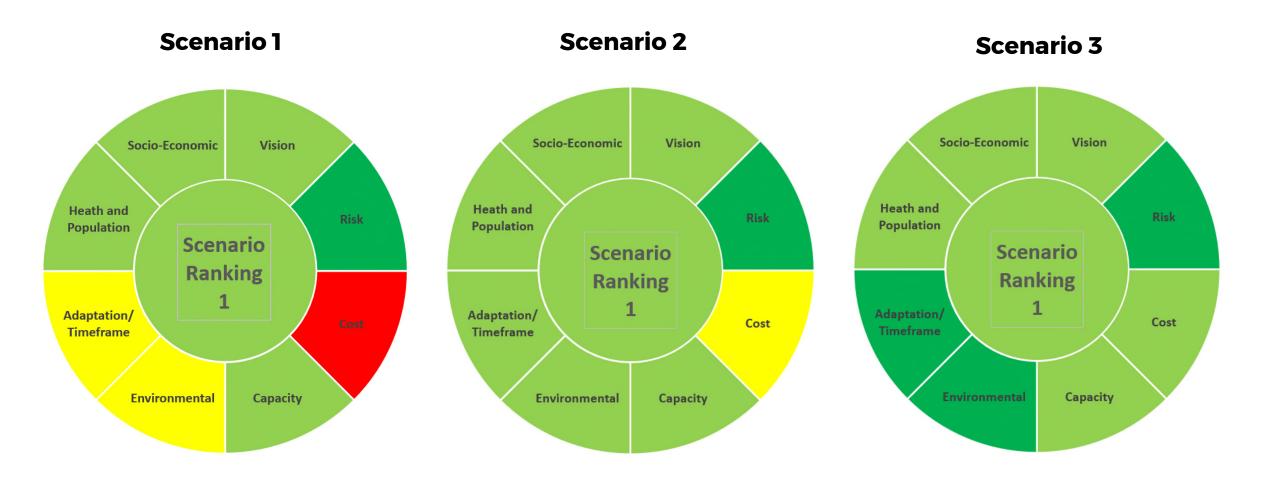
### Steering Committee / Public Feedback

#### **Public Meeting**

**Overall Preferences:** 

- Blue Streets
- Living Bay Master Plan
- Living Streets
- Upzone Bayside Frontage
- Raised Bayside Streets
- Offshore Breakwaters

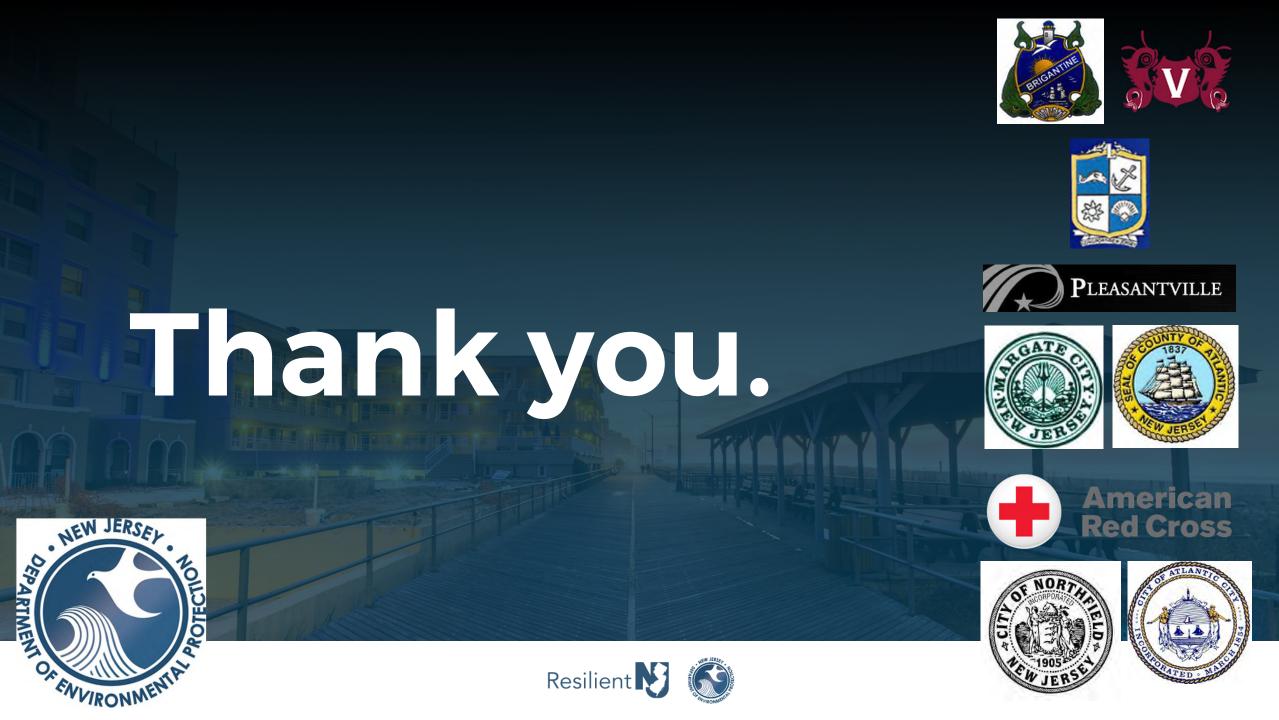


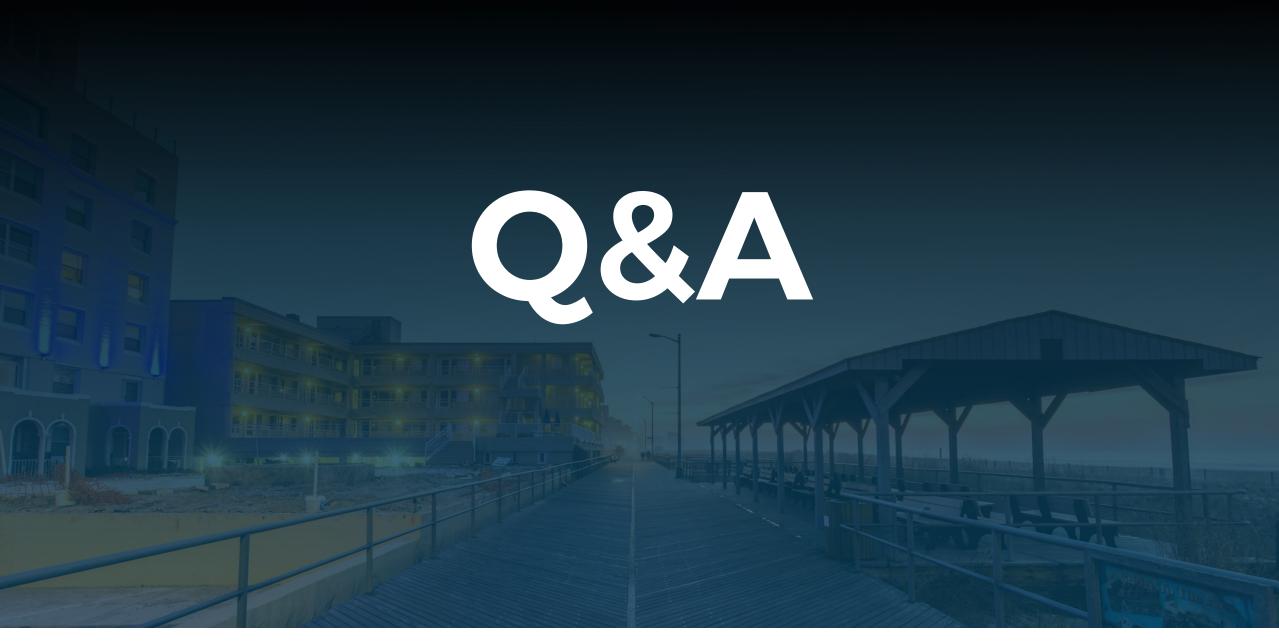


# Closing

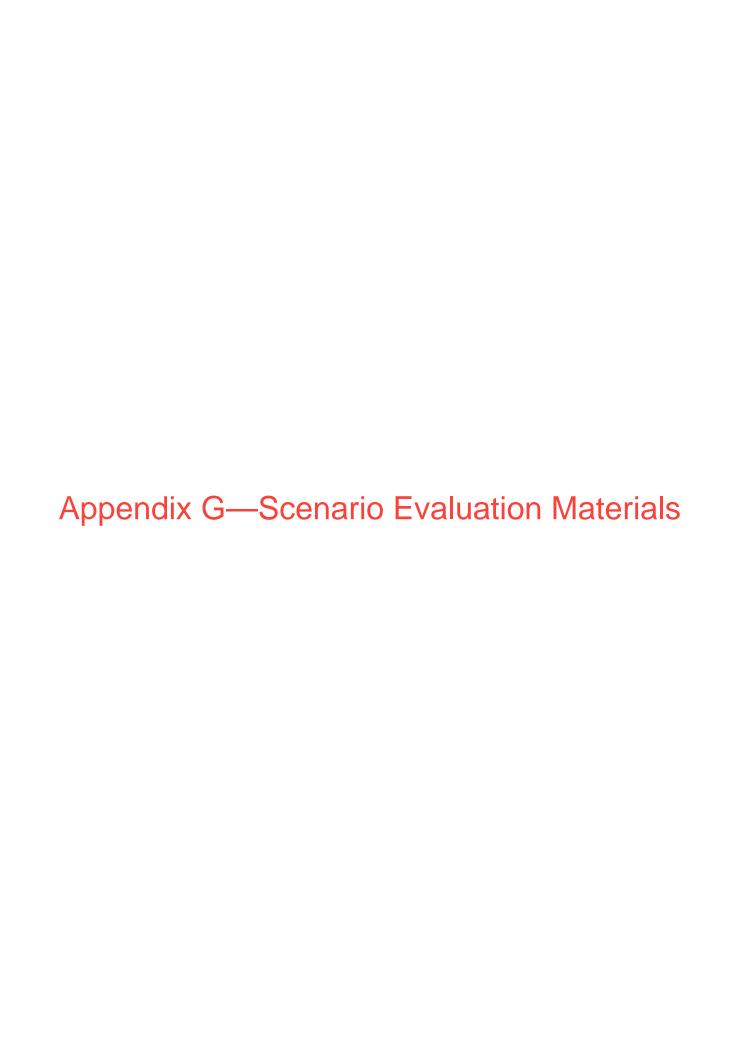
- The ACCR Region honors the social fabric and diversity of its communities and has an urgency to enable generations of families to stay in this Region and thrive.
- Resiliency is a top priority in every community in the ACCR and the communities continue to strengthen after Sandy.
- Strong collaboration within the region with a focus on innovative projects to prepare for climate change, while creating opportunities for workforce development, ecotourism, investment, and equity.
- Actions presented:
  - Respond to the vision and uniqueness of the region.
  - Provide multiple approaches to build resilience and prioritized the community engagement and decisionmaking process throughout.
  - Work together to create synergies and provide greater benefits as a whole.

"The Resilient New Jersey Atlantic County Coastal Region is a resilient and sustainable place where **protections** from natural disasters, flooding, and sea **level rise** enable the region to thrive; residents' **sense of belonging** and pride in their communities is enhanced by advancing quality of life through fair housing, accessible transportation, infrastructure improvements, and a diversified economy; and visitors are offered inviting recreational and cultural experiences that honor the ocean and optimize the waterfront, public space, and regional assets that make the region an iconic destination."









#### Preferred Scenario

Appendix A: Resilience Checklist	Checklist	Notes
Note: Planning Teams should address each pre-requisite before considering each related resilience indicator checklist. The checklist serves to integrate creativity and innovation into the planning process, and to encourage team discussions across a range of themes throughout development of the regional resilience and adaptation scenarios.	(	Team utilized checklist during scenario development working sessions
Successful scenarios should consider the following:  1. Evaluation of Vision	1	
☐ Consensus concerning the region's vision.	<b>∨</b>	
☐ Support of expedited achievement of the vision.	✓	
2. Evaluation of Risk and Risk Reduction  Current and future exposure of critical community assets, facilities and services.	<b>√</b>	
Exposure of critical community assets and facilities at each total water level.		MHHW + SLR 2070 (2.4 ft.) + (1% annual chance, 24-hr storm event + 10% increase in rainfall)
Exposure of natural community assets and facilities at each total water level.		MHHW + SLR 2070 (2.4 ft.) + (1% annual chance, 24-hr storm event + 10% increase in rainfall)
<ul> <li>Potential damages under each flood condition.</li> <li>Current and future exposure of neighborhoods and mixed-use neighborhoods.</li> </ul>	<b>√</b>	
Exposure of neighborhoods at each total water level.		
<ul> <li>Potential damages to neighborhoods at each total water level.</li> <li>Demographic profile of areas that are exposed to flooding today or are likely to be exposed to flooding in the future.</li> <li>Current and future exposure of economic centers (commercial and industrial areas) that are exposed to flooding today or</li> </ul>		
are likely to be exposed to flooding in the future.  © Exposure of economic centers at each total water level.	<b>√</b>	
<ul> <li>Potential damages to economic centers at each total water level.</li> <li>Flood exposure to economic, cultural, and social impacts from future flooding conditions if actions are not taken.</li> </ul>	<b>√</b>	
o Possible shifts of socioeconomic identity of the region.		
<ul> <li>□ Impacts at each total water level.</li> <li>□ Effectiveness of flood protection provided to critical facilities. For example, can the scenario include traditional flood mitigation actions, such as elevation and floodproofing, enough to prevent service interruptions or to simply protect the</li> </ul>		
structure from flood damages?  Inclusion of non-structural actions or activities such as zoning, policy changes, buy- out programs, dry/wet floodproofing,	✓	
etc.  Risk reduction, or will the scenario include Resilience and Adaptation Scenarios to reduce risk or adapt the region to life	✓	
with risk?  Multiple benefits to support the goal of a "multiple-benefits" scenario and action design.	<b>√</b>	
while penents to support the goal of a multiple-benents scenario and action design.	V	
3. Cost Efficiency ☐ Cost effective Resilience and Adaptation Scenarios.	✓	
☐ Cost effective Resilience and Adaptation Scenarios. ☐ Available funding mechanisms to implement actions and associated cost shares.	<b>∨</b> ✓	
Long-term financing of alternatives, or can actions within the Resilience and Adaptation Scenario be budgeted through long-term financial planning or future funding?	<b>√</b>	
A. Considerto Implement		
<ul> <li>4. Capacity to Implement</li> <li>☐ Staffing capacity of regions to implement and maintain the Resilience and Adaptation Scenario.</li> <li>☐ Staffing or resource capabilities of federal, state, regional, municipal, and private entities to support and advocate the</li> </ul>	<b>√</b>	
Resilience and Adaptation Scenario.  Capacity of residents and business owners to integrate resilience strategies into their properties.	<b>√</b>	
☐ Future regulatory or policy changes, or can municipal/state regulations or guidance that currently prohibit the implementation of an action be modified to be less restrictive in the future? [Tip: Integrate elements of the resilience and		
adaptation scenario that push the limits of what is possible or legal under current conditions. The resilience and adaptation scenarios can (and should!) be creative, innovative, and even aspirational.	✓	
5. Environmental/Ecological Enhancement  Nature-based solutions to enhance the local environment, such as native landscaping, green stormwater design		
enhancements, and living shorelines.  Improvement of nature-based stormwater management.	<b>√</b>	
☐ Improvement of floodplain management.	<b>↓</b>	
C. Albertation Constitute		
6. Adaptation Over Time  * PREREQUISITE: Define Short vs. Long-term. Define the time horizon of the scenario and the keystone action of the scenario.		
☐ Iterative approach to adaptation strategies.	<b>√</b>	
☐ Alternative actions with associated timeframes for completion (short-, medium-, and long term). ☐ Account for changes in risk conditions over time.	<b>√</b>	
7. Outreach and Partnerships		
* PREREQUISITE: Develop an engagement process that gives the opportunity for all residents to participate in the planning process.		
☐ Community support for short-term actions.	<b>√</b>	
Consideration that current public opinion is likely to shift and evolve over time and that current community support may		
change for medium/long-term actions.	✓	
8. Health and Populations  * PREREQUISITE: Identify the populations that would benefit from increased accessibility to physical and mental health services, transportation, safe drinking water and food sources.	<b>-</b>	
☐ Increase public safety and accessibility of health services. ☐ Reduce the impact of hazard events on physical and mental health.	<b>,</b>	
□ Support increased education and with respect to potential health implications of hazard events and future conditions. □ Address key population segments in the community (i.e. tourists, residents, low- income residents, etc.).	<b>√</b>	
9. Socio-Economic Benefits	<u> </u>	

#### Preferred Scenario

☐ Improvement of quality of life (e.g., increased recreational areas, enhanced local character and amenities, access to fresh		
food).	✓	
☐ Equity and inclusion of socially vulnerable populations.	✓	
☐ Mobility and connectivity of region as it relates to flooding.	✓	
☐ Walkable neighborhood design enhancements.	✓	
☐ Planning mechanisms to encourage and allow for the relocation of business districts, industrial and commercial zones		
away from future flood risk.	✓	
☐ Resilience and Adaptation Scenarios that stimulates economic prosperity and development.	✓	
☐ Preservation and protection of civil and human rights.	✓	

1. Action Number:	2. Action Name:	3. Description of the Action:	4. Description of Problem to be Addressed: 5. Action Type	7. 6. Losses Avoided: De	. Losses Avoided escription:	8. Estimated Benefits:	9. Level of Protection:	10. Populations Addressed?	11. Addresses SVPs?:	12. Connection to Other Actions: 13. Estimated Co	An	. Estimated nual 15. # of Struct aintenance Cost: Protected:	ures 16. Ecological Area Protected:	17. Estimated Start 18. Estimated Decade: Project Duration	19. Total Lifespan of 20. Lead Action: Organization:	23. Funding Currently Mechanisms to be Used Manager 24. Local Planning Currently Mechanisms to be Used National Planning Sources: Manager 25. Critical Next Steps 26. Known	Obstacles:
Region-wide 1	Uving Bay Master Plan	- Prioritize actions to restore habitats through thin thin-layer sand eposition in targeted locations and living shoreline improvements and coordinated use of resources (dredge sand) and funding.  - Create a means to streamline permit reviews resiliency projects, establish broader or more flexible limits for General Permits and espandu sed in In-Lieu - The mitigation option.  - Public Education to recognize the importance and value of back yield with a protecting the region from storm surge.	("200 assets across the region). Provide protection to high-medium risk facilities along bayside such as 2 Atlantic City radio towers, Brigantine Bayside Marina, Bader Field Boat Ramp, Pleasantiville Clematic Ave. Park, Northfield Stillwater and Glencove Parks, Lodging along Black	fro ev th	om storm surge vents regionwide	wetlands. Benefit for flood protection along	Storm Surge	All ACCR populations	Yes, the Living Bay Master Plan would protect all of Atlantic City, as well as Pleasantius, where SVPs are concentrated (Planning Context - CDC SVV).	Keystone Action Planning Cost - *	-5200-5400K N/	33,668 (struct A in ACCR region	Reeds Bay, Absecon Bay, and Lakes Bay east of Absecon ures Island ~60 sq.)	2025-2030 Short-term action 1 - 3 years	The Nature Ongoing Contenuncy (TSE	The Trust for Public Land The Nature Conservancy Shoreline Protection: NeW*- National Costal Resilience Fund Costal Resilience Gront for Costal Communities FEMA - Hazard Miligation Grant Program (INMOP) - Flood Protection NFWF, Wells Fago - Resilient Communities Program - Natural ecosystems, Green Infrastructure, S.R. NFWF - Adaptation through Regional Conservation Projects - S.R. NFWF - Adaptation through Regional Conservation Projects - S.R. NFWF - Adaptation through Regional Conservation Projects - S.R. NFWF - Adaptation during the Note of the Note	
Region-wide 2	Absecon Bay Keepers	region.  - Work to protect, preserve and restore the various fish and widdlife habitats that exist within the watershed.  - At a steward for Absecon Bay by -  - Promoting responsible, sustainable development.  -  - Working with Ioad, county and state planners to ensure that  land-use planning decisions reflect up-to-date science.  -  - Provide a resource to assist local, state and federal agencies to	Capacity Building:  Increase regional capacity and stewardship of Abaccon Bay through environmental action, advoscor, and education.  Critical Facilities: Overall, provide protection to top critical assets in ACCR (**200 assets across the region). Provide protection to top the medium risk facilities along barylies such as 2 Atlantic City critical towers. Riginaries Baysiel Marina, Badeer Fall Book Ramp, Pleasantonies and Gliencove Parks, Lodging along Black Increase Pike.	th ba re	ied to promoting ne health of the ay and it's role in	back bay tidal wetlands. Benefit for flood	Storm Surge	All ACCR populations	Yes, has the potential to positively impact Atlantic City, as well as Pleasantville, where SVPs are concentrated (Planning Context - CDC SVI).		sization - need An rganize co	inual operating sts N/A	Reeds Bay, Absecon Bay, and Lakes Bay east of Absecon Island ~60 sq. mi.	2025-2030 Short-term action 1 - 3 years	Develop non-prof organization	Capacky Building: NeW - National Coastal Resilience FEMA - Building Bosilient Infrastructure and Communities (BRIC) FEMA - Hazard Mitigation Grant Program (HMGP) - Public Education and Outreach NWW - Community Capacity Building and Demonstration Projects - advance social cobesion, green infrastructure Threshold Foundation - Thriving Resilient Communities (TRIC) Funding Circle - strengthening local and The Nature Conservancy Resilient Communities (TRIC) Funding Circle - strengthening local and The Nature Conservancy Resilient Communities (TRIC) Funding Circle - strengthening local and The Nature Conservancy Resilient Communities (TRIC) Funding Circle - strengthening local and Circle - strengthening local and Recreation planning Recreation planning Recreation planning Institute key partnership/s Sustained f	lunding source
Region-wide 3	Translate all Emergency Preparedness Materials	Region: Translate all Emergency Preparedness Materials into the multiple languages to reach all of the region's communities and develop action plan to disseminate materials. groups with SVPS.		an		Improve emergency preparedness and communication of evacuation procedures.	f Superstorm Sandy type event	Residents	CDC SVI). Focus on	Supporting Action Connected to Evaluate and Improve Preparedness Actions for SVPs. Planning and out		ssts accrued at date cycles N/A	No.	2025-2030 Short-term action 1 year	Material update cycle Municipalities	Emergency Management Planning - Management P	
Brain wide a	Evaluate and improve	Shelters  Designated shelter for people w/ disabilities; children w/ special needs  Power outlets for medical devices & accessible bathrooms  Program focused on single parents ets  Trogram focused on single parents  From the single parents of the single parents  From the single parents   From the single parents   From the single parents   From the single parents   From the single parents   From the single parents   From the single parents   From the single parents   From the single parents	Vulnerable Populations: Improve Communication and Outreach /	an	void loss of life of injury during ges storm	emergency	Superstorm Sandy	and the state of t		Supporting Action Connected to Translate all			No	2025-2030		Emergency Management Planning	
Region-wide 4  Region-wide 5	Preparedness Actions for SVPs	Atlantic City and Pleasantville: Develop Adaption Action Plan for Atlantic City & Pleasantville Develop Adaption Action Plan for Atlantic City & Pleasantville Housing Authority Communities and Region's Senior Centers.  Continuity of Senior Centers.  Continuity of Senior Centers.  Continuity of Senior Centers.  Elevise Electrical and Mechanical Equipment  - Elevise Electrical and Mechanical Equipmen	Vulnerable Populations: Ensure continuity of service Brasse et disastering or Atlantic City Housing Authority Communities City Housing Authority Pleasantville Tower Annea) is a medium risk facility.  Future Study/Analysis	Avoid losses to Atlantic City & Pleasantville Housing Authority Communities and air Centers ("15-20 w facilities) Losses avoided in total is "53 Billion totals is "53 Billion	void losses to	Ensure housing continuity.	SUR 2070, Precipitation: 1% annual chance 24-br storm event 24-br storm event 25-br increase in rainfall, and or storm surge	Residents	on SVP needs  Yes, will positively impact Atlantic City, as well as Pleasantville, where SVPs are Concentrated (Planning Context CDC SVI). Focus on CDC SVIII.	Emergency Preparedness Materials  Unknown  Supporting Action  Connected to Vulnerable Population	-5200 N/	A N/A	N/A	2023-2030 Short-term action 1 - 3 years 2025-2030 Short-term action to initiate planning 1 - 3 years	Ongoing American Red Cro  Ongoing Municipalities	Reconing Find everlopment:  Reconing Find everlopment: FEMA+ Hazard Milingsion Grant Program (HMSP) - Structural Retrofitting for Buildings Dist FEMA+ The Finod Milingsion Charles For Research For Res	
Preferred Scenario:	USACE New Jersey Back Boys  1 Plan Implementation	Atlantic City, Pleasantville & Northfield, Brigantine: Rely on the plan proposed in the USACE Back Bays Plan to protect the baybid from storm surge events. Construct or Gross-Bay Barrier (EGB), a continuous floodwall along the entire length of Abaccon Blwd, bright to the existing Abaccon seals at the inlet. Downbacht: Construct the Great Egg Harbor Inlet Sorm Surge Barrier (SSB) and Construct the Great Egg Harbor Inlet Sorm Surge scaring Edge and Construct the Great Egg Harbor Inlet Sorm Surge Sories (SSB) and Sories Sori	Bayside Protection: protect Absecon Island, Pleasantville (partial), Northfield (partial), Briganine bayside flooding utilizing structural and nonstructural measures.	estimated island from losses). Prevent event some losses ~\$6 all Million in Brigantine. (HAZUS dr	nterior flooding om precipitation wents to consider lthough this ction will help rainage to a	protection along	t Storm Surge - Superstorm Sandy type of event	All ACCR populations	Pleasantville, where SVPs are concentrated (Planning Context -	This addresses bayside flooding; it connects to the oceanside protection Portals/39/docs/to provide full perimeter protection on barrier islands. Needs to pair with 16Aug2021-Final-	o.usace.army.mil/ /Civil/NJBB/Draft- iays-Main-Report- - =bDvs83gk44OkMf	nual maintenance	ures n) No	indicated in Back Bay indicated in Back	SO years, as indicated in Bay Back Plan (to 2080) USACE	match, plus annual maintenance. This supporting USACE as State/local	ntal impacts 33% cost share funding not identified maintenance cost funding not identified

1. Action Number:	2. Action Name:	3. Description of the Action:	4. Description of Problem to be Addressed: 5. Action Type	6. Losses Avoided	7. Losses Avoided : Description:	8. Estimated Benefits:	9. Level of Protection:	10. Populations Addressed?	11. Addresses SVPs?:	12. Connection to Other Actions:	13. Estimated Cost:	14. Estimated Annual Maintenance Cos	15. # of Structures 16. Ecological E: Protected: Area Protected:	17. Estimated Start 1 1: Decade: P	8. Estimated l roject Duration	19. Total Lifespan of Action: Organization:	23. Funding Currently 21. Supporting Organizations: 22. Potential Funding Sources: 22. Supporting Organizations: 22. Potential Funding Sources: 23. Collical Planning Sources: 24. Local Planning Mechanisms to be Used Number of Sources Supporting Organizations: 25. Collical Nest Steps 26. Known Obstacles:
Preferred Scenario:	Bulkheads for Bayside 2 Protection - North end	Brigantine: Complement to the USACE Back Bays Plan in order to ensure all communities are protected. New buildhead to protect the north end of Brigantine.  Protect Row of home on North end with protect the Subtract Code to wright material.  Subtract code to every material and according to the subtract code of the subtract	Oceanside Protection: protect from ocean flooding.  Critical Facilities: No critical facilities protected: High Tacilities protected: High Tacilities protected in proximity to bulkhead - TBD if it can be protected by bulkhead.  Flood Mitigation Project	Avoid losses to residential structures in the north end fronting the buikhead "56 Million.	g Protects residential structures.		MHHW + SLR 2070 (2.4 ft.)	Residents	No	Supporting Action-Shoreline Protection Complement to Bayside Bulkheadi ordinance and existing bulkheads.	ng   300ft Bulkhead: Estimate \$800 to in \$1000 per foot = \$300,000 1,300ft Bulkhead: 31,300,000	Regular maintenance così	Approximately 30-40 homes in the two blocks at the month end. Mo	2025-2030 Short-tern action 3		30 years (vinyl longer) Brigantine	Shoreline Protection:  NFWF - National Costal Resilience Fund NCAA - Costal Resilience Grants for Costal Resilience Grants for FEMA - Hazard Militigation Grant Program (MMGP) - Flood Protection NFWF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green Infrastructure, S.R. NFWF - Adaptation through Regional Conservation Projects - S.R. interconnectedness of natural systems NFWF, WHSC EPA - The Five Size and NFWF, WHSC EPA - The Five Size and Size of the Size of t
Preferred Scenario:	3 New Pump Stations	Atlantic City, Downbeach, Brigantine, Pleasantville & Northfield: Install additional pump stations to drain low-lying areas during flood events. Install backup generators at pump stations for water and sever leg., Downbeach at Lafapher Avenue, Curroull Acesus, Pution and Harvard Avenue). Elevate pump stations out of the Rodoplan.	r to rainfall. Critical Facilities: Overall, provide	2 sq. mi. improve drainage for Absecon island and Brigantine.	Area of influence for the proposed areas to be drained - losses avoided to structures/roadway.	Improve Interior drainage.	Precipitation: 1% annual chance 28-hr storm event + 10% toccease in rainfall		Yes, would protect Atlantic City, as well as Pleasantville, where SVPs are concentrated (Planning Context -CCC SVI).	Seystane Action - Connected to developed cond-ways Complement to Back Bays Plan.	Installation of 4 pumps cost "\$1.5 million (\$373K per pump station)	Regular maintenance cos	6,643 (structures in ACCR region impacted by 1% 24th event + 10% increase in search) No	2025-2030 Short-term action 3	- 5 years ;	Individual municipalities, blasd on 20 years circhment area	Stormwater Management: NOMA - Coastal Resilience Grants for Coastal Community. FIRMA - Nazard Mittiggers Grant FIRMA - Nazard FIRMA - Resilient Communities Program - Natural ecopystems, Green infrastructure, S.R.  NFWF - Community Capacity Building and Demonstration Projects - advance social cohesion, green infrastructure extensive for the Nazard Firma - Parks and community resilience of the Nazard Firma - Parks and community resilience of the Nazard Firma - Parks and community resilience of the Nazard Firma - Parks and community resilience of the Nazard Firma - Parks and community resilience of the Nazard Firma - Parks and Community resilience of the Nazard Firma - Parks - Nazard Firma - Parks - Nazard Firma - Parks
Preferred Scenario:	Elevated Roadways - Evacuatio d. Routes and Key Connectors	Atlantic City: Elevate Evacuation Routes + Baltic Avenue / Mediterranean Ave / Connecticut Ave / North New Jersey Avenue / Mick Boulevard by approximately 3 feet. Since elevating condways on northwest selected sitters may be a challenge to an alternative is to elevate the next ter of roadways, Le, roadways on the control of the contro	Access: Increase access to evacuation routes from roadways that are the most impacted by Markw - SIR 270° - 1% annual chance, 24 hr. storm event + 10% increase in rainfall. Critical Facilities: increased access to Biggantine Baydie Marina, high risk facility, along evacuation route.	N/A	Reduce loss of roadway function and reduced and and reduced mobility during high precipitation events. Potential losses include loss of lives, proporty and compromise of public health and safety.	Aid in fortifying the evacuation routes. Provide enhanced continuity for	MHHW+SLR 2070 (2.4 ft.)-Precipitation: 1% annual chance 24-hr storne event -1% increase in rainfall	All (residents, workers, tourists)	Yes, would protect Atlantic City, as well as Pleasantville, where SVPs are concentrated (Planning Context - CDC SVI).	Keystone Action - Connected to pump stations	1.Known subsurface issues – Cost is 5105/5F of roadway (based on the pawement area between curb a Working with unstable subgrade could require installation of sheeting, over-excavation and replacement of soil with lightweight aggregate. b b. Includes reconstruction of pawement, drainage, underground utilities.  2. Normal subsurface conditions—Cost is 562/5F of roadway a. Includes reconstruction of all pawement, drainage and underground utilities, but construction would not require sheeting and of construction of all pawement, drainage and underground utilities, but construction would not require sheeting and of pithweight fill. b. Includes 10-foot roadway beems with sidewalk in both directions.	n	N/A No	2030-2050 Mid-term action 5	-10 years (	Ongoing Municipalities	Tradeoffs:  Identified roadways are narrow residential streets where driveways, garages, and the ground floor of homes are currently as sidewalk level.  Leaving the sidewalk in place and raking the road probably implies a retaining wall that will separate the street from the sidewalk.  Identify feasibility of road elevations - discussing with designating and that will separate the street from the sidewalk.  * Street parking may be affected. Many residents rely on development of the sidewalk.  * Street parking may be affected. Many residents rely on development of the sidewalk.  * Street parking may be affected. Many residents rely on street parking in to access their homes.  * Street parking from garage/driveways/garage tie in's must also be considered.
Preferred Scenario:	s Install Sheet Pile Dune Core	Aliantic City, install sheet pile dune core to reinforce existing dune from Ledson to Absecon nives. Regardine: Install sheet pile dune core at the northern half of Brigantine.	Oceanside Protection: Provides inundation protection after due is erooded. Similar work was completed in Mantoloking after Sandy breached the island. Catical Facilities: Enhanced protection Critical Facilities: Enhanced protection within Atlantic City and "11 in Brigantine. Flood Mitigation Project.	N/A	dunes provide - more resistant to	protection that dunes provide - more resistant to	SLR 2070	All (residents, workers, tourists)	Yes, has the potential to reinforce protection in Atlantic City, where SVFs are (Planning Context - CDC SVI).	Supporting Action - Shoreline Protection	Mantoloking Sheet PMe Dune Restoration Project - \$23.88 M for 3.5 miles as part of a larger USACI beach fill project	Tied to renourishment cycost	-13 miles of Shoreline 13,467 protection	2025-2030 Short-term action 1	- 3 years	75 years USACE	Shoreline Protection: NFWF - National Coastal Resilience Fund NDAA - Coastal Resilience Grants for Coastal Communities FEMA - Hazard Mitigation Grant for Coastal Communities FEMA - Hazard Mitigation Grant Program (INMEP) - Food Protection NFWF, Velos Fargo - Resilient Communities Topics - Hazard Mitigation NFWF, Velos Fargo - Resilient Communities Topics - Hazard Mitigation NFWF, Velos - Theorem - National State NFWF - Adaptation through Regional Conservation Projects - SIR, Interconnectedness of natural systems NFWF, WHIC, EPA - The Five Star and Urban Waters program - Improve stewardship of natural lands, improve stewardship of natural lands in the province of the natural lands in the province of the landship of the natural landship of the landship
Preferred Scenario:	poles and bury utilities where	Region: Harden all above grade utility poles and underground major powerlines (where possible). Relocating distribution write underground has been shown to improve reliability to avide the underground has been shown to improve reliability to avide the more provided to the provided of the provided that the provided has been shown to improve reliability to avide the provided has been always and	Power/Utilities: Increase energy resilience by reducing power outages after disaster/major storm event.  Prolonged power outages are extremely diagerous for a costat community, especially when compounded by the other issues that sites after a major event, such as downed electric power limes that may take a long time to repair; access to gas/fuel, supply chain breakdown for food or other essuentials, access for extremely considered to the control of the	N/A	Avoid extended power loss	Increase reliability and avoid outages	Storm Surge - Superstorm Sandy type of event	All ACCR populations	Yes, has the potential to positively impact Atlantic City, as well as Pleasantville, where SVPs are concentrated (Planning Context - CDC SVI).	Supporting Action - Power/Utilitie	Large range in cost. Cost can be 5 to 10 times more than overhead distribution lines U.S. Energy Information Administration)	Maintenance can more costly b/c access	be [ 33,668 (structures in ACCR region) No	2030-2050 Mid-term action 5	-10 years (	Ongoing Utility Companies	Identify potential overlap with Hazard Mitigation: Hazard Mitigation: Hazard Mitigation FEMA - Building Resilient introductive and Communities (BRIC) Hazard Mitigation Grant Program (HMGP) GRA - State Of New Jersy Hazard Management Planning - Municipalities Mitigation Grant Program (HMGP) GRA - State Of New Jersy Hazard Management Planning - Municipalities Mitigation Grant Program No Preparedness Identify phased locations lines.

2. Action Name:  2. Action Name:  Install emergency generator Preferred Scenario. 7 vey critical facilities	Description of the Action:  ACCR Region: install emergency generators at key critical facilities of continuity of emergency services and shelters. Coordinate with microgrid connections in the future.	Power/Utilities: Increase energy resilience after a disaster/image storm event causing power outsige; communities need power to Control Facilities. Assistants: City PAL studieng is high risk critical and Atlantic City Convention Center is medium risk assert. Protect Atlantic City City Hall, Margate City Hall, and Longorot Borough Hall - all top critical assets at risk in ACCP. Potential to provide protection to cluster of af risk assets in Pleasantville at the western end of Black Hotse Pile and	Loc ger en ger sup en of of Avoid extended power loss the alre	al energy relation from eration from ply power to pure continuity mergency storms Storm S S Storm S S Storm S Storm S S Storm S S Storm S S S S S S S S S S S S S S S S S S S	Addressed?	Yes, has the potential to positively impact Atlantic City, as well as Plesantville, where SVPs are concentrated (Planning Context-COC SVI).	32. Connection to Other Actions:  13. Estimated Cost:  Supporting Action  Need additional scoping to cost	1.4. Estimated Annual 15. # of Structures 16. Ecological Maintenance Cost: Protected: Area Protecte  Area Protecte  Need additional 10 primary	17. Estimated Start de Decade:  18. Estimated Project Duration Constitution of	19. Total Lifespan of 20. Lead from Action: 20. Lead Grganization: Organization: Organization: Ongoing Municipalities	21. Supporting Organizations:  Potential Stakeholders: a NI CHP/DG Coalition b. Energy Resilinece Bank Program c. rejoining the Regional Greenhoust Godining the Regional Greenhoust government of the Godining the Regional Greenhoust Hortel R Castino, Bally's Wild Wilde Castino, Aldanticar Regional Medica Center Inchine critical locations in Brigantine Brigantine Eublic Schools. A primar purpose would be to provide Incalifyusinesses power post-stom INCOMPTION OF THE REGIONAL STORY INCOMPTION OF THE REGION OF THE REGIONAL STORY INCOMPTION OF THE REGIONAL STO	d y  it :: Power/Utilities Microsoft - Breakthrough Energy	y Mechanisms to be tuee er: in implementation: 25. Critical Next Steps 25. Critical Next Steps	The fundamental barriers that impede microgrid sector include the early stage of the market, high regulatory uncertainty, difficult operating emitoroments, relabeliety higher capital expenditure costs than fossil fuel incumbents, high install costs, and the need to insert heavily upfront for slow palyake, over an 8-15- year period, combined with the lack of certainty about cited pain feelbade iscomens with a storing restrict steeps and relabelies continues to a storing microgrid projects. However, as capital costs continue to fall and the market matures indicate an increasingly positive investor retiron continues to a storing microgrid projects. However, as capital costs continue to fall and the market matures indicate an increasingly positive investor environment.  Regulatory note: It is not legal yet in New Jersey to build these types of microgrids, due to existing public utility franchise rights, but Ni Band of Public Utilities (Ni BPU) has been pushing to modify these rules as part of their Town Center microgrid organs. Over the longer term. NIDER and other agencies/stakeholders can coordinate with NI BPU to improve the proposed revisions to rules, making this type of microgrid fessible.
Preferred Scenario: 8 Beach Nourishment Program	Atlantic City, Brigantine, Downbeach: Continue beach nourothment program, with gradual elevation increase to address increased height of surge overtime. Incrementally raise the dune and bern heights through nourishment cycles: requires an engineering technical review to Carlonia eurobrance design templats, request would be initiated by the non-federal sponsor (NJ DEP). Includes modifying the template to pump feeder to beaches or feeder dunes above or at erosion hot spots.	Oceanside Protection: protect from ocean flooding. Critical Racilities: Enhanced protection for 70 high-medium critical facilities within Atlantic City and "11 in Registration," and "31 high-medium risk assets in the Downbeach area.  Flood Mitigation Project  N/A	rege nou a h h im "Ec sersism qua filit thr thr thr and bio soc Maintain current ec level of losses	ry lew years to light the control of	0 + Storm All (residents, workers, tourist	Yes, has the potential to reinforce protection in Allantic City, where SVPs are concentrated (Planning Context - CCC SVI).	Cost Components:  Beach Nourishment Fill Length- 6,000 LF Mol/Dembo56M (High end) Beach Nourishment - 5//CV 600,000 (Countity High) 530 (Unit Cost High) USAC MLC Report 20  Keystone Action  - Florida costs cited.	It ~13 miles of Shoreline region 24,590 protection	~ 3 year cycle - Ongoing Ongoing	Ongoing NJ DEP	USACE	For federal beach fill projects, the federal povernment contributes 65% of the project cost while the ternaming 35% to divided into a CSS, and the local governments, and the local governments contributing from the control povernments of the control povernments contributing 25%. All funding is provided through the Shore Protection Fund. (NLDP Div. of Coastal finglineering)  Yes  Shoreline Protection: NTWT - National Coastal Resilience Fund NOAA - Coastal Resilience Grants for	Local cost share	CONS: Existing concerns in AC about viewshed the was interrupted by dune vegetation, resolved by mowing the dunes grass down but could be mitigated with the proper dune plantings.
Preferred Scenario: 9 Offshore Breakwaters Study	Atlantic City, Downbeach, Brigantine: Study to determine fessibility and locations for Offshore Breakwaters. Create nearshore notothes and offshore 1 shaped ends – diminish wave energy that leads to beach erosion but does not interrupt the longshore sediment transport.	Oceanside Protection: protect from ocean flooding. Critical Facilities: Enhanced protection for 70 high-medium critical facilities within Atlantic City and "31 in Signatine, and "31 high-medium risk assets in the Downbeach area.  Flood Mitigation Project  N/A	Maintain current nou level of losses Stra	ger time ween rishment. Regically place re resion hot St. Surge	0 + Storm All (residents, workers, tourist	Yes, would protect Atlantic City, where SVPs are concentrated (Planning Context - COC SVI).	No universal type of breakwater can be prescribed because of the wide variation in conditions at each location.  Cost Components for Offshore Breakwaters: Breakw	13 miles of Shoreline Variable by location 24,590 protection	2030-2050 Mild-term action 3-5 years	30-50 years es	TRD	Coastal Communities FEMA—Hazard Mitigation Grant Program (HMGP)—Flood Protection NFW, Webls Fagor, Resilient Communities Program—Hastural ecoxystems, Green infrastructure, S.IR NFWF—Adaptation through Regional Conservation Projects—S.IR, NFWF—Adaptation through Regional Conservation Projects—S.IR, NFWF—WHC_ERP A.T her Eve Star and Urban Waters program—improve stewardship of natural lands, improve water quality and quantity USACE and NFWF—Dredging and Placement Demonstration Projects ACE—Sustrainable communities grant program—protect, and improve public spaces such as local parks, natural areas, and recreation resources No	Explore Living Breakwater opti along with traditional design methods. (http://nrscalutions.org/living breakwaters/)	CONS: costly to mobilize, rehandle and import jetty rock. Permitting outside the historic footprint would be difficult. Groin notching would eliminate access to fishing on the one spread of the properties of the properties of AC groin. Offshore barkware could upon gloudky and make offshore breakwaters cost prohibitive. Does not alleviate inundation risks, only reduces wave action that erode dunes and leaves property exposed. Risks to boaters and swimmers.
Protection Study - Combinal Preferred Scenario: of Upzone Bayside Frontage	bayside to form a continuous bayside flood protection system: Winchester Ave, Sunset Ave, North Annapolis Ave, Chelsea Court line North Harrisburg Ave. For example, Roadway Raised 2-ft Along	Bayide Protection: protect from bayide flooding. (Critical Facilities: Enhanced protection for "70 high-medium critical facilities within Author (Cri yand "11 in	Goal would be reduce losses to empaysite and inland sho properties from pro	estment. With evelopment re is the ential to ploy enhanced reline tection from and a Sandy storm surge Surge -	0 + Storm Superstorm Residents	Yes, has the potential to impact Atlantic City, where SVPs are concentrated (Planning Context - CD-CSVI). Could provide addition housing options but also has the potential to depending on the location.	is \$105/87 of roadway (based on the pawent rate as between cut? a Working with unstable subgrade could require installation of sheeting, over-excavation and replacement of 30 width sightweight aggregate. On of could be considered to the country of count	bs) on l	Elevate Roadways: 2030- 2050 Mid-term action Upzone Bayside Frontage: 2050 Frontage: 2050 or, mortgage cycle timeframs) Ongoing	Ongoing Municipalities	NIDOT	Leverage private investment and NIDOT (e.g., funded through RAISE grants etc.) No	Upzoning and Transportation planning	
Preferred Scenario: 13 Absecon Bay Blue/Green Wi	Region: Network of interconnected kayak/canoe trail (Blue way) connecting the Atlantic County bays developed in conjunction with new recreational rail (Green way) along the Blackhorse Pike and roads paralleling the shoreline. The Blue way can connect into the Cape May County trail system, the Jersey taland Blueway for a larger South Jersey network. Incorporate recreational fishin locations. The Green way can connect to additional trail not locations the Green way can connect to additional trail not control such or she hortifield/Pleasantville bike path (runs north/south) yad the Mallitatic County Blaeway (une sat/ywest).	Development/Natural  Resources/Capadiby Building Build capacity, stewardship, and promote (, environmental swareness and the igi connections to the water (Protect a). Absceron Bay a a  a basecon Bay a a	sun "ba the ide ecc tou , ca out pro env aww		ess of bay All (residents, em services, workens, tourist	While not directly addressing SVPs hat the potential to build capacity through youth group engagement.	Supporting Action - Natural Resources Planning Cost - 5200K	Reeds Bay, Absecon Bay, and Lakes Bay east of Abseco Island '60 Sq. N/A N/A N/A N/A		Ongoing ACCR Region	Girl and Boy Scouts of America The Trost for Public Land The Nature Conservancy	The Trust for Public Land The Nature Conservancy Shoreline Protection: NRVF - National Coastal Resilience Fund NOAA - Coastal Resilience Grants for Coastal Communities FEMA Hazard Mitigation Grant FEMA Hazard Mitigation Grant FEMA Hazard Mitigation Grant NRVF, Wells Fargo - Resilient Groupstems, Green Infrastructure, Str. NRVF - Adaptation through Regional Conservation Projects - StR, interconnectedness of natural systems NRVF, WHC, EPA - The Five Star and NRVF, WHC, EPA - The Five Star and Urban Waters program - Improve stewardship of natural lands, improve stewardship of natural landship stewardship of natural landship stewardship of natural landship stewards	Recreation planning Environmental Conservation Flanning (initiate key partnership/s	

1. Action Number:   2. Action Name:	4. Description of Problem to be Addressed: Addressed:	5. Action Type	7. Losses Avoided 8. Estimated 6. Losses Avoides: Description: Benefits:	9. Level of 10. Population Protection: Addressed?	ns 11. Addresses SVPs?: 1	12. Connection to Other Actions:	13. Estimated Cost:	14. Estimated Annual Maintenance Cost:	15. # of Structures Protected:	16. Ecological 17. Estimated Start Area Protected: Decade:	19. Total 18. Estimated Lifespan of Project Duration Action:	20. Lead Organization:	21. Supporting Organizations:	22. Potential Funding Sources:	Currently	24. Local Planning Mechanisms to be Used in Implementation:	25. Critical Next Steps	26. Known Obstacles:
Preferred Scenario: Community Microgrid System 12	Begion: Companion to Nanogrid action. Study can lead to actions in the future and identify where to provide solar.  Microgrids can be centered around casinos /hotels or other major sites that can provide emergency services / support.  Coordinate with Allantic City Tectric (ACS) for access/logistics.  Extend to essential small businesses in immediate vicinity.  The new distributed system of inricogrid dusters would be exact activated and the control of the companion of the compa	on	Microgrids build solar, Vehicle to Grid (VIGS) or other resewable provide distributed enem and can be targeted //subsidiated. This microgrid will the use its sown local energy enemats from renewable sources to supply power to the nearby building until the main go Avoid extended power loss.	e e ses ses ses ses ses ses ses ses ses	Yes, has the potential to positively impact Affantic City, as well as Pleasantville, where SVPs are concentrated (Planning Context - CDC SVI).	Keystone Action	Planning Cost - \$200K - \$400K	N/A	Unknown	2025-2030 No Short-term action	Implement 1 - 3 years on of study planning 13 years	U 5- Municipalities	Potential Stakeholders:  a.N.ICHP/OE Coalition I. Energy Resilience Bank Program L. rejoining the Regional Greenhouse Gas Initiative (RGGI)-Cap and trade program funding GWRF Gilbal Warming Response Fund (GWRF)- could provide a rich funding source for our activities L. Greenhouse Greenhouse L. Greenhouse L. Gastrand House L. Greenhouse L. Gastrand House L. Greenhouse L. Green	Microsoft - Breakthrough Energy Ventures Fund - invest in clean energ technology to combat climate change	SY e No	Emergency Management Planning (e.g. Emergency Operations Plans)	initiate study to determine microgrid feasibility	The fundamental barriers that impede microgrid sector include the early stage of the market, high regulatory value certainty, difficult operating emviorments, delaborating value certainty, and the proper desired properties of the properties of th
Nanogrids - Encourage Preferred Scenario: Renewable/Solar on Rooftop and Surface Parking Lots	consumed on site by existing loads, or new assets like batteries. region).	I		e e s s s s s s s s s s s s s s s s s s	Yes, has the potential to positively impact Atlantic City, as well as Pleasantivile, where SVPs are concentrated (pleasing Context - SC CV).	Supporting Action - connected to Community Microgrid Study	Planning Cost - 5300K. Need additional scoping to cost implementation of policies	N/A	Unknown	2025-2030 Short-term action for pilot projects 2030-2030 Med term action for larger scale no implementation	3-5 years Ongoing	Municipalities	TRD	Microsoft - Breakthrough Energy Ventures Fand - Invest in clean energ technology to combat climate changi	5Y e No	Emergency Management Planning (e.g., Caregorius Plans)	identify potential plior project	
Preferred Scenario: Living Straets Fessibility Stud- and Pilot Program	suburface conveyance without pipes. Networked Green Infrastructure offer groundwater reduction through evapotranspiration and structural soils. Use the roadway infrastructure to function as a performative network to mitigate downstream flash flood risk and facilitate infiltration.  2. A hydrologic analysis of the existing topography informs the location for the implementation of street adaptations.  3. Blue streets convey water flow while green streets allow infiltration. Cappeth, the roadway infrastructure is amplified to function as a performative network to mitigate downstream flash flood risks and facilitate infiltration.  As mentioned in Scenario 2: Blue streets convey water flow. structural "sol. a mid of soli and a stone structure, is strong freely and help absorb more water in storms." (Fast Company 11/21 - Beach Green Dunes NYC designed by LOLA)  Precedent: Miracke Mile, Maimi - This woonerf provides infiltration and an interconnected forces of roots for biostension, absorbing frequent rain events for the entire watershed. The performative landaccipe clusters treets to evapotranspiate groundwater into the air, cooling the urban heat sland in the city. The forward thinking designs allowed the commercial corridor for the flow phenedium critical facilities responsible frequent rain events for the entire watershed. The performative landaccipe clusters treet to evapotranspiate groundwater into the air, cooling the urban heat sland in the city. The forward thinking designs allowed the commercial corridor for the hydromedium critical facilities entire and the power of the pow		2 sq. mi. Improved drainage for Absecon Island and Brigantine - Boddistinal capitary loadway function in through green in thiraturuture than using only fibus encounting the control of th	Precipitation: 155 annual chance 284m should chance 284m increase in 2008. Increase in 2008. workers, consideration of the 2008 of the 200		Supporting Action	Higher Capital costs than regular streets (see elevated roadway). Has been conted at 500 infrastructure contenter infrastructure united	Lower Maintenance Cost	4,735 (structures in impacted by 152. Zufe event + 100% increase in rainfall)	2025-2030 Short-term action for pilot projects 2030-2050 Mild-term action for with the pilot pil	3-5 years Ongoing	Municipalities	ТВД	Ssomwater Management: NOAA - Costal Resilience Grants for Costal Communities FEMA - Hazard Mitigation Grant Frogram (HMGP) - Flood Protection NAVI, Welsh Farga, Pesalient ecoystems, Green Infrastructure, SL NWF - Community Capacity Building and Demonstration Projects - advance social cobesion, green infrastructure, SL NDEP and Mere lessy Certification NDEP and Mere lessy Certification NDEP and Mere lessy Certification Lessy Extra Community resilience NDEP and Mere lessy Certification Lessy Extra Community Certification Lessy Extra Certifica	g ee	Stormwater Planning	Target areas for Living Streets have been mapped, Sased on initial mapping epider locations for low and driftle.	CONS: areas with sand drift could potentially fill voids quickly and require regular maintenance
Preferred Scenario: Create New Stornwater 15 Management Parks	parks' on city-controlled land. Link pump stations' effluent to new wetland parks. Initial conceptual sting analysis completed using clusters of critical assets and vulnerable populations. Additional assessment necessary to determine feasibility. Northfield affect from one Park could be retrofitted with large scale constructed wetlands, biorelention, changes is soil and subsurface characteristics to increase torage capacities including implementation of lines, and/or underground storage that could subsurface characteristics to increase torage capacities including implementation of lines, and/or underground storage that could supplementation of lines, and/or underground storage from the country of the control of the c		Reduce loss of roadway function and reduced antifrastructure is and reduced antifrastructure in the stormwater is system and structure loss from mitigate flash fload reduced. Road risks. Road risks.	i.	Yes, has the potential to reinforce protection in Atlantic City, as well as Pleasantville, where SVPS are concentrated (Planning Context - S	Supporting Action: Stormwaker	Unknown	Unknown	6,643 (structures in impacted by 150% increaset +	Enhanced 2025-2030 protection for Good perispace lipt projects	3-5 years Ongoing	Municipalities	The Trust for Public Land	area, and recreation resources  Travel, tourism, and outdoor recreation EAD grant which can be used to "rebuild and strengthen their travel, tourism, and outdoor recreation industry through various infrastructure and non-infrastructure projects".  NOAA - Coastal Resilience Grants for Coastal Communities FEMA Heazard Mitigation Grant Program (HMDP) - Flood Protection NVEY, Wells Fargo - Resilienc Communities Frogram - Natural ecosystems, Green Infrastructure, SL NWFF - Community Capacity Building and Demonstration Projects - advance Social Contession, green infrastructure, Allantic City Electric's Sustainable Communities Grant program - parts and community resilience NUEP and New Jessey Environmental Infrastructure Trust (Trust) New Jessey Environmental Infrastructure Trust (T	R R B B B		own sand with obtain/create a model that includes a storm sever network of the obtain/create a storm sever network of the obtain/create a storm sever network of the obtaining to talenthy location of sever backups to factor that the flexibility analysis. Metally analysis are considered to the obtaining the obt	w
Atlantic City Harbor Strategic Preferred Scenario: 16 Sites		sk Planning and Regulatory	Avoid losses to adjacent established neighborhoods builthead Adlante CUP protections	SJR 2070 + Storm Residents and Surge Workers	Yes, has the potential to positively impact Atlantic City, where SVPs are concentrated (Planning Context - SCC SVI).	Supporting Action - connected to Equilable Economic Growth Actions	Planning Costs -Unknown	N/A	Unknown	Short-term Planning, 2003-2050 No MM-term action	5-10 years Ongoing	Atlantic City	ПВО	Rezoning/Redevelopment: FFMA-1 Hazard Mitigation Grant FPGMA-1 Hazard Mitigation Grant FPGMA-1 Hazard Mitigation Grant FPGMA-1 Hazard Mitigation Rest Officing of Buildings DIOS FEMA-1 The Tiood Mitigation Assistance (FMA) FPGgram - risk of CODA: The Callon Reinesstment Development Authority (CRDA) Affants: City Redevelopment PGUID) Grant FPGgram USDOT - Setter Utilizing investments to Leverage Development (BUILD) Grant PFGgram USDOT - Setter PGGram Office WIFTO - research Orlice WIFTO - research Orlice WiFTO - research New Jersey Aspire 1 as Credit Program New Jersey Aspire 1 as Credit Program New Jersey Aspire 1 as Credit Program Resident PGGram Building the climater-resilience field to supporting activities to disseminate and bring to scale promising climate- resilience approaches.	n ry	mic Development	Ensure action speaks to Mariner/Blue Economy - a mix of uses to link to adjace to energhtomoods. (Not all industrial loss)	

											14. Estimated				19. Tota				23. Funding	24. Local Planning		
		4. Description of Problem to be			7. Losses Avoided 8. Es	timated 9. Level of	10. Populations	11. Addresses			Annual	15. # of Structures 16. Eco	ogical 17. Estimated Sta	art 18. Est	timated Lifespar		ead		Currently	Mechanisms to be Use	d	
1. Action Number: 2. Action Name:	3. Description of the Action:	Addressed:	5. Action Type	6. Losses Avoided	: Description: Bene	fits: Protection:	Addressed?	SVPs?:	12. Connection to Other Actions:	13. Estimated Cost:	Maintenance Cos	: Protected: Area P	otected: Decade:	Project	ct Duration Action:	Organ	nization: 21. Supporting Organizations:	22. Potential Funding Sources:	Available?:	in Implementation:	25. Critical Next Steps	26. Known Obstacles:
																					Expand concept:	
																					Bader Field Coordinated Dredge-	
																					Site Raising Compact :Coordinate program to dredge spoils from all	
																					ongoing and future dredging	
																					projects in the region to raise the Bader's Field site. This will provid	
																					important synergies between loc	
																					projects to improve storm water	
	Coordinated program to reuse dredge spoils from all ongoing and future dredging projects in the region to raise development sites							Yes, has the potential to													capacity and maintain navigation channels, and this ongoing	al
	within the ACCR such as the Bader Field site.							positively impact													economic development initiative	
	Bader Field's location and low-laying elevation, any proposed							Atlantic City and										There are governmental and priva	te		Redevelopment of Bader Field is	
	development would require a mix of flood-proofing and resilience measures such as incorporating living shoreline to ensure the		5					Pleasantville, when SVPs are	e									funding mechanisms for beneficial projects such as taxes, grants, loa		Redevelopment/Econo	regional importance in providing new potential engine of growth	a
		Critical Facilities: Atlantic City Munici	ipal		Econ	omic growth		concentrated					Short-term Study	/				and cost-sharing programs. Divers		mic Development	and jobs as well as a location for	
	Other low lying development sites could include The Cove and	Boat ramp at Bader Field is a high risk				ered around SLR 2070 +	Storm	(Planning Context - CDC SVI).	Supporting Action - connected to				Implementation term 2030-2050					sources of funding may be need t	be	Planning/Recreation	those displaced over time by the	
17 Elevation of Development Sit	ites Borgata sites.	facility.	Future Study/Analysis	N/A	N/A the E	Blue Economy Surge	Workers	CDC SVI).	Equitable Economic Growth Action	Planning Costs: \$100-\$200K	N/A	Unknown No	term 2030-2050	5-10 ye	years Ongoing	NJDEF	P/USACE Municipalities	considered.	Yes	Planning	impact of climate change.	Bader Field is low-lying. Many proposals.
			_																			
Note: Fields should be completed based on availab	ole information. If an action doesn't have known information for all field	ds, the action should still be included in	n the list and the unknown fields should	be indicated with "Unkn	own".																	
					<del>                                     </del>				1												1	
									1												1	

#### Preferred Scenario

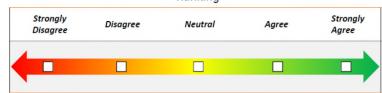
[**Survey Logic Statement: Answer yes or no to the following questions. If answers are yes, continue to the evaluation tool. If any answers are no, return to the scenario development phase and improve the scenario to address the indicator. **]											
Vision Indicator	Does the Resilience and Adaptation Scenario support the overall community vision? YES										
Risk Indicator	Does the Resilience and Adaptation Scenario reduce risk/adapt the region to life with risk? YES										
Cost Indicator	Is the overall scenario cost effective? YES (does assume the communtiy cost share for the USACE Back Bays Plan can be met in the long-term)										
Capacity Indicator	Does the region have the capability and capacity to implement the Resilience and Adaptation Scenario? YES										
Environmental Indicator	Does the Resilience and Adaptation Scenario use nature-based solutions to enhance the local environment? YES										
Adaptation/Timeframe Indicator	Has a timeline for implementation of each Resilience and Adaptation Scenario action been established? YES										
Outreach and Partnership Indicator	Does the Resilience and Adaptation Scenario take into consideration community engagement and outreach? YES										
Health and Populations Indicator	Does the Resilience and Adaptation Scenario equally strengthen health outcomes and the overall resilience of diverse populations? YES										
Socio-Economic Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region? YES										

Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region?

**Additional Indicator** 

#### **Scenario Evaluation Tool**

#### Ranking



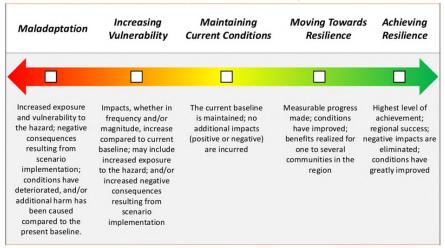
Once planning teams have developed resilience and adaptation scenarios, the following questionnaire should be used to evaluate how successfully the scenarios align with the resilience indicators. The gradient scale ranges from 2 (highest score, strongly agree) to -2 (lowest score, strongly disagree) to indicate the agreement for each question below. PLEASE FILL OUT THE RANKING SCORES IN COLUMN C TO PROVIDE INPUT FOR THE GENERATION OF THE SCENARIO EVALUATION GRAPHIC. REMEMBER TO ENABLE MACROS AND HIT THE "UPDATE CHART" BUTTON TO CREATE THE SCENARIO GRAPHIC.

- 2: Strongly Agree
- 1: Agree
- 0: Neutral
- -1: Disagree
- -2: Strongly Disagree

The mode score of each resilience indicator's section, indicates the resilience ranking for that particular indicator, using the following resilience scale. The average of all the indicators corresponds to the overall resilience ranking for the resilience and adaptation scenario as a whole. The scale is as follows:

- 2: Achieving Resilience: Highest level of achievement; regional success; negative impacts are eliminated; conditions have greatly improved;
- 1: Moving toward Resilience: Measurable progress made; conditions have improved; benefits realized for one to several communities in the region;
- 0: Maintaining Current Conditions: The current baseline is maintained; no additional impacts (positive or negative) are incurred;
- -1: Increasing Vulnerability: Impacts, whether in frequency and/or magnitude, increase compared to current baseline; may include increased exposure to the hazard; and/or increased negative consequences resulting from scenario implementation;
- -2: Maladaptation: Increased exposure and vulnerability to the hazard; negative consequences resulting from scenario implementation; conditions have deteriorated, and/or additional harm has been caused compared to the present baseline.

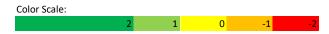
#### Vision Indicator Ranking



Number	Statement	Rank	Explain
Vision-1	The scenario accounts for changes in planned or expected development within the community.	1	
	Actions such as elevating buildings and other community characteristic changes align with the identity of the region		
Vision-2	outlined in the vision.	2	
Vision-3	The resilience and adaptation scenario supports the overall community vision.	2	
Vision-4	All regional values have the support of at least one action in the scenario.	2	
Vision-5	The scenario accounts for ongoing and expected demographic or economic trends.	1	
Vision-6	The scenario protects and enhances access to cultural assets.	1	
Vision-7	The scenario protects and adapts historic properties without compromising the historic integrity of the resource.	0	
Vision Mode		1	
Risk-1	The scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.	2	
Risk-2	Existing critical infrastructure (i.e. roadways, utilities, etc.) are protected if all actions in the scenario are implemented.	2	
Risk-3	Existing residential areas are protected if all actions in the scenario are implemented.	1	
Risk-4	Existing business districts, industrial and commercial zones are protected if all actions in the scenario are implemented.	1	
	The continuity of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals-or	1=	
Risk-5	Wheels)	2	
Risk Mode		2	
	The region has the current financial capacity to implement the scenarios without external assistance or has identified		
	financial assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes,		
Cost-1	municipal bonds).	-1	
			If USACE Back Bays Plan
			Implementation moves forward
			the municipal cost share is high
			(\$5.6M), however, the Preferred
			Scenario includes other actions
			that can move forward under
			municipal control/private
			investment while details of the
Cost-2	The overall cost of the scenario is less than the financial benefits/loss reductions.	1	USACE plan are worked out.
Cost-3	Annual maintenance costs and the responsible parties have been identified.	0	
Cost-4	Environmental remediation costs and the responsible parties have been identified.	0	
Cost-5	Funding sources and cost for each action have been identified.	1	Planning level identification
Cost Mode		1	
	The region has current staffing capacity or has identified opportunities to establish staffing capacity to implement and	-	
Capacity-1	maintain actions associated with the scenario.	1	
capacity 1			
Compositor 2	The region has the current capabilities or has identified opportunities to establish capabilities to sustain the scenario's long		
Capacity-2	term management and maintenance requirements (including likely replacement of actions with a limited lifespan).	1	
Capacity-3	The legal requirements of management and maintenance have been considered.	0	
Camaaiku. A	The planning team has determined which entities will be the local champion (municipal or NGO's) to help advocate for the	_	
Capacity-4	selected scenario.	0	
Compaite. 5	The scenario supports resident and business owner capacity to build resilience in alignment with developed policies, zoning		
Capacity-5	changes, building code changes, etc.	1	
Capacity Mode		1	
Environmental-1	Actions generate or preserve green space/open space.	2	
			USACE CBB Impacts but also
			positive environmental impacts
Environmental-2	Actions improve air and water quality or reduce pollutants (including greenhouse gas emissions).	1	related to nature-based solutions
Environmental-3	Actions increase floodplain management capacity and impacts.	2	
Environmental-4	Actions increase the use of nature-based stormwater management.	2	
Environmental-5	The scenario incorporates green infrastructure as a flood mitigation strategy.	2	

#### Preferred Scenario

1	The scenario identifies how to incorporate water into the community, including strategies that support the philosophy of		1
Environmental-6	living with water.	2	
Environmental Mode		2	
	The scenario actions account for changes in risk conditions, such as shifts in water levels, rainfall rates, storm intensities,		
Adaptation/Timeframe-1	and the natural environment.	2	
	Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or		
Adaptation/Timeframe-2	monitoring to maintain intended level of protection.	2	
	Scenario actions are designed to be initiated in phases and completed to adequately address both current and future		
Adaptation/Timeframe-3	conditions.	1	
	The scenario identifies keystone action timeframes to track when certain actions need to be completed in order to maintain		
Adaptation/Timeframe-4	a functional scenario.	1	
, , , , , , , , , , , , , , , , , , , ,	The scenario includes long term actions that are flexible and able to have the level of protection modified to meet the best		
Adaptation/Timeframe-5	available flooding projections.	2	
Adaptation/Timeframe Mode		2	
, , , , , , , , , , , , , , , , , , , ,	The scenario includes ample community education and outreach to positively influence public opinions regarding		
Outreach and Partnership-1	adaptation and resilience.	1	
Outreach and Partnership-2	The scenario includes actions where the leading organizations are external groups, organizations, and agencies.	2	
Outreach and Partnership-3	The scenario includes actions that involve ample public involvement and citizen participation.	1	
	The scenario identifies education/outreach actions that are necessary to support some of the most transformative scenario	-	
Outreach and Partnership-4	actions, requiring public support.	0	
Outreach and Partnership-5	The scenario identifies outreach and education actions that can be led and spearheaded by stakeholders.	0	
Outreach and Partnership Mode	<u>'</u>	1	
Health and Populations -1	Equity and inclusion for Socially Vulnerable Populations (SVP) are addressed in at least one scenario action.	1	
	4. ,	_	
	The scenario provides mechanisms to facilitate SVP's to be moved to safer locations without contributing to gentrification.		
Health and Populations -2	Or, the scenario provides mechanisms to increase the flood resilience of locations with high densities of SVPs.	1	
	The scenario will result in an improvement in accessibility to public transit, open space, fresh foods, and other community		
Health and Populations -3	services.	1	
	The scenario includes measures to increase public safety, comprehensive health benefits, and meantal health support for	_	
Health and Populations -4	the region.	1	
Health and Populations -5	Actions protect drinking water and food sources from risks such as flooding contamination or salt water intrusion.	0	
Health and Population Mode		1	
	The scenario supports relevant diversification of the regional economy, to increase the overall economic resilience of the		
Socio-Economic-1	region.	1	
Socio-Economic-2	The scenario includes provisions to protect ratables.	1	
Socio-Economic-3	The scenario includes actions to support the strengthening of the community's overall quality of life.	2	
Socio-Economic-4	The scenario protects/creates sustainable jobs for the region.	1	
	The scenario includes at least one action that supports the inclusion of youth in the implementation of resilience and		
Socio-Economic-5	adaptation strategies.	1	
Socio-Economic Mode	· · ·	1	
	l e e e e e e e e e e e e e e e e e e e	1	



Resilience Indicator	Ranking
Vision	1
Risk	2
Cost	1
Capacity	1
Environmental	2
Adaptation/Timeframe	2
Heath and Population	1
Socio-Economic	1
Scenario Ranking	1



Appendix A: Resilience Checklist	ol :::	
Note: Planning Teams should address each are requisite before engisles and related and the state of the state	Checklist	
Note: Planning Teams should address each pre-requisite before considering each related resilience indicator checklist. The		Team utilized checklist during
checklist serves to integrate creativity and innovation into the planning process, and to encourage team discussions across		scenario development working
a range of themes throughout development of the regional resilience and adaptation scenarios.  Successful scenarios should consider the following:		sessions
1. Evaluation of Vision	<b>√</b>	
☐ Consensus concerning the region's vision.	·	
□ Support of expedited achievement of the vision.	✓	
	(	
2. Evaluation of Risk and Risk Reduction		
☐ Current and future exposure of critical community assets, facilities and services.	✓	
	)	MHHW + SLR 2070 (2.4 ft.) +
Exposure of critical community assets and facilities at each total water level.		(1% annual chance, 24-hr
		storm event + 10% increase in rainfall)
		MHHW + SLR 2070 (2.4 ft.) +
		(1% annual chance, 24-hr
o Exposure of natural community assets and facilities at each total water level.		storm event + 10% increase in
Determined demonstrate the state of the stat		rainfall)
Potential damages under each flood condition.      Consent and feture averages of a job bash and and rejud use a sighbank and a second sighbank and a	<b>√</b>	
<ul><li>Current and future exposure of neighborhoods and mixed-use neighborhoods.</li><li>Exposure of neighborhoods at each total water level.</li></ul>	<b>v</b>	
Potential damages to neighborhoods at each total water level.		
<ul> <li>Demographic profile of areas that are exposed to flooding today or are likely to be exposed to flooding in the future.</li> </ul>		
☐ Current and future exposure of economic centers (commercial and industrial areas) that are exposed to flooding today		
or are likely to be exposed to flooding in the future.	✓	
o Exposure of economic centers at each total water level.		
Potential damages to economic centers at each total water level.		
☐ Flood exposure to economic, cultural, and social impacts from future flooding conditions if actions are not taken.	✓	
<ul><li>Possible shifts of socioeconomic identity of the region.</li><li>Impacts at each total water level.</li></ul>		
☐ Effectiveness of flood protection provided to critical facilities. For example, can the scenario include traditional flood		
mitigation actions, such as elevation and floodproofing, enough to <i>prevent</i> service interruptions or to simply <i>protect</i> the		
structure from flood damages?	✓	
☐ Inclusion of non-structural actions or activities such as zoning, policy changes, buy- out programs, dry/wet		
floodproofing, etc.	✓	
☐ Risk reduction, or will the scenario include Resilience and Adaptation Scenarios to reduce risk or adapt the region to		Scenario 1 focuses on risk reduction as the primary
life with risk?	<b>?</b>	approach.
☐ Multiple benefits to support the goal of a "multiple-benefits" scenario and action design.	✓	
3. Cost Efficiency  Cost effective Resilience and Adaptation Scenarios.	<b>√</b>	
☐ Cost effective Resilience and Adaptation Scenarios. ☐ Available funding mechanisms to implement actions and associated cost shares.	<b>∨</b> ✓	
☐ Long-term financing of alternatives, or can actions within the Resilience and Adaptation Scenario be budgeted through	<b></b>	
long-term financial planning or future funding?	✓	
4. Capacity to Implement	,	
☐ Staffing capacity of regions to implement and maintain the Resilience and Adaptation Scenario. ☐ Staffing or resource capabilities of federal, state, regional, municipal, and private entities to support and advocate the	<b>v</b>	
Resilience and Adaptation Scenario.	✓	
☐ Capacity of residents and business owners to integrate resilience strategies into their properties.	✓	
☐ Future regulatory or policy changes, or can municipal/state regulations or guidance that currently prohibit the		
implementation of an action be modified to be less restrictive in the future? [Tip: Integrate elements of the resilience		
and adaptation scenario that push the limits of what is possible or legal under current conditions. The resilience and	,	
adaptation scenarios can (and should!) be creative, innovative, and even aspirational.	✓	
5. Environmental/Ecological Enhancement		
☐ Nature-based solutions to enhance the local environment, such as native landscaping, green stormwater design		
enhancements, and living shorelines.	✓	
☐ Improvement of nature-based stormwater management.	<b>√</b>	
☐ Improvement of floodplain management.	✓	
6. Adaptation Over Time		
* PREREQUISITE: Define Short vs. Long-term. Define the time horizon of the scenario and the keystone action of the scenario.		
Iterative approach to adaptation strategies.	<b>√</b>	
☐ Alternative actions with associated timeframes for completion (short-, medium-, and long term).	<b>√</b>	
☐ Account for changes in risk conditions over time.	✓	
7. Outreach and Partnerships		
* PREREQUISITE: Develop an engagement process that gives the opportunity for all residents to participate in the planning		
process.		
☐ Community support for short-term actions.	✓	
☐ Consideration that current public opinion is likely to shift and evolve over time and that current community support		
may change for medium/long-term actions.	✓	
8. Health and Populations  * PREPECULATE: Identify the populations that would benefit from increased accessibility to physical and montal health		
* PREREQUISITE: Identify the populations that would benefit from increased accessibility to physical and mental health services, transportation, safe drinking water and food sources.		
□ Increase public safety and accessibility of health services.	<b>√</b>	
☐ Reduce the impact of hazard events on physical and mental health.	<b>√</b>	
□ Support increased education and with respect to potential health implications of hazard events and future conditions.		
	<b>√</b>	
Address key population segments in the community (i.e. tourists, residents, low- income residents, etc.).	٧	
	)	

9. Socio-Economic Benefits		
☐ Improvement of quality of life (e.g., increased recreational areas, enhanced local character and amenities, access to		
fresh food).	✓	
☐ Equity and inclusion of socially vulnerable populations.	✓	
☐ Mobility and connectivity of region as it relates to flooding.	✓	
☐ Walkable neighborhood design enhancements.	✓	
☐ Planning mechanisms to encourage and allow for the relocation of business districts, industrial and commercial zones		
away from future flood risk.	✓	
Resilience and Adaptation Scenarios that stimulates economic prosperity and development.	✓	
☐ Preservation and protection of civil and human rights.	✓	

<u>-</u>		<del>-</del>			110					<u>.</u>						-1					
1. Action Number: 2. Action Name:	3. Description of the Action:	4. Description of Problem to be Addressed: 5.	. Action Type		sses Avoided 8. Estima ription: Benefits:	ed 9. Level of 1 Protection: A	10. Populations Addressed?	11. Addresses SVPs?: 12.	Connection to Other Actions:	12 Enthursed Sents	14. Estimated Annual Maintenance Cost:	15. # of Structures	16. Ecological : Area Protected: I	17. Estimated Start 18. Estim	19. Total lated Lifespan of Puration Action:	20. Lead Organization:	21. Supporting Organizations:	22. Potential Funding Sources:	23. Funding 24. Local Planning Currently Mechanisms to be Us Available?: in Implementation:	ed 25. Critical Next Steps	26. Known Obstacles:
1. Action Number: 2. Action Name:		Addressed: 5. Natural Resources:	. Action Type	6. Losses Avoided: Desc	ription: Benefits:	Protection: A	Addressed?	SVPS:: 12	Connection to Other Actions:	13. Estimated Cost:	Maintenance Cost:	Protected:	Area Protected: 1	Decade: Project L	Puration Action:	Organization:	21. Supporting Organizations:	22. Potential Funding Sources:	Available?: in Implementation:	25. Critical Next Steps	b. Known Obstacles:
	-	- Prolonged inundation, erosion and loss due to sea level rise in Back Bay																The Trust for Public Land The Nature Conservancy			
	9	Marches will result in the loss of vital ecosystem services that protect the																Shoreline Protection: NFWF - National Coastal Resilience			
	S	surrounding communities and																Fund  NOAA - Coastal Resilience Grants for			
		infrastructure from storm damage due to storm surge.																Coastal Communities			
	l lt	- The long term maintenance of the back bay tidal marshes requires coordinated																FEMA - Hazard Mitigation Grant Program (HMGP) – Flood Protection			
	-	and securely funded intervention Implementing coastal resiliency projects within the region will likely face																NFWF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SLR			
	c	delays due to a backlog of applications																NFWF - Adaptation through Regional Conservation Projects - SLR.			
	Region: Develop a Living Bay Plan in accordance with the	and multiple projects that exceed minimum standards for the current general permit authorizations.															- Charles Habasaka	interconnectedness of natural			
	following goals:  - Provide a framework to establish condition monitoring,  - Prioritize actions to restore habitats through thin thin-layer sand	Critical Facilities: Overall, provide						Yes, the Living Bay									Stockton University     Atlantic County     Atlantic City	NFWF, WHC, EPA - The Five Star and Urban Waters program - Improve			
	deposition in targeted locations and living shoreline	(~200 assets across the region). Provide protection to high-medium risk facilities			Enhance ecosyster			Master Plan would protect all of									Local Communities     Power Utilities	stewardship of natural lands, improve water quality and quantity			
	and funding.  - Create a means to streamline permit reviews resiliency projects, r	along bayside such as 2 Atlantic City			ce losses services of storm surge back bay	the		Atlantic City, as well as Pleasantville.					Reeds Bay, Absecon Bay.				The Nature Conservancy, other non-profits TBD	non USACE and NFWF - Dredging and Placement Demonstration Projects			
	establish broader or more flexible limits for General	Bader Field Boat Ramp, Pleasantville Clematic Ave. Park, Northfield Stillwater		even	ts regionwide wetlands.			where SVPs are concentrated					and Lakes Bay east of Absecon				NJDOT -Office of Maritime Res	ACE - Sustainable communities grant eering program - protect, and improve public	Recreation planning		
Region-wide 1 Living Bay Master Plan	Public Education to recognize the importance and value of back a bay tidal wetlands in protecting the region from storm surge.	and Glencove Parks, Lodging along Black	uture Study/Analysis / Regulatory	inves	tment in the protection h of the bay. bayside.		All ACCR	(Planning Context - CDC SVI). Ke	stone Action	Planning Cost - ~\$200-\$400K	N/A	33,668 (structures I in ACCR region)	Island ~60 sq.	2025-2030 Short-term action 1 - 3 yea	rs Ongoing	The Nature	NJDEP – Department of Land R     Protection	esource spaces such as local parks, natural areas, and recreation resources	Environmental No Conservation Planning	Initiate key partnership/s	
Region-wide 1 Living Bay Waster Flair	Region: Absecon Bay Keepers will be a non-profit organization	HOISE PIKE.	uture study/Arialysis / Regulatory	N/A lieat.	ii oi tile bay. bayside.	Storm surge p	populations	CDC 3VIJ. RE	Storie Action	Flaming Cost - 3200-3400k	14/4	III ACCR (egioti)		3101 Cteriii action 1 - 3 yee	is Oligoling	Conservancy (TBD	Protection	areas, and recreation resources	Conservation Flamming	s illitiate key partilership/s	
	focused on stewardship of Absecon Bay, and working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.																	Capacity Building:			
	Carry out the mission through a combination of:	Capacity Building: Increase regional capacity and																NFWF - National Coastal Resilience Fund FEMA - Building Resilient			
	designed to raise awareness of the residents and visitors to the service.	stewardship of Absecon Bay through environmental action, advocacy, and																Infrastructure and Communities (BRIC) FEMA - Hazard Mitigation Grant			
		environmental action, advocacy, and education. Critical Facilities: Overall, provide																Program (HMGP) – Public Education and Outreach			
	Act as steward for Absecon Bay by:	protection to top critical assets in ACCR (~200 assets across the region). Provide			Enhance			Yes, has the potential to										NFWF - Community Capacity Building and Demonstration Projects - advance			
	- Promoting responsible, sustainable development.      - Working with local, county and state planners to ensure that land-use planning decisions reflect up-to-date science.	("200 assets across the region). Provide protection to high-medium risk facilities along bayside such as 2 Atlantic City		Tind	ecosyster to promoting services of	the		positively impact Atlantic City, as well					Reeds Bay,					social cohesion, green infrastructure Threshold Foundation - Thriving			
	- Provide a resource to assist local, state and federal agencies to	radio towers, Brigantine Bayside Marina, Bader Field Boat Ramp, Pleasantville		the h	ealth of the back bay and it's role in wetlands.	idal		as Pleasantville, where SVPs are					Absecon Bay, and Lakes Bay					Resilient Communities (TRC) Funding Circle - strengthening local and			
	communities;	Clematic Ave. Park, Northfield Stillwater and Glencove Parks, Lodging along Black Co	ommunication and	redu	cing loses for flood storm surge protection		All ACCR	concentrated	porting Action - Living Bay	Non-Profit Organization - need	Annual operating		east of Absecon Island ~60 sq.	2025-2030		Develon non-profi	NJDEP The Trust for Public Land	regional resilience in climate, economy, justice, and collaborative	Recreation planning Environmental		
Region-wide 2 Absecon Bay Keepers	Absecon Bay	Horse Pike. O	lutreach/Governance Structure	N/A even	ts. bayside.	Storm Surge p	populations		ster Plan	upfront cost to organize	costs	N/A	mi.	Short-term action 1 - 3 year	rs Ongoing	organization	The Nature Conservancy	networks.		Initiate key partnership/s	sustained funding source
								Yes, has the potential to													
								positively impact Atlantic City, as well													
		Vulnerable Populations: Increase access			Improve	,		as Pleasantville, where SVPs are													
	Region: Translate all Emergency Preparedness Materials into the	to emergency preparedness materials			loss of life prepared			concentrated (Planning Context - Su	porting Action										Emergency		
Translate all Emergency Preparednes Region-wide 3 Materials		residents are aware of evacuation, food	ommunication and Outreach	N/A even	storm evacuation ts. procedure	Superstorm Sandy	Residents	CDC SVI). Focus on Co	nected to Evaluate and Improve paredness Actions for SVPs	Planning and outreach cost	Costs accrued at update cycles	N/A	No S	2025-2030 Short-term action 1 year	Material update cycle	Municipalities	Red Cross	American Red Cross Prepare NJ	Management Planning TBD Preparedness	g - Identify materials and languages	
	groups with SVPs.																		·		
	Designated shelter for people w/ disabilities; children w/ special																				
	Power outlets for medical devices & accessible bathrooms Program focused on single parents																				
	Support services for residents w/ pets Food services to accommodate allergies/special diets																				
	Evacuation Evacuation vehicles to accommodate people with medical issues																				
	or medical devices Evacuation personnel training/planning (e.g., movement of																				
	medical equipment, people w/ disabilities, older adults in high- rise buildings)																				
	Outreach and Education Consistent region-wide evacuation plan information (social media																				
	and non-digital channels) Training on how to digitize documents/storage of essential																				
	documents for evacuation  Monthly information sessions about resources and programs																				
	available for disaster preparation and assistance (e.g., access to food, medicine, medical devices, blankets etc.																				
	Social Services and Wellness Ensure social services (e.g., homeless shelters) are more																				
	accessible throughout the region Organize special teams to help community members access social			Avoid and i	l loss of life improve	,		Su	porting Action										Emergency		
Evaluate and Improve Preparedness Region-wide 4 Actions for SVPs		Vulnerable Populations: Improve preparedness actions for SVPs En	ommunication and Outreach / mergency Management	large N/A even	storm prepared	ess for Superstorm Sandy type event R	Residents	Yes - action focused Co on SVP needs Em	nected to Translate all ergency Preparedness Materials	Unknown	N/A	N/A	N/A	2025-2030 Short-term action 1 - 3 year	s Ongoing	American Red Cro	s Boys and Girls Club of America	American Red Cross Prepare NJ	Management Planning TBD Preparedness	g - Evaluate sub-actions	
																		Rezoning/Redevelopment:			
																		FEMA - Hazard Mitigation Grant Program (HMGP) – Structural			
																		Retrofitting of Buildings DHS FEMA - The Flood Mitigation			
																		Assistance (FMA) Program – risk of repetitive flood damage			
																		CRDA - The Casino Reinvestment Development Authority (CRDA)			
																		Atlantic City Redevelopment Program USDOT - Better Utilizing Investments			
																		to Leverage Development (BUILD)  Grant Program			
																		US DOE - State Energy Program and Weatherization Assistance Program			
	Atlantic City and Pleasantville: Develop Adaption Action Plan for Atlantic City & Pleasantville Housing Authority Communities and																	US DOE - Wind Energy Technologies Office (WETO) - research,			
	Region's Senior Centers.  Continuity of Service:							Yes, will positively impact Atlantic City,										development, and demonstration projects will help the industry			
	Elevate Electrical and Mechanical Equipment     Solar Trellises on all surface parking lots	Vulnerable Populations: Ensure continuity of service after a		Avoid losses to Atlantic City &				as well as Pleasantville, where										overcome key barriers to offshore wind development			
	Solar Panels on all rooftops     Battery to provide off-grid capacity at night	disaster/major storm event and mitigates flooding for Atlantic City		Pleasantville Housing Authority Avoid	losses to	SLR 2070, Precipitation: 1%		SVPs are concentrated										New Jersey Aspire Tax Credit Program Kresge Environment Program -			
Adaption Action Plan for Atlantic City Pleasantville Housing Authority	and • Porous paving and green infrastructure planting to aid in	Housing Authority Communities.  Critical Facilities: Protect Pleasantville		Communities and affor Region's Senior and i	dable housing	annual chance 24-hr storm event + 10%		(Planning Context - CDC SVI). Focus on Su	porting Action				].	2025-2030				Building the climate-resilience field by supporting activities to disseminate	for Stanley and Emergency	Utilize funding already in place for	
Communities and the Region's Senior Region-wide 5 Centers	Flood Mitigation  • Reprogram Ground Level	Housing Authority (Pleasantville Tower	uture Study/Analysis	Centers (~15-20 vulne	erable Ensure ho lations. continuity			low income and Co older adult groups.	nected to Vulnerable Population	Planning Cost - ~\$200	N/A	~10-15 facilities		Short-term action to initiate planning 1 - 3 year	's Ongoing	Municipalities	TBD	and bring to scale promising climate- resilience approaches.	Buzby in Management Planning Atlantic City Preparedness	g - Atlantic City retrofits to jump start Action Plan - Design Guidelines	
			, , , , , , , , , , , , , , , , , , , ,	Losses avoided in total is ~\$3 Billion	- Tank			groups: McI			ľ			- 3400							
				(comparing to Sandy losses).																	
	Atlantic City, Pleasantville & Northfield, Brigantine: Rely on the			Absecon Island losses on island																	
	plan proposed in the USACE Back Bays Plan to protect the bayside from storm surge events. Construct a Cross-Bay Barrier (CBB), a			~\$800 Million (this may prevent				Yes, the Back Bay													
	continuous floodwall along the entire length of Absecon Blvd,	Bayside Protection: protect Absecon Island, Pleasantville (partial), Northfield		approximately 80- 90% of the Interi				Plan would protect all of Atlantic City, Ke	stone Action	Entire program is \$16 billion, but that includes multiple regions.											
		(partial), Brigantine bayside flooding utilizing structural and nonstructural		estimated island from losses). Prevent even	precipitation			as well as Th	addresses bayside flooding; it	https://www.nap.usace.army.mil, on Portals/39/docs/Civil/NJBB/Draft											
	Brigantine: Houses elevated /hardened on Brigantine Bayside along Brigantine Ave. and Bayshore Ave. Nonstructural solutions	measures. Critical Facilities: Overall, provide		some losses ~\$6 altho Million in actio	ugh this Significan n will help for flood	benefit Storm Surge -		SVPs are to concentrated on	rovide full perimeter protection barrier islands. Needs to pair wit	Report/NJ-Backbays-Main-Report h 16Aug2021-Final-	Entire program annual maintenance			No earlier than 2030, as 5 years, a	50 years, as indicated in			Federal government would cover 65%. 35% would be required for state/local	Local resolutions		Environmental impacts
USACE New Jersey Back Bays Plan Scenario 1: 1 Implementation	in the plan include elevation and flood proofing of residential	protection to top critical assets in ACCR	apital Improvement Project	Brigantine. (HAZUS drain	age to a protection in extant. bayside.	along Superstorm Sandy A type of event p	All ACCR populations	(Planning Context - pu	np station action for increased inage for precipitation flooding.	Revised.pdf?ver=b0vs83gk44OkN	f costs are \$192	33,668 (structures in ACCR region)	No i	indicated in Back Bay indicated	I in Back Bay Back Pla (to 2080)	n	NJ DEP	match, plus annual maintenance. This 35% is a funding gap.	supporting USACE as No overall partner		state/local 35% cost share funding not identified state/local maintenance cost funding not identified
	, i		7					1000					r	1 . ,				<del></del>			

1. Action Number:	2. Action Name:	4. Description 3. Description of the Action: Addressed:	on of Problem to be 5. Action Type	7. Losses Avoided: Description:	ided 8. Estimated 9. Level of Benefits: Protection:	10. Populations 11. Addresses Addressed? SVPs?: 12. Connec	4	.4. Estimated Annual 15. # of Structures 16 Maintenance Cost: Protected: Ar	6. Ecological 17. Estimated Start 18. Estir rea Protected: Decade: Project	19. Total mated Lifespan of 20. Lead Duration Action: Organization: 21. Supporting Organizations:	23. Funding 24. Currently Me 22. Potential Funding Sources: Available? in I	Local Planning chanisms to be Used mplementation: 25. Critical Next Steps	26. Known Obstacles:
Scenario 1: 2	Bulkheads for Bayside Protection - North end	Brigantine: Complement to the USACE Back Bays Plan in order to ensure all communities are protected. New buildhead to protect the north end of Brigantine. Protect Row of home on North end:  *Buildhead could be only indeed to protect the north of the State of the St	Protection: protect from interest the control of th	Avoid losses to residential protects on the north end fronting. Protects the bubbeed ~56 million structures.	Flood protection for the north end of Brigantine. (2.4 ft.)	Protection Compleme	ng Action-Shoreline n ent to Bayside Bulkheading 300°t Bulkhead: Estimate 5800 to e and existing bulkheads on 51000 per foot = 5300,000 pr 1,300 ft Bulkhead: \$1,300,000 pr	Approximately 30 - 40 homes in the testing and the segular wo blocks at the analystenance costs. North end. No	2025-2030 a Short-term action 3 - 5 yes	30 years (vinyl	Shoreline Protection: NWW - National Coastal Resilience Fund NDAA - Coastal Resilience Grants for Coastal Communities FEMA- Hazard Mitigation Grant Program (HMGP) - Flood Protection NWW, Wells Fagor - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SLR NWW - Adaptation through Regional Conservation Projects - SLR, interconnectedness of natural systems NWW, WHC, EPA - The Five Star and Urban Waters program - Improve stewardship of natural lands, improve water quality and quantity USAC and RWW - Dredging and Placement Demonstration Projects APA Placement Demonstration Projects APA Placement Demonstration Projects APA Placement Demonstration Projects APA Placement Des Stord parks, natural areas, and recreation resources No	Explore adding a terminal grain in this location on the oceanside	
Scenario 1: 3	New Pump Stations	Allantic City, Downbeach, Brigantine, Pleasantville & Northfield: interior drain: on roadways: flood events. Install backup generators at pump stations for water to rainfall. and sewer (e.g., Downbeach at Lafayette Avenue, Cornwall Avenue, Fulton and Harvard Avenue). Elevate pump stations out protection to protection to protection	s and surrounding areas due ities: Overall, provide	Area of influence for the propose serves to be 2 sq. mi. improve di drainage for avoided in structures/roac and Brigantine.	es Precipitation: 1% annual chance 24-hr	All (residents, (Planning Context - elevating r	Action - Connected to roadways installation of 4 pumps cost "51.5 million (5375K per pump station) or	6,643 [structures in ACCR region impacted by 1% [Adv event + 10% increase in National Accordance (and increase in National Nat	2025-2030 o Shorl-term action 3 - 5 ye.	Individual municipalities, based on urs 20 years catchment area State	Stornwater Management: NOAA - Cosstal Resilience Grants for Cosstal Communities Program (Hander) - Frood Protection Program (Hander) - Frood Protection NerW, Weller Sargo - Resilient Communities - Program - Natural ecosystems, Green Infrastructure, S.R. NEWF - Community Capacity Building and Demonstration Projects - Advance social schesion, green infrastructure Alfantic City Jeteric's Sustainable Communities Grant program - parks and community resilience NIDEP and New Jersey Environmental infrastructure Trust (Trust) - New Jersey Environmental infrastructure Trust grant Ord - NIDEP - Start - Start - Start - Start Communities Grant program - parks and community resilience NIDEP and New Jersey Environmental infrastructure Trust grant Ord - Start - Start - Start - Start Communities Grant program - portect, and Improve public spaces such as local parks, natural areas, and recreation resources. No	rmwater planning Identify priority locations	
Scenario 1: 4 Scenario 1: 5	Elevated Roadways - Evacuation Routes and Key Connectors	Atlantic City: Elevate Evacuation Routes + Baltic Avenue / Mediterranean Ave / Connecticut Ave / North New Jersey, Avenue / MLK Boulevard by approximately 3 feet. Since elevating rouseways on narrow residential streets may be a challenges on an ordeways on narrow residential streets may be a challenge so an ordeways on narrow residential streets may be a challenge so an ordeways on narrow residential streets may be a challenge so an ordeway on narrow residential streets may be a challenge so an ordeway or narrow residential streets of the secondary of the secon	ease access to evacuation roadways that are the most MaNNHY - SIA 2070 - 11% ce, 24 hr. storm event + 10% page 64 Manna, high risk production moute. In the committee of the com	Reduce loss of roadway function and reduced as and pedestrian mobility during high precipitate programment of the control of t	if  tion  auto,  ag  al in fortifying  then haid the evacuation  loss routes. Provide  rety enhanced  siee continuity for  mergency  services.  SIR 2070.  SIR 2070.	Yes, would protect Atlantic City, as well as Pleasantville, where SVPs are concerticated (Finning Context Workers, tourists)  Cot Svi).  Yes, has the posterial to possible yimpact. Pleasantville, where SVPs are concentrated (Planning Context).	L.Known subsurface issues – Cost is 5305/5 for Gradwy based on the pavement area between curbs) a Working with unstable subgrade could require installation of sheeting, ower-exavation and replacement of soil with lightweigh aggregate.  b.Includes reconstruction of pavement, drainage, underground utilities. c.Includes 10-foot roadway berms with sidewalk in both directions.  2 Normal subsurface conditions of soil in pavement, drainage, underground utilities. 2 Normal subsurface condition of soil pavement, drainage and underground utilities, but construction would not require sheeting and/or lightweight fill. b.Includes 10-foot roadway berns with sidewalk in both for the part of the sheeting and/or lightweight fill. b.Includes 10-foot roadway berns with sidewalk in both for the part of the part of the sheeting and/or lightweight fill.	tegular roadway naintenance cost  N/A  O year update cost  O year update cost  Notes the second of t	2030-2050 0 Mid-term action 5-10 yes 0 Short-term action 1 year		NUOCT (e.g., funded through RAISE grants etc.) No Tra	Identify feasibility of road elevations - discussing with Steering Committee  Identify/confirm upcoming Maser - Planning - Plan updates in ACCR	Tradeoffs:  *Identified roadways are narrow residential streets where driveways, garages, and the ground floor of homes are surrently at sidewalk level.  surrently at sidewalk level.  surplies a retaining wall that will separate the street from the sidewalk.  *Street parking may be affected. Many residents rely on street parking to access their homes.  *Parking foly parking garages/driveways/garage tie in's must also be considered.
Scenario 1: 6	install Sheet Pile Dune Core	Oceanside Prinundation prinundation prinundation prinundation prinundation princedes. Simila Mantolosing, island.  Atlantic City: Install sheet pile dune core to reinforce existing dune from Jackson to Absecon Inlet.	Protection: Provides protection after dune is initially work was completed in gather Sandy breached the littles Enhanced protection medium critical facilities tic City and *11 in Flood Mitigation Project	Existing reinforcement. protection that dunes produced more resistant repeated event.	at protection that e - dunes provide - ut to more resistant to	Yes, has the potential to present our concentrated (Planning Context: Supporting View Workers, tourists) CDC SVI). Protection Yes, has the potential to Yes, has the yes and Yes, has t	Mantoloking Sheet Pile Dune Restoration Project - \$23.86 M for 1 3.5 miles as part of a larger USACE in beach fill project	ried to "3 enourishment cycle Sh ost 13,467 pr	13 miles of 2025-2030 otection Short-term action 1 - 3 year	us 75 years USACE NUDEP	Shoreline Protection: NPWF - National Coastal Resilience Fund A - Coastal Resilience Grants for Coastal Communities FEMA - Hazard Miligation Grant Program (HKMD) - Flood Protection NPWF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SLR NRVF - Adaptation through Begonal Conservation Projects - SLR, interconnectedness of natural systems AVEV, WHAC, EPA - The Fure Star and NPWF, WHAC, EPA - The Fure Star and NPWF, WHAC, EPA - The Fure Star and NPWF, WHAC, EPA - The Fure Star and PATE - STAR - STA	,	CONS: could result in exposed sheet pile wall if dune erodes before scheduled nourishment. Nourishment prices may increase as additional effort needed to work around wall. Could not be elevated to adjust for future SIR but already at 12 and 14 ft elevation if matching the dune.
Scenario 1: 7		Atlantic City, Downbeach, Brigantine: Feasibility study to identify location of new emergency evacuation ferry dock at bayside passins (e.g., Gardner's Basin or Delta Basin). Toute options	vide additional evacuation ns/modes. Future Study/Analysis	Avoid loss of lif and injury durin large storm N/A events.	life ring Add additional evacuation Superstorm Sandy options. type event	positively impact Atlantic City, where SVPs are concentrated All (residents, (Planning Context -	ng Action - Access Planning cost - \$200K r	tegular naintenance costs N/A No	2025-2030 o Short-term action   1 - 3 yea	urs Ongoing Municipalities TBD	Ma	ergency nagement Planning - paredness	CONS: Per Steering Committee - water may not be a safe evacuation alternative even in the early event

		4. Description of Problem to be		7. Losses Avoided		10. Populations 11. Addresses			14. Estimated Annual 15. # of S	Structures 16. Ecological	17. Estimated Start 18. Estimatec	19. Total Lifespan of	<b>20.</b> Lead			23. Funding 24. Local Planning Currenty Mechanisms to be Used	
	8. Description of the Action:  Region: Harden all above grade utility poles and underground major powerlines (where possible). Relocating distribution wires atter underground has been shown to improve reliability (to avoid the outages that occur when power lines are knocked down)	e protection to top critical assets in ACCR	s, Action Type  Capital Improvement Project	6. Losses Avoided: Description:  Avoid extended power loss	Renefits: Protection:  Storm Surge - Storm Surge and avoid outage by Pype of event	Addressed? SVPs?:  Yes, has the potential to positively impropression of the potential to positively impropression of the potential to positively impropression of the potential to positive of the potential to t	s well e, e	Large range in cost. Cost can be to 30 times more than overhead distribution lines (U.S. Energy		tructures	Decade: Project Dural  2030-2050 Mid-term action 5-10 years	Ongoing	Organization: 21. Supp	orting Organizations:	22. Potential Funding Sources:  Identify potential overlap with Hazard Mitigation HEART Mitigation FEMA Building Resilient Infrastructure and Communities (BRIC FEMA + Hazard Mitigation OF FEMA + Hazard Mitigation OF FEMA + Hazard Mitigation Grant Program (HMGQ) OEM - State of New Jersey Hazard Mitigation Grant Program		26. Known Obstacles:  1) undergrounding costs a lot of money to build 2) underground lines are harder to repair and 3) in costsal communities, flood waters can damage underground power lines.
Installi new microgrid/emergency generator at key critical facility for Scenario 1: 9 emergency response site	Atlantic City, Downbeach, and Pleasantiville install new microgrid emergency generator at key critical facility for emergency response site, such as City Hall, for 911 continuity. At energy demands increase and anticipating increase incidence of powerful storms due to climate change, the US energy grid is overtube for puggades to meet these challenges. Notweever, an exclusive large scale, centralized approach for the whole ACCI is solved to the puggades to meet these challenges. Notweever, an exclusive large scale, centralized approach for the whole ACCI is solved in the puggades of the control in provements, a centralized approach as climate changes and extreme weather becomes more frequent is not as effective for resilience as smaller scale solutions. We cannot achieve resilience without investing in local distribution systems, which are the cause of most of the power disruptions experienced by vulnerab people.  Microgrids built on solar, Vehicle to Grid (V2G), or other renewables provide distributed energy and can be targeted/subsidized. A microgrid is a localized energy grid with capabilities to allow the grid to disconnect from the traditional grid, which is the central power source. A microgrid can operate when central power is compromised. A microgrid properts is nitiand mode on its own when a crisis such as a power outgar or amplest from renewables ources, fuel cells, batteries, or fossi fleets to supply power to the nearby buildings until the main grid is stable enough to reconnect.	in Power/Utilities: Increase energy resilience after a disaster/major storn e event causing power outage; communities need power to restart/rebuild. on critical Facilities: Protect Atlantic City City Hall, Margate City Hall, and e Longont Brownsh Hall – all top critical	Capital Improvement Project	Avoid extended N/A power loss	The microgrid will then use its own local energy generator to supply power to the nearby buildings until the main grid is stable enough to supersorm Sa reconnect. Yppe of event - yppe of event - yppe of sevent - yppe of event - yppe of ev		s well e, e	Need additional scoping to cost	Need additional scoping to cost Unknow	n No	2025-2030 Short-term action 1 - 3 years	Ongoing	a.N. CI+D b. E.nergy c. rejoini Gas Initia program d. Global (GWF)-) source fe e. Scale b. to company £ Enchan g. Direct Claridge Hotel & C. Saino, A. C. C. Saino, A. C. Sain	Stakeholders:  VDG Coalition  Resilience Bank Program  Resilience Bank Program  ing the Regional Greenhouse  funding GWRP  Warming Response Fund  could provide a rich funding  rour activities  filter Grid Solutions- NI based  rice Rock- micro grid company  community: Board-walk Hall,  retheel, Caesars Altantic City  casino, Bally's Atlantic City  casino, Bally's Atlanti	Power/Utilities Microsoft - Breakthrough Energy Ventures Fund - Invest in clean energ technology to combat drimate change	Emergency Y Management Planning - Prepared ness	The fundamental barriers that impede microgrid sector include the early stage of the market, high regulatory uncertainty, difficult operating environments, relatively high crapital expenditure cost than focal used includes microgrid expensions. As a stage of the market having under the fact of certainty about steady and reliable customers with a strong ability to pay (Microgrids in Emergia Markets-Private Sector Perspectives, 2020). These elements impede investors from pursing microgrid projects. However, as capital costs continue to fall and the market matures indicate an increasingly positive liverestor environment.  Regulatory note: It is not legal yet in New Jersey to build these types of microgrids, due to existing public utility franchise to the pashing to modify these rules as public utility franchise registry, but NB Board of Public utilities (NB BPU) has been pushing to modify these rules as port of their Town Center microgrid programs. Over the longer term, NIDEP and other agencies/stubenders can coordinate with NI BPU to improve the proposed revisions to rules, making this type of microgrid feasible.
Install 10 new generators at fireho and other public buildings (many u for emergency shelters).  ACUA Wastewater Treatment Plan	Atlantic City: Install emergency generators for continuity of emergency services and shelters. Coordinate with developer of Atlantic City Midrown Microgrid proposal to expand microgrid to used local merchants on Atlantic Ave that are critical after emergency events/outges.  Atlantic City: Plan to ensure continuance of operations in event of 2070 from surge event. Energy assets already exist at ACUA visual events of the continuance of operations in event of 2070 from surge event. Energy assets already exist at ACUA visual events of the continuance of the cont	Power/Utilities: increase energy resilience after a disaster/major storm event causing power outage; communities need power to restart/rebuild. Cirtical Facilities: Atlantic City PAL building is high risk critical and Atlantic City Convention Center is medium risk asset.  Power/Utilities: Ensure continuity of wastewater treatment services in the event of a 2070 storm surge event. Cirtical Service: Wastewater treatment services critical Facilities: 2 Atlantic City Radio	Capital Improvement Project	Avoid extended power loss  Avoid loss of wastewater	Local energy generation from emergency supply power to ensure continuity of emergency services and shelters. Storm Surge-services and shelters. Storm Surge-tonitionance of operations in event of 2070 Superstorm Sa	Yes, has the potential to positively impa Adlantic City, visys are concentrated (Planning Control COC SVI). Yes, has the potential to positively impa positively important city, visys are concentrated (Planning Control Table Quality City, visys are concentrated (Planning Control Table Quality City).	oct where ext- Keystone Action act where ext-	Need additional scoping to cost.  Supported by \$300K grant from	Need additional 30 prima coping to cost facilities	ry No	2025-2030 Short-term action to initiate planning Potential long-term action to implement 1 - 3 years 2025-2030 Short-term action to	Ongoing	Potential a.NI CIPI b. E.nergy c. rejoini Gas Initia program (IGWEP) source fc e. Scale hc company (Enchan g. Direct Carbon hotel & C Callop, A h. Hrece Brigantin Brigantin Brigantin Brigantin Brigantin Callop L. NIDEP J. Ford M. Municipalities L. Fermat	Stakeholders: //DG Coalition //DG Co	Power/Utilities Microsoft - Breakthrough Energy Ventures Fund - Invest in clean energ technology to combat climate change FEMA - Building Resilient Infrastructure and Communities (BRIC	Emergency Management Planning - Coordinate with developer of for preparedness  Wildtown Microgrid proposal  Emergency Emergency Management Planning - Include water plant as well in	The fundamental barriers that impede microgrid sector include the early stape of the market, high regulatory uncertainty, difficult operating environments, relatively high install costs, and the need to invest heavily upfront for slow applicable cost and \$3.5 year period, combined with the lack of certainty about steady and reliable customers with a strong ability to py (Microgrids in Emergia Markets-Private Sector Perspectives, 2000). These elements impede investors from purising microgrid projects, however, a capital costs continue to fail and the market instructs indicate an increasingly positive liversor conforment.  Regulatory note: It is not legal yet in New Jessey to build these types of microgrids, due to existing public utility franchise legists, but NB Board of Public Utilities (NB BPU) has been pushing to modify these rules as part of their Town Center microgrid programs. Over the longer term, NUDEP and other agencies/stabeloiders can coordinate with NB BPU to improve the proposed revisions to rules, making this type of microgrid fesible.
Scenario 1: 11 Term Resiliency Plan  From Resiliency Plan  Scenario 1: 12 Bader Field - University District Ov	Atlantic City: University District Overlay (Adopted)  Atlantic City: University District Overlay (Adopted)  • Reserve 13 acres of Bader Field for future educational use  • Remainder of the Bader Field for future educational use  • Remainder of the Bader Field site is planned as a Tech Park (potentially for private sector climate- and resilience-focused companies, eg., engineering, research and development, architecture, planning).  • Bader Field's location and low-laying elevation, any proposed development would require a mix of flood-proofing and resilien measures such as incroporating living shoreline to ensure the site's ability to withstand the coastal environment. Next steps:  Next steps: Iniculators Begin 40-month effort to fully develop and buildou the Coastal Resiliency Institute.	locations for Blue Economy land uses within the ACCR. Critical Facilities: Atlantic City Municipal	Planning and Regulatory	N/A services.	Economic growth centered around the Blue Economy Surge	Yes, has the potential to posttovely impart of the posttovely impart of the posttovely impart of the postto	where	ected to Approved in municipality planni	N/A 1 Plant  1 Plant  Unknown	No No	initiate planning 1 - 3 years  1 - 3 years	Ongoing	ACUA Municipa	University	State  Reconing/Redevelopment:  FEMA - Hazard Mitigation Grant  Program (HMGP) - Structural  Bretofitting of Studieding  Bretofitting of Studieding  DIS FEMA - The Flood Mitigation  SASSItance (FMA) Program - risk of repetitive flood damage  CLONA - The Califor (SCDA)  Allamic CLOY, Redevelopment Program  LOS DOS - State Energy Program and  Washerizardo Ansistance Program  US DOS - State Energy Program and  Washerizardo Ansistance Program  US DOS - State Energy Program and  Washerizardo Assistance Program  US DOS - State Energy Program and  Washerizardo Assistance Program  US DOS - State Energy Program and  Washerizardo Assistance Program  US DOS - Tesearch,  development, and demonstration  projects will help the industry  overcome key barriers to drishore  Wind development  Rev Jersey Aspire Tac Credit Program  Rev Jersey Aspire Tac Credit Program  Lauding the climate-residence field by  supporting activities to dissemantar  and Uning to scale promising climate-  residence approaches  Shoreline Protection:	lader rield Coordinated Dreig Site Raking Compact Coordini program to dredge spols from ongaing and future dredging projects in the region to raise to Bader's Field site. This will pro- important synergies between it projects to improve storm was capacity and maintain singues to the capacity and maintain singues to capacity and maintain singues to capacity and maintain singues to capacity and maintain singues to exonomic development initiati Redevelopment of flader field regional importance in providid	to- teed all see def def cal f en
Extend Downbeach Boardwalk / Le Scenario 1: 13 the Point	evee to Downbeach: Rebuilding exiting boardwalks as a continuous Boardwalk/levee at all Downbeach municipalities.	Shoreline Protection: Provides another line of defense from ocean flooding as dunes are sacrificial. Critical Facilities Provide enhanced protection to "33 high-medium risk assets in the Dowtheach area.	Flood Mitigation Project	Reinforcement system to protection in plac (dunes, IV/A (bulkheads).	Does not increase existing footprint, usable space between boardwalk and street ends. Would improve view lost to elevated queen Frovides space for foreign for the utilities. Surge	orm All (residents, workers, tourists) No	Supporting Action - Shore Protection Essisting protection meas dunes and bulkheads. Con to bayside proposed prot actions.	ures such as \$38.6 million total for the seawa mplement and the Boardwalk - Atlantic City		~10 miles of shoreline 11,138 protection	2030-2050 Mid-derm action 3-5 years	30 years	USACE NIDEP		Shoreane Protection: New Y- National Costal Resilience (New Y- National Costal Resilience Carast for Castal Resilience Carast for Castal Resilience Carast for Castal Communities (PEMA - Hazard Mitigation Grant Program (HMDF) – Hood Protection NEWF, Wells Fargo - Resiliench Communities Program - Natural ecosystems, Green Infrastructure, S.I. Pawiff Communities (Pageram - Natural ecosystems) (Pageram -	,	CONS: In some locations multitude of business currently are at the boardwalk level on the street side of the boardwalk and the main access to the storefront would be lost. Boardwalk is historic and recently reparated replaced after 5 analys.

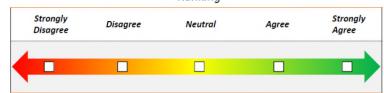
1. Action Number:	2. Action Name:	. Description of the Action:	4. Description of Problem to be Addressed: S. Action Type	7. Losses Avoided B. Estimated 6. Losses Avoided: Description: Benefits:	9. Level of Protection:	10. Populations 11. Addresses Addressed? SVPs?: 12.	2. Connection to Other Actions: 13. Estimated Cost:	14. Estim Annual Mainten:	15. # of Structures 16. Ecolog	gical 17. Estimated Start tected: Decade:	18. Estimated Project Duration	19. Total Lifespan of 20. Lead Action: Organization:	21. Supporting Organizations:	22. Potential Funding Sources:	23. Funding 24. Local Planning Currently Mechanisms to be Used Available?: In Implementation 25. Critical Next Steps	26. Known Obstacles:
Scenario 1: 14	Install 40+ backflow preventers on outfall pipes to mitigate flooding during rain events at high time.	bownbeach: Install backflow preventiers on outfall pipes to nitigate flooding during rain events at high tide.	Stornwater Management: mitigate high- tide flooding events.  Critical Facilities: Provide enhanced protection to "33 high-medium risk assets in the Downlead area. Flood Mitigation Project	emergency Reduce sunny day	High Tide /King Tide (sunny day flooding) - 5 SR 2070	All (residents, Su	upporting Action - Stormwater Tidal Valve costs "50% (RISE Tidal Backflow #	City or cc O&M - pr per outfall operation devention)	oper	2025-2030 Short-term action	1-3 years	Unknown Municipalities	NUCEP	Shoreline Protection: NRVF-National Coastal Resilience Fund NOAA- Coastal Resilience Grants for Coastal Communities FEMA - Hazard Mitigation Grant Program (1Mt07) – Hood Protection NRVF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SLI NRVF - Adaptation through Region Communities Program - Natural ecosystems of the Natural Adaptation for the Natural Adaptation yettems WWC, EPA - The Fire Star and throw the Natural Lands, Improv stewardship of na		
Scenario 1: 15	Protecting commercial centers	Mantic City, Downbeach, and Brigantine: Protect commercial orridors such as Margate Commercial Corridor, Atlantic City commercial Corridor, and Brigantine Commercial Corridor - Ensure cess to daily need.	Equitable Economic Growth: Limit interruption of supply after storm and flooding events.	Avoid losses to commercial uses to maintain Ensure access to maintain Ensure access to continuity daily needs	SJR 2070 + Precipitation events		upporting Action - connected to quitable Economic Growth Actions Planning Costs - Unkn	own N/A	Protect commercial/retail structures No	2030-2050 Mild-term action	5-10 years	Ongoing Municipalities	180	Rezoning/Redevelopment: FEMA - Hazard Mitigation Grant FEGAN - Hazard Mitigation Grant FEGAN - Hazard Mitigation Grant Program (HMGP) - Surctural Retrofitting of Buildings DINS FEMA - The Flood Mitigation Assistance (FMA) Program - risk of COMMISSION - risk of COMMISSION - risk of COMMISSION - Research COMMISSION - risk of COMMISSION - Research COMMISSION - Research COMMISSION - Restrict COMMISSION - Research COMMISSION - Restrict COMMISSION - Research COMMI	n py Establish Conservation trust essements, or	
		Heasantville & Northfield: Leverage Blackhorse Pike road ralsing	Equitable Economic Growth: Create a setting for new development in an area that is less prone to flooding.	Mitigate flooding roadway flooding flunction, excussion route impacts, and increase and roadway function impacts, and increase manifects.	Percintation meens		upporting Action - connected to published Economic Growth Actions - Planning Costs - Unkn		N/A No.	2030-2050 Mild-term action	5-10 year refereionment		TRO	Reconing/Redevelopment: FEMA - Hazard Mitigation Grant FEMA - Hazard Mitigation Grant FEGAT - Frogram (HMGP) - Structural Retrofitting of Buildings DIOS - FEMA - The Frood Mitigation Assistance (FMA) Program - risk of repetitive flood damage CEDA - The Castino Reinvestment Development Authority (CRDA) USDO - Settler Utilizing investments to Leverage Development (BUILD) Grant Program USDO - Settler Utilizing investments to Leverage Development (BUILD) Grant Program USDO - Settler Hospital Westherization Assistance Program USDO - Settler Hospital Westherization Assistance Program USDO - Wind and demonstration projects will help the industry wind development and demonstration projects will help the industry wind development under the program of the program Settler of the Pr	identify boundaries for economic development project. Determine Redevelopment	Fortifying Black Horse Pike to a Sandy like event would require road raising of "7 feet.
		Heasantville & Northfield: Microgrid / Emergency Generators at two exchools: Pleasantville HS, Leeds Ave Elementary School, Vashington Ave Elementary School, South Main Street Hementary School, Korth Main Street School, South Main Street Hementary School, Korth Main Street School, South Main Street Hementary School, Korth Main Street School, School School Hementary School, Korth Main Street School, School Hementary School, Korth Main Street School, School Hementary School, Horth Main Street School, School Hementary School, Hementary School	Power/Litilities: Increase energy resilience after a disaster/major storm event causing power outage; communities need power to restart/rebuild.  Critical Facilities: Potential to provide protection to outset of at risk assets in	The microgrid will then use its own local energy on memory and property of the many of the many of the many of the many of the meanthy buildings until the Avoid extended	Storm Surge- Superstorm Sandy Superstorm Sandy Super Greent - Wind	Yes, has the notential to nositively impact Pleasantville, where SVPs are concentrated (Flanning Context -	upporting Action - Power/Utilities Need additional scopi	Need adds	S primary facilities - additional strottures served stood by micrograf. No.	2025-2030 2025-2030 Short-term action to initiate planning Potential long term action to implement	1-3 years	Ongoing Peasantville  Ongoing Municipalities	Topotential Stakeholders: AN CHYDG Coalition Energy Resilience Bank Program Energy Resilience Bank Energy Resilience Bank Energy Resilience Bank Energy Resilience Energy Energy Energy Enchantee Rock-micro grid company Enchantee Rock-micro grid Endergy Energy Enther Deal Energy Enther Energy Enther Energy Energy Enchantee Regional Medical Center Enther Energy Englantee Deal Econic Enther Englantine City Office & Police, Brigantine City Chomic Energy Englantine Deal Econics A primary Englantine City Chomic Enther Englantine City Chomic Enther Englantine City Chomic Enther Englantine City Chomic Englantine Englantine Paulis Economic Enther Englantine City Chomic Enther Englantine City Chomic Englantine Englantine Paulis Economic Enther Englantine City Chomic Enther Englantine City Chomic Englantine Englantine Paulis Economic Enther Englantine City Chomic Enther Englantine City Chomic Englantine Englantine Paulis Economic Enther Englantine City Chomic Englantine Eng	Power/Utilities Microsoft - Breakthrough Energy Venture's Fund - Invest in clean energy technology to combat climate change	Emergency y Management Planning -	The fundamental barriers that impede microgrid sector include the early stage of the market, high regulatory uncertainty, difficult operating environments, relatively higher capital expenditure costs than fossil fuel incumbents, high install costs, and he need to invest heavily upfront for slow palyack over an 8-15-year period, combined with the lack of certainty about steedy and relable customers with a strong Perspectives, 2020. These elements impede investors from pursing microgrid projects. However, as capital costs continue to fall and the market matures indicate an increasingly positive investor environment.  Regulatory note: it is not legal yet in New Jersey to build these types of microgrids, due to existing public utility franchise rights, but NI Board of Public Utilities (IN BPU) has been pushing to modify these rules as part of their trown Center microgrid programs. Over the longer term, NIDEP and other agencies/stakeholders can coordinate with NI BPU to improve the proposed revisions to rules, making this type of microgrid feasible.
Note: Elektroke 199	a completed based or surface last	If an action descrift have because information from the contraction of	too chould still be included in the list and the relative of the standard in the list and the relative of the standard in the list and the relative of the standard in the list and the relative of the standard in the list and the relative of the standard in the list and the relative of the standard in the list and the standard in th	th "Hakanum"												
rocc. rielus siloula t			tion should still be included in the list and the unknown fields should be indicated w													
	1 -				ľ						1		1 -	1		

[\*\*Survey Logic Statement: Answer yes or no to the following questions. If answers are yes, continue to the evaluation tool. If any answers are no, return to the scenario development phase and improve the scenario to address the indicator. \*\*]

Vision Indicator	Does the Resilience and Adaptation Scenario support the overall community vision? YES
Risk Indicator	Does the Resilience and Adaptation Scenario reduce risk/adapt the region to life with risk? YES
Cost Indicator	Is the overall scenario cost effective? YES (does assume the communtiy cost share for the USACE Back Bays Plan can be met)
Capacity Indicator	Does the region have the capability and capacity to implement the Resilience and Adaptation Scenario? YES
Environmental Indicator	Does the Resilience and Adaptation Scenario use nature-based solutions to enhance the local environment? YES (less than other scenarios)
Adaptation/Timeframe Indicator	Has a timeline for implementation of each Resilience and Adaptation Scenario action been established? YES
Outreach and Partnership Indicator	Does the Resilience and Adaptation Scenario take into consideration community engagement and outreach? YES
Health and Populations Indicator	Does the Resilience and Adaptation Scenario equally strengthen health outcomes and the overall resilience of diverse populations? YES
Socio-Economic Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region? YES
Additional Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region?

#### **Scenario Evaluation Tool**

#### Ranking



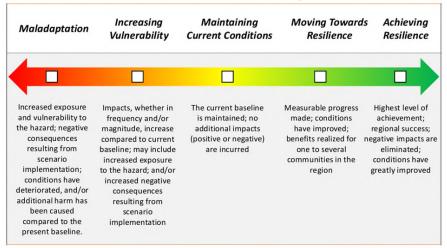
Once planning teams have developed resilience and adaptation scenarios, the following questionnaire should be used to evaluate how successfully the scenarios align with the resilience indicators. The gradient scale ranges from 2 (highest score, strongly agree) to -2 (lowest score, strongly disagree) to indicate the agreement for each question below. PLEASE FILL OUT THE RANKING SCORES IN COLUMN C TO PROVIDE INPUT FOR THE GENERATION OF THE SCENARIO EVALUATION GRAPHIC. REMEMBER TO ENABLE MACROS AND HIT THE "UPDATE CHART" BUTTON TO CREATE THE SCENARIO GRAPHIC.

- 2: Strongly Agree
- 1: Agree
- 0: Neutral
- -1: Disagree
- -2: Strongly Disagree

The mode score of each resilience indicator's section, indicates the resilience ranking for that particular indicator, using the following resilience scale. The average of all the indicators corresponds to the overall resilience ranking for the resilience and adaptation scenario as a whole. The scale is as follows:

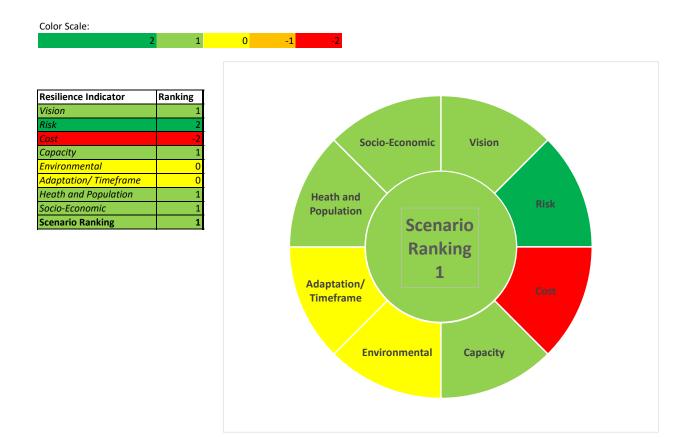
- 2: Achieving Resilience: Highest level of achievement; regional success; negative impacts are eliminated; conditions have greatly improved;
- 1: Moving toward Resilience: Measurable progress made; conditions have improved; benefits realized for one to several communities in the region;
- 0: Maintaining Current Conditions: The current baseline is maintained; no additional impacts (positive or negative) are incurred;
- -1: Increasing Vulnerability: Impacts, whether in frequency and/or magnitude, increase compared to current baseline; may include increased exposure to the hazard; and/or increased negative consequences resulting from scenario implementation;
- -2: Maladaptation: Increased exposure and vulnerability to the hazard; negative consequences resulting from scenario implementation; conditions have deteriorated, and/or additional harm has been caused compared to the present baseline.

#### Vision Indicator Ranking



Number	Statement	Rank	Explain
Vision-1	The scenario accounts for changes in planned or expected development within the community.	1	
	Actions such as elevating buildings and other community characteristic changes align with the identity of the region		
Vision-2	outlined in the vision.	1	
Vision-3	The resilience and adaptation scenario supports the overall community vision.	2	
Vision-4	All regional values have the support of at least one action in the scenario.	1	
Vision-5	The scenario accounts for ongoing and expected demographic or economic trends.	1	
Vision-6	The scenario protects and enhances access to cultural assets.	1	
Vision-7	The scenario protects and adapts historic properties without compromising the historic integrity of the resource.	0	
Vision Mode		1	
Risk-1	The scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.	2	
Risk-2	Existing critical infrastructure (i.e. roadways, utilities, etc.) are protected if all actions in the scenario are implemented.	2	
Risk-3	Existing residential areas are protected if all actions in the scenario are implemented.	1	
Risk-4	Existing business districts, industrial and commercial zones are protected if all actions in the scenario are implemented.	1	
N15K-4	The continuity of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals-on-	_	
Risk-5	Wheels)	2	
	wheels)	2	
Risk Mode			
	The region has the current financial capacity to implement the scenarios without external assistance or has identified		
	financial assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes,		
Cost-1	municipal bonds).	-2	
Cost-2	The overall cost of the scenario is less than the financial benefits/loss reductions.	-1	
Cost-3	Annual maintenance costs and the responsible parties have been identified.	0	
Cost-4	Environmental remediation costs and the responsible parties have been identified.	0	
Cost-5	Funding sources and cost for each action have been identified.	-2	USACE cost share high (\$5.6M)
Cost Mode		-2	
	The region has current staffing capacity or has identified opportunities to establish staffing capacity to implement and		
Capacity-1	maintain actions associated with the scenario.	1	
	The region has the current capabilities or has identified opportunities to establish capabilities to sustain the scenario's long-		
Capacity-2	term management and maintenance requirements (including likely replacement of actions with a limited lifespan).	1	
Capacity-3	The legal requirements of management and maintenance have been considered.	0	
	The planning team has determined which entities will be the local champion (municipal or NGO's) to help advocate for the	-	
Capacity-4	selected scenario.	0	
1	The scenario supports resident and business owner capacity to build resilience in alignment with developed policies, zoning		
Capacity-5	changes, building code changes, etc.	1	
Capacity Mode		1	
Environmental-1	Actions generate or preserve green space/open space.	0	
Environmental-2	Actions improve air and water quality or reduce pollutants (including greenhouse gas emissions).	-1	USACE CBB Impacts
	Actions increase floodplain management capacity and impacts.	0	OSACE CBB IIIIpacts
Environmental-3 Environmental-4	Actions increase hoodplain management capacity and impacts.  Actions increase the use of nature-based stormwater management.	1	
	-	_	
Environmental-5	The scenario incorporates green infrastructure as a flood mitigation strategy.  The scenario identifies how to incorporate water into the community, including strategies that support the philosophy of	-1	
Emvironmental C	living with water.	4	
Environmental-6	manig with water.	1	
Environmental Mode	The constitution of the control of t	0	
l.,, . <del>, .</del> .	The scenario actions account for changes in risk conditions, such as shifts in water levels, rainfall rates, storm intensities,		
Adaptation/Timeframe-1	and the natural environment.	1	
	Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or		
Adaptation/Timeframe-2	monitoring to maintain intended level of protection.	0	
	Scenario actions are designed to be initiated in phases and completed to adequately address both current and future		
Adaptation/Timeframe-3	conditions.	0	
	The scenario identifies keystone action timeframes to track when certain actions need to be completed in order to maintain		
Adaptation/Timeframe-4	a functional scenario.	0	
Adaptation/Timeframe-4			
Adaptation/Timeframe-4 Adaptation/Timeframe-5	a functional scenario.		

I	The scenario includes ample community education and outreach to positively influence public opinions regarding		
Outreach and Partnership-1	adaptation and resilience.	1	
Outreach and Partnership-2	The scenario includes actions where the leading organizations are external groups, organizations, and agencies.	2	
Outreach and Partnership-3	The scenario includes actions that involve ample public involvement and citizen participation.	1	
·	The scenario identifies education/outreach actions that are necessary to support some of the most transformative scenario		
Outreach and Partnership-4	actions, requiring public support.	0	
Outreach and Partnership-5	The scenario identifies outreach and education actions that can be led and spearheaded by stakeholders.	0	
Outreach and Partnership Mode		1	
Health and Populations -1	Equity and inclusion for Socially Vulnerable Populations (SVP) are addressed in at least one scenario action.	1	
	The scenario provides mechanisms to facilitate SVP's to be moved to safer locations without contributing to gentrification.		
Health and Populations -2	Or, the scenario provides mechanisms to increase the flood resilience of locations with high densities of SVPs.	1	
	The scenario will result in an improvement in accessibility to public transit, open space, fresh foods, and other community		
Health and Populations -3	services.	1	
	The scenario includes measures to increase public safety, comprehensive health benefits, and meantal health support for		
Health and Populations -4	the region.	1	
Health and Populations -5	Actions protect drinking water and food sources from risks such as flooding contamination or salt water intrusion.	0	
Health and Population Mode		1	
	The scenario supports relevant diversification of the regional economy, to increase the overall economic resilience of the		
Socio-Economic-1	region.	0	
Socio-Economic-2	The scenario includes provisions to protect ratables.	1	
Socio-Economic-3	The scenario includes actions to support the strengthening of the community's overall quality of life.	1	
Socio-Economic-4	The scenario protects/creates sustainable jobs for the region.	0	
	The scenario includes at least one action that supports the inclusion of youth in the implementation of resilience and		
Socio-Economic-5	adaptation strategies.	0	
Socio-Economic Mode		1	



Appendix A: Resilience Checklist		
	Checklist	Notes
Note: Planning Teams should address each pre-requisite before considering each related resilience indicator checklist. The		Team utilized checklist during
checklist serves to integrate creativity and innovation into the planning process, and to encourage team discussions across a		scenario development working
range of themes throughout development of the regional resilience and adaptation scenarios.		sessions
Successful scenarios should consider the following:	<u></u>	
1. Evaluation of Vision	<b>√</b>	
☐ Consensus concerning the region's vision.	<b>√</b>	
☐ Support of expedited achievement of the vision.	<b>√</b>	
2. Evaluation of Risk and Risk Reduction		
☐ Current and future exposure of critical community assets, facilities and services.	<b>√</b>	MILLIM : SLD 2070 /2 4 ft ) :
		MHHW + SLR 2070 (2.4 ft.) + (1% annual chance, 24-hr
o Exposure of critical community assets and facilities at each total water level.		storm event + 10% increase in
		rainfall)
		MHHW + SLR 2070 (2.4 ft.) +
		(1% annual chance, 24-hr
Exposure of natural community assets and facilities at each total water level.		storm event + 10% increase in
		rainfall)
Potential damages under each flood condition.		
☐ Current and future exposure of neighborhoods and mixed-use neighborhoods.	✓	
Exposure of neighborhoods at each total water level.		
Potential damages to neighborhoods at each total water level.		
o Demographic profile of areas that are exposed to flooding today or are likely to be exposed to flooding in the future.		
☐ Current and future exposure of economic centers (commercial and industrial areas) that are exposed to flooding today or		
are likely to be exposed to flooding in the future.	✓	
Exposure of economic centers at each total water level.		
Potential damages to economic centers at each total water level.	<u> </u>	
☐ Flood exposure to economic, cultural, and social impacts from future flooding conditions if actions are not taken.	<b>√</b>	
Possible shifts of socioeconomic identity of the region.		
o Impacts at each total water level.		
☐ Effectiveness of flood protection provided to critical facilities. For example, can the scenario include traditional flood		
mitigation actions, such as elevation and floodproofing, enough to <i>prevent</i> service interruptions or to simply <i>protect</i> the		
structure from flood damages?	<b>√</b>	
☐ Inclusion of non-structural actions or activities such as zoning, policy changes, buy- out programs, dry/wet floodproofing,		
etc.	<b>√</b>	
Risk reduction, or will the scenario include Resilience and Adaptation Scenarios to reduce risk or adapt the region to life		
with risk?	<b>√</b>	
☐ Multiple benefits to support the goal of a "multiple-benefits" scenario and action design.	✓	
3. Cost Efficiency		
☐ Cost effective Resilience and Adaptation Scenarios.	<b>√</b>	
☐ Available funding mechanisms to implement actions and associated cost shares.	·	
☐ Long-term financing of alternatives, or can actions within the Resilience and Adaptation Scenario be budgeted through		
long-term financial planning or future funding?	<b>✓</b>	
Tong term manda paming or ratare randing.		
4. Capacity to Implement		
☐ Staffing capacity of regions to implement and maintain the Resilience and Adaptation Scenario.	<b>✓</b>	
☐ Staffing or resource capabilities of federal, state, regional, municipal, and private entities to support and advocate the		
Resilience and Adaptation Scenario.	✓	
☐ Capacity of residents and business owners to integrate resilience strategies into their properties.	✓	
☐ Future regulatory or policy changes, or can municipal/state regulations or guidance that currently prohibit the		
implementation of an action be modified to be less restrictive in the future? [Tip: Integrate elements of the resilience and		
adaptation scenario that push the limits of what is possible or legal under current conditions. The resilience and adaptation		
scenarios can (and should!) be creative, innovative, and even aspirational.	✓	
5. Environmental/Ecological Enhancement		
☐ Nature-based solutions to enhance the local environment, such as native landscaping, green stormwater design		
enhancements, and living shorelines.	<b>√</b>	
☐ Improvement of nature-based stormwater management.	<b>√</b>	
☐ Improvement of floodplain management.	<b>√</b>	
6. Adaptation Over Time		
· ·		
* PREREQUISITE: Define Short vs. Long-term. Define the time horizon of the scenario and the keystone action of the scenario.		
☐ Iterative approach to adaptation strategies.	✓	
☐ Alternative actions with associated timeframes for completion (short-, medium-, and long term).	✓	
☐ Account for changes in risk conditions over time.	✓	
7. Outrook and Bartin and inc		
7. Outreach and Partnerships  * DECENIOUS To Develop an engagement process that gives the enparturally for all residents to participate in the planning.		
* PREREQUISITE: Develop an engagement process that gives the opportunity for all residents to participate in the planning		
process.	<b>√</b>	
☐ Community support for short-term actions.	<b>V</b>	
☐ Consideration that current public opinion is likely to shift and evolve over time and that current community support may		
change for medium/long-term actions.	<b>✓</b>	
Silver of the stand for the section of the section		
8. Health and Populations		
* PREREQUISITE: Identify the populations that would benefit from increased accessibility to physical and mental health		
services, transportation, safe drinking water and food sources.		
☐ Increase public safety and accessibility of health services.	<b>√</b>	
Reduce the impact of hazard events on physical and mental health.	✓	

☐ Support increased education and with respect to potential health implications of hazard events and future conditions.		
☐ Address key population segments in the community (i.e. tourists, residents, low- income residents, etc.).	✓	
9. Socio-Economic Benefits		
☐ Improvement of quality of life (e.g., increased recreational areas, enhanced local character and amenities, access to fresh		
food).	✓	
☐ Equity and inclusion of socially vulnerable populations.	✓	
☐ Mobility and connectivity of region as it relates to flooding.	✓	
☐ Walkable neighborhood design enhancements.	✓	
☐ Planning mechanisms to encourage and allow for the relocation of business districts, industrial and commercial zones		
away from future flood risk.	✓	
☐ Resilience and Adaptation Scenarios that stimulates economic prosperity and development.	✓	
☐ Preservation and protection of civil and human rights.	✓	

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1 800-1	2 Action N	2 Description of the 1977	4. Description of Problem to be Addressed:	5. Action Type	7. Losses 6. Losses Avoided: Description	Avoided 8. Estimated			11. Addresses SVPs?:	12. Connection to Other Actions:	13 Estimated Cont.	14. Estimated Annual Maintenance Cost:	15. # of Structures	16. Ecological 17. Estimated Start Area Protected: Decade:		J. Lead eanization: 21, Supporting Organizations:	22. Potential Funding Sources:	23. Funding 24. Local Planning Currently Mechanisms to be Use Available?: in Implementation:	d 25. Critical Next Steps	26 Known Obstarlar
1. Action Number:	2. Action Name:	3. Description of the Action:	Addressed: Natural Resources:	S. Action Type	6. Losses Avoided: Description	n: Benefits:	Protection:	Addressed?	SVPs:	12. Connection to Other Actions:	13. Estimated Cost:	Maintenance Cost:	Protected:	Area Protected: Decade:	Project Duration Action: 0	ganization: 21. Supporting Organizations:	22. Potential Funding Sources:	Available :: in Implementation:	25. Critical Next Steps	Zb. Known Obstacles:
			Prolonged inundation, erosion and loss due to sea level rise in Back Bay Marches will result in the loss of vital ecosystem														The Trust for Public Land			
			services that protect the surrounding communities and infrastructure from storm damage due to storm surge.														The Nature Conservancy Shoreline Protection: NFWF - National Coastal Resilience Fund			
			<ul> <li>The long term maintenance of the back bay tidal marshes requires coordinated</li> </ul>														NPWF - National Coastal Resilience Fund NOAA - Coastal Resilience Grants for Coastal Communities FEMA - Hazard Mitigation Grant Program			
			within the region will likely face delays														(HMGP) – Flood Protection NFWF, Wells Fargo - Resilient Communities			
		<ul> <li>Provide a framework to establish condition monitoring,</li> <li>Prioritize actions to restore habitats through thin thin-layer sand deposition in targeted locations and living</li> </ul>	multiple projects that exceed minimum														Program - Natural ecosystems, Green Infrastructure, SLR NFWF - Adaptation through Regional			
		shoreline improvements and coordinated use of resources (dredge sand) and funding.	protection to top critical assets in ACCR						Yes, the Living Bay							Stockton University     Atlantic County     Atlantic City	Conservation Projects - SLR, interconnectedn of natural systems NFWF, WHC, EPA - The Five Star and Urban	ess		
		<ul> <li>Create a means to streamline permit reviews resiliency projects, establish broader or more flexible limits for General</li> </ul>	protection to high-medium risk facilities along bayside such as 2 Atlantic City radio			ses from Enhance ecosyste	m		Master Plan would protect all of Atlantic City, as well as							Local Communities     Power Utilities     The Nature Conservancy, other non	Waters program - Improve stewardship of natural lands, improve water quality and on- quantity			
		Permits and expand use of In In-Lieu -Fee mitigation option.  - Public Education to recognize the importance and value	towers, Brigantine Bayside Marina, Bader Field Boat Ramp, Pleasantville Clematic		regionwid	e events services of the bar through bay tidal wetland ent in Benefit for flood	ck s.		Pleasantville, where SVPs are concentrated					Reeds Bay, Absecon Bay, and Lakes Bay east of		profits TBD • NJDOT -Office of Maritime Resource	USACE and NFWF - Dredging and Placement	m - Recreation planning		
Region-wide 1	Living Bay Master Plan	of back bay tidal wetlands in protecting the region from storm surge.  organization focused on stewardship of Absecon Bay, and	Glencove Parks, Lodging along Black Horse Pike.	Future Study/Analysis / Regulatory	N/A the health	of the protection along bayside.	Storm Surge	All ACCR populations	(Planning Context - CDC SVI).	Keystone Action	Planning Cost - ~\$200-\$400K	N/A	33,668 (structures in ACCR region)	Absecon Island 2025-2030		e Nature • NJDEP – Department of Land Resour	protect, and improve public spaces such as lo parks, natural areas, and recreation resource	ocal Environmental	Initiate key partnership/	5
		working on behalf of the people and wildlife that depend on Bay through environmental action, advocacy, education.																		
		Carry out the mission through a combination of: - Formal and nonformal environmental education programs designed to raise awareness of the residents and	Capacity Building: Increase regional capacity and														Capacity Building:			
		visitors to the region.  - Work to protect, preserve and restore the various fish	environmental action, advocacy, and education. Critical Facilities: Overall, provide														NFWF - National Coastal Resilience Fund FEMA - Building Resilient Infrastructure and Communities (BRIC) FEMA - Hazard Mitigation Grant Program			
		and wildlife habitats that exist within the watershed.  Act as steward for Absecon Bay by:  - Promotting responsible, sustainable development.  - Working with local, county and state planners to ensure	protection to top critical assets in ACCR (~200 assets across the region). Provide						Yes, has the potential to positively impact								FEMA - Hazard Mittgation Grant Program (HMGP) – Public Education and Outreach NFWF - Community Capacity Building and Demonstration Projects - advance social			
		that land-use planning decisions reflect up-to-date science.	along bayside such as 2 Atlantic City radio towers, Brigantine Bayside Marina, Bader Field Boat Ramp, Pleasantville Clematic		Tied to pro	Enhance ecosystemoting services of the bar	ck		Atlantic City, as well as Pleasantville,					Reeds Bay,			cohesion, green infrastructure Threshold Foundation - Thriving Resilient			
Desire with 2	Ab 2 V	and the abutting communities;	Ave. Park, Northfield Stillwater and Glencove Parks, Lodging along Black Horse	Communication and	bay and it reducing l	of the bay tidal wetland: s role in Benefit for flood protection along e events. bayside.	5.	All ACCO	where SVPs are concentrated (Planning Context -	Supporting Action - Living Bay Mast	Non-Profit Organization - need upfront	Annual operating	N/A	Absecon Bay, and Lakes Bay east of Absecon Island  Control Short-term action	D	NJDEP The Trust for Public Land	Communities (TRC) Funding Circle - strengthening local and regional resilience in climate, economy, justice, and collaborative	Environmental	Lawrence Lawrence Lawrence	Substituted for all the second
Region-wide 2	Absecon Bay Keepers	- Promoting comprehensive planning to guide the future	Pike.	Outreach/Governance Structure	N/A storm surg	e events. bayside.	Storm Surge	All ACCR populations	CDC SVI).  Yes, has the potential	rian	cost to organize	costs	N/A	~60 sq. mi. Short-term action	1-3 years Ongoing or	ganization The Nature Conservancy	networks.	No Conservation Planning	Initiate key partnership/	s Sustained funding source
									to positively impact Atlantic City, as well											
		Region: Translate all Emergency Preparedness Materials				Improve emergen preparedness and			as Pleasantville, where SVPs are concentrated											
Region-wide 3	Translate all Emergency Preparedne Materials	into the multiple languages to reach all of the region's communities and develop action plan to disseminate materials.	as evacuation plans so that residents are aware of evacuation, food assistance, and relocation procedures.	Communication and Outreach	Avoid loss and injury N/A large store	during evacuation	Superstorm Sandy type event		(Planning Context - CDC SVI). Focus on LEP groups.	Supporting Action  Connected to Evaluate and Improve  Preparedness Actions for SVPs	Planning and outreach cost	Costs accrued at update cycles	N/A	2025-2030 No Short-term action	Material 1 year update cycle M	unicipalities Red Cross	American Red Cross Prepare NJ	Emergency Managemer	nt Identify materials and s languages	
		conversations/focus groups with SVPs.  Shelters  Designated shelter for people w/ disabilities; children w/																		
		special needs Power outlets for medical devices & accessible bathrooms Program focused on single parents																		
		Support services for residents w/ pets Food services to accommodate allergies/special diets Evacuation																		
		Evacuation vehicles to accommodate people with medical issues or medical devices Evacuation personnel training/planning (e.g., movement																		
		of medical equipment, people w/ disabilities, older adults in high-rise buildings) Outreach and Education																		
		Consistent region-wide evacuation plan information (social media and non-digital channels) Training on how to digitize documents/storage of essential																		
		documents for evacuation Monthly information sessions about resources and programs available for disaster preparation and assistance																		
		(e.g., access to food, medicine, medical devices, blankets etc. Social Services and Wellness																		
	Evaluate and Improve Preparedness	Ensure social services (e.g., homeless shelters) are more accessible throughout the region	Vulnerable Populations: Improve	Communication and Outreach /	Avoid loss and injury	of life improve emergen during preparedness for			Yes - action focused	Supporting Action Connected to Translate all Emergen	y			2025-2030				Emergency Manageme	nt	
Region-wide 4	Actions for SVPs	access social service programs and mental health	preparedness actions for SVPs	Emergency Management	N/A large store		type event	Residents	on SVP needs	Preparedness Materials	Unknown	N/A	N/A	N/A Short-term action	1 - 3 years Ongoing A	nerican Red Cross Boys and Girls Club of America	American Red Cross Prepare NJ  Rezoning/Redevelopment:	TBD Planning - Preparednes		
																	FEMA - Hazard Mitigation Grant Program (HMGP) – Structural Retrofitting of Buildings DHS FEMA - The Flood Mitigation Assistance			
																	(FMA) Program – risk of repetitive flood damage CRDA - The Casino Reinvestment Developme	nt		
																	Authority (CRDA)  Atlantic City Redevelopment Program USDOT - Better Utilizing Investments to			
		Atlantic City and Pleasantville: Develop Adaption Action Plan for Atlantic City & Pleasantville Housing Authority															Leverage Development (BUILD) Grant Progra US DOE - State Energy Program and Weatherization Assistance Program	m		
		Communities and Region's Senior Centers.  Continuity of Service:  Elevate Electrical and Mechanical Equipment			Avoid losses to				Yes, will positively impact Atlantic City, as well as								US DOE - Wind Energy Technologies Office (WETO) - research, development, and demonstration projects will help the industry	,		
		Solar Trellises on all surface parking lots     Solar Panels on all rooftops     Battery to provide off-grid capacity at night	Vulnerable Populations: Ensure continuity of service after a disaster/major storm event and mitigates flooding for Atlantic		Atlantic City & Pleasantville Housing Authority Avoid loss		SLR 2070, Precipitation: 1%		Pleasantville, where SVPs are concentrated								overcome key barriers to offshore wind development New Jersey Aspire Tax Credit Program		Utilize funding already in	
	Adaption Action Plan for Atlantic Ci and Pleasantville Housing Authority Communities and the Region's Seni	Porous paving and green infrastructure planting to aid in stormwater management	City Housing Authority Communities. Critical Facilities: Protect Pleasantville Housing Authority (Pleasantville Tower		Communities and affordable Region's Senior and impact Centers (~15-20 vulnerable	housing ts to	annual chance 24-hr storm event + 10% increase in rainfall,		(Planning Context - CDC SVI). Focus on low income and	Supporting Action Connected to Vulnerable Population				2025-2030 Short-term action to			Kresge Environment Program - Building the climate-resilience field by supporting activitie to disseminate and bring to scale promising	es for Stanley and	place for Atlantic City retrofits to jump start nt Action Plan - Design	
Region-wide 5	Centers	Reprogram Ground Level	Annex) is a medium risk facility.	Future Study/Analysis	facilities) population		and or storm surge	Residents	older adult groups.	actions	Planning Cost - ~\$200	N/A	~10-15 facilities	No initiate planning	1 - 3 years Ongoing M	unicipalities TBD	climate-resilience approaches.	Atlantic City Planning - Preparednes	s Guidelines	
						Cost efficient, as the dredge is already on site														
						every few years for regular nourishment. No	or t													
						a huge social impact at once. "Ecosystem servic	es													
						like improved water quality and filtration of water	,										For federal beach fill projects, the federal			
		Atlantic City, Brigantine, Downbeach: Continue beach nourishment program, with gradual elevation increase to				through the sand and wildlife habit and biodiversity.											government contributes 65% of the project c while the remaining 35% is divided into a co- share, with the state contributing 75% and the	st-		
		address increased height of surge overtime. Incrementally raise the dune and berm heights through nourishment cycles: requires an engineering technical review to change	flooding.			Other social benefits include ecotourism,			Yes, has the potential to reinforce protection in Atlantic		Cost Components: Beach Nourishment Fill Length - 6,000 LF Mob/Dembo - \$6M (High end)						local governments contributing 75% and to local governments contributing the remainin 25%. Non-federal beach fill projects are fund through a state/local cost-share, with the sta	g led		
		authorized design template, request would be initiated by the non-federal sponsor (NJ DEP). Includes modifying the template to pump feeder beaches or feeder dunes above	~70 high-medium critical facilities within Atlantic City and ~11 in Brigantine, and		Maintain o level of lo avoided a	urrent educational sites ses and recreation."	SLR 2070 + Storm	All (residents.	City, where SVPs are concentrated (Planning Context -		Beach Nourishment - \$//CY 600,000 (Quantity High) \$30 (Unit Cost High)	~3 year cycles in this		~13 miles of Shoreline	~ 3 year cycle -		contributing 75% and the local governments contributing 25%. All funding is provided through the Shore Protection Fund. (NIDEP E			CONS: Existing concerns in AC about viewshed the was interrupted by dune vegetation, resolved by mowing the dunes grass down but could be mitigated with the proper
Scenario 2: 1	Beach Nourishment Program	template to pump feeder beaches or feeder dunes above or at erosion hot spots.	~33 high-medium risk assets in the Downbeach area.	Flood Mitigation Project	N/A adapting t		SLR 2070 + Storm Surge		(Planning Context - CDC SVI).	Keystone Action	USACE MCL Report 2021 - Florida costs cited.	~3 year cycles in this region	24,590		~ 3 year cycle - Ongoing Ongoing N	DEP USACE	through the Shore Protection Fund. (NJDEP E of Coastal Engineering)	Yes Local cost share		dunes grass down but could be mitigated with the proper dune plantings.

	1									1					
1. Action Number:	Z. Action Name:	4. Description of Problem to be 3. Description of the Action: Addressed: 5. Action Type	7. Le 6. Losses Avoided: Desc	osses Avoided 8. Estimated 9. L cription: Benefits: Pro	Level of 10. Populations tection: Addressed?	11. Addresses SVPs: 12. Connection to Oth	Actions: 13. Estimated Cost:	14. Estimated Annual 15. # of St Maintenance Cost: Protected:	tructures 16. Ecological I: Area Protected:	17. Estimated Start 1 Decade: F	19. Tot 18. Estimated Lifespa Project Duration Action.	of 20. Lead	21. Supporting Organizations:	23. Funding Currently 22. Potential Funding Sources: Available ?:	24. Local Planning Mechanisms to be Used In Implementation: 25. Critical Next Steps 26. Known Obstacles:
Scenario 2: 2	Continuous Raised Road along Bayside	Atlantic City, Brigantine, Downbeach: Raise sections of streets along the bayside to form a continuous bayside flooding recition: protect from bayside flooding. Relative streets along the flooding flooding. Relative streets along the flooding flo	prot inlar SLR. enou prot	idde some ection to th flomes to Will not be eigh begind begind of way, event storm owent storm owent storm	All (residents, workers, tourists)	Yes, would protect Atlantic City, where SVPs are traded (Planning Context - CDC SVI). Keystone Action	1.Known subsurface issues — Cost is \$100/5/8" of roadway (based on the powement area between curbo) or another than the subsurface of the cost another than the subsurface of the cost another than the cost another than the cost another than the cost execution and replacement of a linchales reconstruction of saveme drainage, underground utilities. Includes 10-foot roadway berms will diewall kin both directions. 2.Normal subsurface conditions — Co \$62/5/8" of roadway a.includes reconstruction of all powement, dianage and undergroun utilities, but combustion would not diffice, but combustion would not b. Includes 14 Debt or another between sidewalk in both directions.	orth M. th th distribution	24,590 No	2030-2050 Mid-term action 5	5-10 years Ongoin	§ Municipalities	NIDOT	NJDOT (e.g., funded through RAISE grants etc.) No	CONS: Leaves outside edge of homes vulnerable, perceived and real displaced rainwater runoff concerns, how would it to mit outsiding adversals, side streets, diversarys and considerations stacking with Seering with Seering Committee or leaves standards.
Scenario 2: 3	Absecon Bay Blue/Green Way	Region: Network of interconnected kayak/Canoe trail (Blue way) connecting the fatinit County bays developed in complexition with one recentional trail (foren way) along the Bluckhore-Pike and roads paralleling the shoreline.  Belle way can connect into the Cape May County trail system, the lersey island Blueway, for a larger South trails reserved with the connect into the Cape Maring (cattors). But the cape of the connection to the Cape Maring (cattors) and lersey network. Incorporate recreational fishing locations, proceedings of the connections to the water (Protect Such as the Northfeld/Pleasantulle libe jean flurus north/south) and the Atlantic County Bleeway (runs estat/vest).  Begion: Network of interconnecting the short protection of the connections to the water (Protect Such as the Northfeld/Pleasantulle libe jean flurus north/south) and the Atlantic County Bleeway (runs estat/vest).  Begion: Network of interconnecting the short protection of the connections to the water (Protect Such as the Northfeld/Pleasantulle libe jean flurus on the connections to the water (Protect Such as the Northfeld/Pleasantulle libe jean flurus on the Northfeld Pleasantulle libe jean flurus on th	N/A N/A	Multiple benefits surrounding the surrounding the the processor of the pro	areness of bay All (residents, system services.	While not directly addressing SVPs has the potential to build capacity through youth group engagement. Supporting Action - Nat	al Resources Planning Cost - \$200K	N/A N/A	Reeds Bay, Absecon Bay, and Lakes Bay east of Absecon Island 7-604 g min.	2025-2030 Stort-term action	3-5 years Ongoin	s ACCR Region	Girl and Boy Scouts of America The Trust for Public Land The Nature Connervancy	The Trust for Public Land The Nature Conservancy Shoreline Protection: NFWF - National Coastal Resilience Fund NOAA - Coastal Resilience Grants for Coastal Communities FEMA - Hazard Mitigation Grant Program [MMGP] - Flood Protection NFWF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green infrastructure, SIR Original Resilient Communities And Coastal Resilient Communities FEMA - Hazard Mitigation Grant Program Infrastructure, SIR NEWF, WINC LEVE - North Fire Star and Uthan Waters program - Improve stewardship of natural lands, improve water quality and quantity USACE and NFWF - Dredging and Placement Demonstration Projects ACE - Sustainable communities grant program - protect, and improve public spaces such as local parks, natural areas, and recreation resources No	Recreation planning Environmental Conservation Planning Initiate key partnershiply.
Scenario 2: 4	Blue Streets & Pump Stations Network	Atlantic City, Brigantine, Downbeach: Develop a network of Blue Streets and pump stations. Blue Streets convey was waterflow, Proposed like Street alignment destinated on superflow and street of the	Absecon Island and Brigantine + and additional capacity mob	dway function function as a reduced auto, pedestrian aility during mitigate and precipitation function as a function as a performative performative network to mitigate and flash sto	rcipitation: 15- buulch chance 24-bi mevent + 10% All (residents, rease in rainfall workers, fourists)	Yes, has the potential to reinforce protection in Atlantic City, where SPVs are concentrated [Planning Contex - CDC SVI]. Keystone Action	Higher Capital costs than regular stre (see elevated randaway). Has been co at 505 % randaway for stormwater infrastructure only.	sted Lower potential in impacte	ed by 1% t + 10%	2025-2030 Short-term action for plate project. 2023-2050 Mid-term action for larger scale implementation 3	3-5 years Ongoin	§ Municipalities	ТВО	Stormwater Management:  NGAA - Coastal Mesilience Grants for Coastal  Coastal Mesilience Grants for Coastal  Coastal Mesilience Grants for Coastal  Coastal Mesilience Grant Program  Jamas Grant Mesilience Grant Program  Jamas Grant Mesilience Grant Program  Jamas Grant Food Protection  NFWF. Wells Fagor - Resilient Communities  Program - Natural ecosystems, Green  Infrastructure, SIR  NFWF - Community Capacity Building and  Demonstration Projects - advances social  cohesion, green infrastructure  Attantic City Electric's Sustainable Communities  Grant program - parks and community  resilience  NUDEP and New Jersey Environmental  Infrastructure Trust (Trust) - New Jersey  Environmental infrastructure Trust grant  Land (JATA) - estilient transportation  NUDT - NUDOT Grants for Streetscape  Improvement Projects  AC = Sustainable communities grant program-  protect, and improve pubils passes such as local  parks, natural areas, and recreation resources	Target areas for Blue Streets have been mapped. Based on initial mapping explore locations for potential pilot projects (carea with 1 journable of the potential of the potentia
Soenario 2: 5	Smart Streets - Sensor Installation	Stormwater Management: mitigate downstream flash flood risks.  Adiantic City, Brigantine, Downbeach: Install sensors a treat Facilities: Finhanced protection for Critical Facilities: which control of the Critical Facilities within locations for Smart management linking sensors to pump latinour oritical facilities within locations for Smart management flowing sensors to pump latinour provided by the Company and meteorological forecasts, to increase a company and meteorological forecasts, to increase company and meteorological forecasts, to increase company and meteorological forecasts, to increase company and meteorological forecasts.	road and pede durii	Potential to increase groundwater storage capacity rot large greated activities of the capacity precipitation event. Reduced auto. Discussion ongoing the glight groundwater level opination especially in low precipitation especially in low precipitation and provided in the capacity of t	All (residents, scipitation events workers, tourists)	Yes, has the potential to reinforce protection in Atlantic City, where SVPs are concentrated planning Context - Supporting Action - Sto OCS SVI).	water Need additional scoping to cost	4,735 (str in impact Need additional coping to cost	ructures ed by 1% it + 10%	2025-2030 Short-term action for pilot projects 0330-2050 Mid-term action for larger scale	3-5 years Ongoin	ę Municipalities	State	Stormwater Management:  NOAA - Coastal Resilience Grants for Coastal Communities  FEMA - Hazard Mitigation Grant Program (MMGP) - Flood Protection NPWF, Wells Fargo - Resilient Communities Program - Natural econystems, Green Infrastructure, SLR NFWF - Community Capacity Building and NFWF - Community Capacity Building and New Storm of Communities School Communities Communities Communities Grant program - parks and community resilience NIDEP and New Jersey Environmental Infrastructure Trust (Trust) - New Jersey Environmental infrastructure Trust grant ATIA - America's Transportation NIDOT - NIDOT Grants for Streetscape Improvement Projects ACE - Sustainable communities grant program- protect, and improve public spaces such as local parks, natural serves, and reconsider recourses. No	Identify appropriate
Scenario 2: 6	Massachusetts Avenue and the Bay Stornwater Mitigation	Stormwater Management: mitigate flooding from stormwater unfording from stormwater unford control roundf at Massachusetts Avenue and piping to control roundf at Massachusetts Avenue and facilities Protect Which is a medium risk the Bay.  Gapital Improvement Project	Cars Gard	ids looses at Protect now on's Portial and residential control Basin. deepergement and SJR scale. adjacent areas. Sur		Yes, would protect Atlantic City, where SVPs are Generaling Context CDC SVI). Mainagement	wwater Estimate 5800 to 51000 per foot for bullshead = \$375K for pump	Regular maintenance costs Unknown	No	2025-2010 Short-term action 3	30 years   30 gears   3 a - 5 years   3 a - 5 years   5 a -	s (vinyl Atlantic City	State	Shoreline Protection:  NOWT- National Constal Resilience Fund NOAA - Coast al Resilience Grants for Coastal Communities:  FEMA - Hazard Mitigation Grant Program (HMGP) - Flood Protection NFWF, Wells Fargo - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SIR FYFW - Adaptation through Regional FYFW - Adaptation through Regional NFWF, Wiley CEA - The Five Star and Urban Waters program - Improve stewardship of natural layold, improve water quality and quantity USACE and NFWF - Dredging and Placement Demonstration Projects ACE - Minimum -	Determine if short-term Gardner's Basin planning or mid-term action

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1. Action Number:	2. Action Name:	4. Description of Problem to be 3. Description of the Action: Addressed: 5. Action Type	7. Losses Avoided 8. Estimated 9. Level of 10. Pop 6. Losses Avoided: Description: Benefits: Protection: Address	ilations 11. Addresses ed? 3VP3: 12. Connection to Other Actions:	14. Estimated 15. 8 of S 13. Estimated Cost: Maintenance Cost: Protected	f Structures 16. Ecological 17. Estimate ed: Area Protected: Decade:	ated Start 18. Estimated Uleppan of Project Duration Action:	20. Lead Organization: 21. S	23. Funding Currently Supporting Organizations: 22. Potential Funding Sources: Available P:	24. Local Planning Mechanism to be Used in Implementation: 25. CHICAL Next Steps 26. Known Obstacles:
Scenario 2: 7	Community Microgrid Systems Study	Region: Companion to Nanogrid action. Study can lead to actions in the future and identify where to provide solar.  * Microgrids can be centered around casinos /hotels or other major sites that can provide emergency services / support.  **Coordinates with Atlantic City Electric (ACE) for expectation of the solar solar size of the solar sola	Microgrids built on bolar, vehicle to Grid (VZG), or other renewables provide distributed energy stargeted // who distact the denergy stargeted // who distact. The microgrid will then use it so won local energy generation from renewable sources to supply power to the reachy buildings will the main god sufficient to the main god starteded via stable enough to Speciation Sandy abover loss occurred.	Yes, has the potentiall to positively impact Atlantic City, as well as Pleasantville, where SVPs are concentrated context - to City City. Keystone Action	Planning Cost - 5200K - 5400K N/A Usknown	2025-2030 un No Short-ferm a		a NIN b. Ene c. rej initia fundi d.Ge, GOVI  a. Sac comp f.Ene g.Dir  d. Cas comp f.Ene g.Dir Clari  Atta the drag  Scho Scho Scho Scho Scho Scho Scho Sch	Intrial Stakeholders:  (ImP) G. Casildron  (Im	The fundamental barriers that impede microgrid sector include the early stage of the market, high regulatory uncertainty, fillicit operating environments, relatively higher capital aeponditure costs than fossil fuel incumbents, high install costs, and the need to invest heavily upfront for slow psyback over an 8-15-year period, combined with the lack of certainty about steedy and relatile customers with a storing ability to pay following and relatile customers with a storing ability to pay following and relatile customers with a storing ability to pay following and relative to the storing ability to pay following and relative to a storing ability to pay following and relative to the storing ability to pay following and the market matures indicate an increasingly positive investor environment.  Regulatory note: It is not legal yet in New Jersey to build there types of microgrids, due to existing public utility franchise rights, but NI bloard of Public Utilities (NI BPU) has been publing to modify these rules as part of their forw Center microgrid programs. Over the longer term, NIDPE and other agencies/stakelodies can coordinate existence of the programs of the programs condinate assisting which customers are supported existence to the programs existence of existing a saking the type of microgrid feasible.
Scenario 2: 8	Nanogrids - Encourage Renewable/Solar on Rooftops and Sorface Parling Low	Region: Focus on opportunities to provide renewable / solar sources for microgrids on roofs, parking, vacant lots.  (This is instead of utilizing emergency generators using  One key source of electricity parent sito is solar energy,  which has become very cost effective over the past  deaced. A regional PSFCO map shows the ability of the  electric grid to absorb solar power in the ACIC (which  Many of the areas are green, which means it is suitable to  interconnect large amounts of solar. The areas that are  red and black are much more difficult to connect and  should avoid new solar installations, using all energy will  be self-consumed on site by existing loads, or new assets  sets in ACCR ("200 assets across the  planning and Regulatory  Planning and Regulatory	Microgrids built on bolar, vehicle to Grid IVZS, or other renewables provide distributed energy and can be distributed to the microgrid will then use 1t own local energy generation from renewable sources to supply power to the energy buildings until the main grid sufficient of the energy buildings and the main grid sufficient will be sufficient to the energy buildings and the main grid sufficient will be sufficient to the sufficient will be sufficient to the	Ves, has the potential to positively impact Atlantic City, as well as Pleasanthille, where SVPs are concentrated to Gramming Context Supporting Action - connected to COC SV9. COC SV9.	Planning Cost - \$200K, Need additional accoing to cost implementation of policies N/A Unknown	2025-2030 Short-term a pilot, projecti 2330-2030 Mild-term ac larger scale un No expériements	n action for ects  0  action for le	Municipalities TBD	Microsoft - Breakthrough Energy Ventures Fund - invest in clean energy technology to combat similar charge	Emergency Management Planning (e.g., Emergency Operations Identify potential pilot poins) project
Scenario 2: 9	Blue Acres Program - Pleasantville Extension	Pleasantville & Northfield. Blue Acres program for homes  Bayside Protection: Protect properties and north of Greenfield Ave and south of Bay Drive and east of buffer other lands from bayside flooding.  Category Ave. Evaluate current program and evaluate a lamp is a medium risk asset.  Planning and Regulatory  Planning and Regulatory	Repetitive Loss in the Area: 36 structure elevations (stefan size) and	Ves, has the potential to protect Pleasantville, where SVPs are concentrated (Planning Context - CDC SVI). Potential negative impact to residents in the fills Acres area, although voluntary, close solution for electation.	Buyouk costs N/A Southers		Ongoing Ongoing	NDEP Pleas	ssantville NIDEP Blue Acres Program Yes	is an extendion Master Plan Updates warranted?
Scenario 2: 10	Pleasantville Managed Wetlands - North of Greenfield Ave, South of Bay Drive, East of Edgely Ave.	Natural Resource: Increase wetland area to potest adjacent properties from bayaide flooding.  Plessantville & Northfield: Transform area north of Greenfield Ave and south of Bay Drive and east of Edgely Greenfield Ave and South of Bay Drive and east of Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South of Bay Drive and Edgely Greenfield Ave and South o	Natural Resource Protection after Duy-outs: Iverage popularities to protect repetitive Uses in the Lakes upplit, restoring Uses in the Lakes upplit, restoring Uses in the Lakes upplit, restoring and habitat properties in Pleasartiville from Uses Area Analysis From Lakes Bay, 2070 All (resis N/A bayside flooding, 2017) SIR + Storm Surge workers	Yes, has the potential to protect: Seasonville, where SYPs are concentrated (Planing Context - Supporting Action - Shoreline tourists) CDC SVI).	Adjacent Regular Pressantu Unknown maintenance costs structure			Municigalities NUDE	Shoelian Pitotection NFWF - National Coastal Resilience Fund NOAA - Coastal Resilience Grants for Coastal Communities FEMA - Hazard Mitigation Grant Program (MMCR) - Flood Protection NFWF, Welfs Farge - Resilience Communities Program - Natural ecosystems, Green NFWF - Adaptation through Regional Conservation Projects - Sul, interconnectedness of natural systems NFWF, WMC, EPA - The Five Star and Urban Waters program - Improve stewardship of natural lands, improve water quality and USACE and NFWF - Dredging and Placement Demonstration Projects ACE - Sustainable communities grant program protect, and improve public spaces such as local parks, natural areas, and recreation resources	Conservation planning
Note: Fields should be compl	eted based on available information. If a	n action doesn't have known information for all fields, the action should still be included in the list and the unknown fields should be indice	ted with "Unknown".							

[\*\*Survey Logic Statement: Answer yes or no to the following questions. If answers are yes, continue to the evaluation tool. If any answers are no, return to the scenario development phase and improve the scenario to address the indicator. \*\*]

Vision Indicator	Does the Resilience and Adaptation Scenario support the overall community vision? YES
Risk Indicator	Does the Resilience and Adaptation Scenario reduce risk/adapt the region to life with risk? YES
Cost Indicator	Is the overall scenario cost effective? YES
Capacity Indicator	Does the region have the capability and capacity to implement the Resilience and Adaptation Scenario? YES
Environmental Indicator	Does the Resilience and Adaptation Scenario use nature-based solutions to enhance the local environment? YES
Adaptation/Timeframe Indicator	Has a timeline for implementation of each Resilience and Adaptation Scenario action been established? YES
Outreach and Partnership Indicator	Does the Resilience and Adaptation Scenario take into consideration community engagement and outreach? YES
Health and Populations Indicator	Does the Resilience and Adaptation Scenario equally strengthen health outcomes and the overall resilience of diverse populations? YES
Socio-Economic Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region? YES
Additional Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region?

## **Scenario Evaluation Tool**

#### Ranking



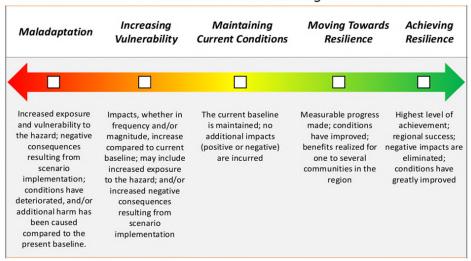
Once planning teams have developed resilience and adaptation scenarios, the following questionnaire should be used to evaluate how successfully the scenarios align with the resilience indicators. The gradient scale ranges from 2 (highest score, strongly agree) to -2 (lowest score, strongly disagree) to indicate the agreement for each question below. PLEASE FILL OUT THE RANKING SCORES IN COLUMN C TO PROVIDE INPUT FOR THE GENERATION OF THE SCENARIO EVALUATION GRAPHIC. REMEMBER TO ENABLE MACROS AND HIT THE "UPDATE CHART" BUTTON TO CREATE THE SCENARIO GRAPHIC.

- 2: Strongly Agree
- 1: Agree
- 0: Neutral
- -1: Disagree
- -2: Strongly Disagree

The mode score of each resilience indicator's section, indicates the resilience ranking for that particular indicator, using the following resilience scale. The average of all the indicators corresponds to the overall resilience ranking for the resilience and adaptation scenario as a whole. The scale is as follows:

- 2: Achieving Resilience: Highest level of achievement; regional success; negative impacts are eliminated; conditions have greatly improved;
- 1: Moving toward Resilience: Measurable progress made; conditions have improved; benefits realized for one to several communities in the region;
- 0: Maintaining Current Conditions: The current baseline is maintained; no additional impacts (positive or negative) are incurred;
- -1: Increasing Vulnerability: Impacts, whether in frequency and/or magnitude, increase compared to current baseline; may include increased exposure to the hazard; and/or increased negative consequences resulting from scenario implementation;
- -2: Maladaptation: Increased exposure and vulnerability to the hazard; negative consequences resulting from scenario implementation; conditions have deteriorated, and/or additional harm has been caused compared to the present baseline.

## Vision Indicator Ranking



Actions such as elevating buildings and other community characteristic changes align with the identity of the region outlined in the vision.  7 in the vision.  All regional values have the support of a least on eaction in the scenario.  1 in the scenario accounts for ongoing and expected demographic or economic trends.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.  1 in the scenario region protects and enhances access to cultural assets.  2 in the scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.  2 in the scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.  2 in this state of the scenario is expected of all actions in the scenario are implemented.  3 in this state is a state of the scenario is expected of all actions in the scenario are implemented.  4 in the continuity of operations of assets/services without pulps access to a protected financial access to the scenario of assets/services without pulps accisions are protected from future flood risk (i.e. Meals-on-this state).  3 in the continuity of operations of assets/services without pulps accisions are protected from future flood risk (i.e. Meals-on-this state).  4 in the continuity of oper	Number		Rank	Explain
In the vision.  If the resilience and adaptation scenario supports the overall community vision.  All regional values have the support of all losts one action in the scenario.  All regional values have the support of all losts one action in the scenario.  If sison-4  All regional values have the support of all losts one action in the scenario.  If seconario protects and adapts historic for opengine and support of expected demographic or economic trends.  If sison-6  The scenario protects and adapts historic properties without compromising the historic integrity of the resource.  If sison Mode  In the scenario protects and mitigates loss of the community's critical facilities and lifetimes and their functions.  It is statistical infrastructure (i.e. road/way, utilities, etc.) are protected fall actions in the scenario are implemented.  It is statistic recidential areas are protected if all actions in the scenario are implemented.  It is statistic recidential areas are protected if all actions in the scenario are implemented.  It is continuity of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals on the community) of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals on the region has the current financial capacity to implement the scenarios without external assistance or has identified financial assistance or has identified on the scenarios are protected from future flood risk (i.e. Meals on the region has the would allow the region to complete actions (e.g. FEMA HiMA funding, levying new taxes, municipal bonds).  In the region has the current staffing capacity or has identified opportunities to establish staffing capacity to implement and maintenance costs and the responsible parties have been identified.  In the region has the current staffing capacity or has identified opportunities to establish targibilities to sustain the scenario's long-term management and maintenan actions associated with the scen	Vision-1	The scenario accounts for changes in planned or expected development within the community.	1	
All regional values have the support of a least one action in the scenario.  All regional values have the support of a least one action in the scenario.  It scenario accounts for ongoing and supected demographic or economic trends.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access to the community's critical facilities and lifetimes and their functions.  The scenario protects and enhances access to cultural assets.  The scenario protects and enhances access and the enhances access and increased and enhances.  The continuity of operations of assets/services without physical locations are protected if and actions in the scenario are implemented.  The region has the current financial capacity to implement the scenarios without external assistance or has identified financial assistance measures that would allow the region to complete actions (e.g., FEMA HMA funding, levying new traves, municipal bonds).  The region has the current financial capacity to implement the scenarios without external assistance or has identified financial assistance enhances enhanced assistance and access and the responsible parties have been identified.  The conditional protects and the scenario is less than the financial benefits/loss reduct		Actions such as elevating buildings and other community characteristic changes align with the identity of the region outlined		
All regional values have the support of at least one action in the scenario.  1	Vision-2	in the vision.	1	
It has centario accounts for ongoing and expected demographic or conomic trends.  It has scenario protects and enhances access to cultural sasests.  The scenario protects and enhances access to cultural sasests.  The scenario protects and enhances access to cultural sasests.  The scenario protects and enhances access to cultural sasests.  The scenario protects and enhances access to cultural sasests.  The scenario protects and enligates loss of the community's critical facilities and lifelines and enhances in the scenario access and their functions.  Sisk-1  Sisk-1  Sisking pricinal enhances and enligates loss of the community's critical facilities and lifelines has demained an emplemented.  Sisking pricinal enhances and enligates loss of the community's critical facilities and lifelines and enlines the scenario are implemented.  Sisking pricinal enhances are protected filed actions in the scenario are implemented.  The continuity of operations of assets/senices without physical locations are protected from future flood risk (i.e. Meals-on-Wheels)  Sisk Mode  The region has the current financial capacity to implement the scenarios without external assistance or has identified financial assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes, municipal bonds).  Sisk Mode  The region has the current standing capacity to implement extending the scenario standing assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes, municipal bonds).  Sisk Mode  The region has current standing capacity to implement extending the scenario standing assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes, municipal bonds).  The region has current standing capacity or has identified opportunities to establish staffing capacity to implement and animation actions associated with the scenario.  The region has current staffing capacity or has identified opportunities to establi	Vision-3	The resilience and adaptation scenario supports the overall community vision.	2	
Asion-6 If the scenario protects and enhances access to cultural assets. Infaion-7 The scenario protects and enhances access to cultural assets. Infaion-7 The scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario protects and enhances access to cultural assets. It is scenario are implemented. It is	Vision-4	All regional values have the support of at least one action in the scenario.	1	
Asion-7 The scenario protects and adapts historic properties without compromising the historic integrity of the resource. 0    Institute	Vision-5	The scenario accounts for ongoing and expected demographic or economic trends.	1	
In the scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.   2	Vision-6		1	
The scenario protects and mitigates loss of the community's critical facilities and thefin unctions.  Side Scienting critical infastructure (is. cadaves, utilities, et.) are protected if all actions in the scenario are implemented.  Disting residential areas are protected if all actions in the scenario are implemented.  The continuity of operations of asset/services without physical locations are protected if all actions in the scenario are implemented.  The continuity of operations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of operations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of perations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of perations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of perations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of perations of asset/services without physical locations are protected from future flood risk (i.e., Meals on-wheels) of perations of asset services are protected from future flood risk (i.e., Meals on-whels) of perations of asset services are protected from future flood risk (i.e., Meals on-whels on-wheels) of perations of asset services are protected from future flood risk (i.e., Meals on-whels on-whel	Vision-7	The scenario protects and adapts historic properties without compromising the historic integrity of the resource.	0	
Sixting residential areas are protected if all actions in the scenario are implemented.  Sixting residential areas are protected if all actions in the scenario are implemented.  Sixting residential areas are protected if all actions in the scenario are implemented.  The continuity of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals-on-Wheels)  Wheels)  The region has the current financial capacity to implement the scenarios without external assistance or has identified financial assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes, municipal bonds).  Sixting and a service of the scenario is less than the financial benefits/loss reductions.  The overall cost of the scenario is less than the financial benefits/loss reductions.  The vironmental remediation costs and the responsible parties have been identified.  Sixting sources and cost for each action have been identified.  The region has current staffing capacity or has identified opportunities to establish staffing capacity to implement and maintain actions associated with the scenario.  The region has the current capabilities or has identified opportunities to establish capabilities to sustain the scenario's long-turn management and maintenance requirements (including likely replacement of actions with a limited lifespan).  The legal requirements of management and maintenance have been considered.  The planning team has determined which entities will be the local champion (municipal or NGO's) to help advocate for the selected scenario.  The scenario supports resident and business owner capacity to build resilience in alignment with developed policies, zoning changes, better the scenario.  The scenario indign code changes, etc.  1 conviornmental-1  Actions increase thoughlain management and maintenance have been considered.  1 conviornmental-2  Actions increase the use of nature based stormwater management.  1 conviornmental-3  The scenario indign c	Vision Mode		1	
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Environmental-6 with water. 1  Environmental Mode 1  The scenario actions account for changes in risk conditions, such as shifts in water levels, rainfall rates, storm intensities, and the natural environment. 1  Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or monitoring to maintain intended level of protection. 1  Scenario actions are designed to be initiated in phases and completed to adequately address both current and future	Environmental-5	The scenario incorporates green infrastructure as a flood mitigation strategy.	-1	
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Adaptation/Timeframe-1 the natural environment.  Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or monitoring to maintain intended level of protection.  Scenario actions are designed to be initiated in phases and completed to adequately address both current and future	Environmental Mode		1	
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Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or monitoring to maintain intended level of protection.  Scenario actions are designed to be initiated in phases and completed to adequately address both current and future	Adaptation/Timeframe-1	the natural environment.	1	
Adaptation/Timeframe-2 to maintain intended level of protection.  Scenario actions are designed to be initiated in phases and completed to adequately address both current and future		Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or monitoring		
Scenario actions are designed to be initiated in phases and completed to adequately address both current and future	Adaptation/Timeframe-2		1	
Adaptation/Timeframe-3 conditions.		Scenario actions are designed to be initiated in phases and completed to adequately address both current and future		
	Adaptation/Timeframe-3	conditions.	0	
	-		-	·

I	The scenario identifies keystone action timeframes to track when certain actions need to be completed in order to maintain a		
Adaptation/Timeframe-4	functional scenario.	0	
The state of the s	The scenario includes long term actions that are flexible and able to have the level of protection modified to meet the best	·	
Adaptation/Timeframe-5	available flooding projections.	1	
Adaptation/Timeframe Mode	<u> </u>	1	
	The scenario includes ample community education and outreach to positively influence public opinions regarding adaptation		
Outreach and Partnership-1	and resilience.	1	
Outreach and Partnership-2	The scenario includes actions where the leading organizations are external groups, organizations, and agencies.	2	
Outreach and Partnership-3	The scenario includes actions that involve ample public involvement and citizen participation.	1	
·	The scenario identifies education/outreach actions that are necessary to support some of the most transformative scenario		
Outreach and Partnership-4	actions, requiring public support.	0	
Outreach and Partnership-5	The scenario identifies outreach and education actions that can be led and spearheaded by stakeholders.	0	
Outreach and Partnership Mode		1	
Health and Populations -1	Equity and inclusion for Socially Vulnerable Populations (SVP) are addressed in at least one scenario action.	1	
	The scenario provides mechanisms to facilitate SVP's to be moved to safer locations without contributing to gentrification. Or,		
Health and Populations -2	the scenario provides mechanisms to increase the flood resilience of locations with high densities of SVPs.	1	
	The scenario will result in an improvement in accessibility to public transit, open space, fresh foods, and other community		
Health and Populations -3	services.	1	
	The scenario includes measures to increase public safety, comprehensive health benefits, and meantal health support for the		
Health and Populations -4	region.	1	
Health and Populations -5	Actions protect drinking water and food sources from risks such as flooding contamination or salt water intrusion.	0	
Health and Population Mode		1	
	The scenario supports relevant diversification of the regional economy, to increase the overall economic resilience of the		
Socio-Economic-1	region.	1	
Socio-Economic-2	The scenario includes provisions to protect ratables.	1	
Socio-Economic-3	The scenario includes actions to support the strengthening of the community's overall quality of life.	1	
Socio-Economic-4	The scenario protects/creates sustainable jobs for the region.	1	
	The scenario includes at least one action that supports the inclusion of youth in the implementation of resilience and		
Socio-Economic-5	adaptation strategies.	0	
Socio-Economic Mode		1	



Resilience Indicator	Ranking
Vision	1
Risk	2
Cost	0
Capacity	1
Environmental	1
Adaptation/ Timeframe	1
Heath and Population	1
Socio-Economic	1
Scenario Ranking	1



Appendix A: Resilience Checklist		
Note: Planning Teams should address each pre-requisite before considering each related resilience indicator checklist. The checklist serves to integrate creativity and innovation into the planning process, and to encourage team discussions across a	Checklist	Notes Team utilized checklist during scenario
range of themes throughout development of the regional resilience and adaptation scenarios.		development working sessions
Successful scenarios should consider the following:  1. Evaluation of Vision	✓	
Consensus concerning the region's vision.	<b>√</b>	
☐ Support of expedited achievement of the vision.	✓	
2. Evaluation of Risk and Risk Reduction  ☐ Current and future exposure of critical community assets, facilities and services.	<b>√</b>	MHHW + SLR 2070 (2.4 ft.)
Exposure of critical community assets and facilities at each total water level.		+ (1% annual chance, 24- hr storm event + 10% increase in rainfall)
Exposure of natural community assets and facilities at each total water level.		MHHW + SLR 2070 (2.4 ft.) + (1% annual chance, 24- hr storm event + 10% increase in rainfall)
Potential damages under each flood condition.	<b>√</b>	
<ul><li>Current and future exposure of neighborhoods and mixed-use neighborhoods.</li><li>Exposure of neighborhoods at each total water level.</li></ul>	<b>V</b>	
Potential damages to neighborhoods at each total water level.		
o Demographic profile of areas that are exposed to flooding today or are likely to be exposed to flooding in the future.		
☐ Current and future exposure of economic centers (commercial and industrial areas) that are exposed to flooding today or		
are likely to be exposed to flooding in the future.  © Exposure of economic centers at each total water level.	<b>√</b>	
Potential damages to economic centers at each total water level.		
☐ Flood exposure to economic, cultural, and social impacts from future flooding conditions if actions are not taken.	✓	
Possible shifts of socioeconomic identity of the region.		
o Impacts at each total water level.		
☐ Effectiveness of flood protection provided to critical facilities. For example, can the scenario include traditional flood mitigation actions, such as elevation and floodproofing, enough to <i>prevent</i> service interruptions or to simply <i>protect</i> the		
structure from flood damages?	✓	
☐ Inclusion of non-structural actions or activities such as zoning, policy changes, buy- out programs, dry/wet floodproofing, etc.	<b>√</b>	
☐ Risk reduction, or will the scenario include Resilience and Adaptation Scenarios to reduce risk or adapt the region to life		
with risk?  Multiple benefits to support the goal of a "multiple-benefits" scenario and action design.	✓ ✓	
3. Cost Efficiency		
<ul> <li>□ Cost effective Resilience and Adaptation Scenarios.</li> <li>□ Available funding mechanisms to implement actions and associated cost shares.</li> </ul>	✓ ✓	
☐ Long-term financing of alternatives, or can actions within the Resilience and Adaptation Scenario be budgeted through	•	
long-term financial planning or future funding?	✓	
4. Capacity to Implement	<b>√</b>	
<ul> <li>Staffing capacity of regions to implement and maintain the Resilience and Adaptation Scenario.</li> <li>Staffing or resource capabilities of federal, state, regional, municipal, and private entities to support and advocate the</li> </ul>	<b>V</b>	
Resilience and Adaptation Scenario.	✓	
☐ Capacity of residents and business owners to integrate resilience strategies into their properties.	✓	
☐ Future regulatory or policy changes, or can municipal/state regulations or guidance that currently prohibit the		
implementation of an action be modified to be less restrictive in the future? [Tip: Integrate elements of the resilience and		
adaptation scenario that push the limits of what is possible or legal under current conditions. The resilience and adaptation scenarios can (and should!) be creative, innovative, and even aspirational.	<b>✓</b>	
sections can (and should;) be decative, innovative, and even aspirational.		
5. Environmental/Ecological Enhancement		
☐ Nature-based solutions to enhance the local environment, such as native landscaping, green stormwater design		Scenario 3 provides enhanced emphasis in this
enhancements, and living shorelines.	✓	area.
☐ Improvement of nature-based stormwater management.	✓	
☐ Improvement of floodplain management.	<b>√</b>	
6. Adaptation Over Time		
* PREREQUISITE: Define Short vs. Long-term. Define the time horizon of the scenario and the keystone action of the scenario.		
☐ Iterative approach to adaptation strategies.	✓	
☐ Alternative actions with associated timeframes for completion (short-, medium-, and long term).	✓	
☐ Account for changes in risk conditions over time.	✓	
7. Outreach and Partnerships		
* PREREQUISITE: Develop an engagement process that gives the opportunity for all residents to participate in the planning		
process.  ☐ Community support for short-term actions.	<b>√</b>	
☐ Consideration that current public opinion is likely to shift and evolve over time and that current community support may		
change for medium/long-term actions.	✓	
8. Health and Populations		
* PREREQUISITE: Identify the populations that would benefit from increased accessibility to physical and mental health		
services, transportation, safe drinking water and food sources.		

☐ Increase public safety and accessibility of health services.	✓
☐ Reduce the impact of hazard events on physical and mental health.	✓
☐ Support increased education and with respect to potential health implications of hazard events and future conditions.	
☐ Address key population segments in the community (i.e. tourists, residents, low-income residents, etc.).	✓
9. Socio-Economic Benefits	
☐ Improvement of quality of life (e.g., increased recreational areas, enhanced local character and amenities, access to fresh	
food).	✓
☐ Equity and inclusion of socially vulnerable populations.	✓
☐ Mobility and connectivity of region as it relates to flooding.	✓
☐ Walkable neighborhood design enhancements.	✓
☐ Planning mechanisms to encourage and allow for the relocation of business districts, industrial and commercial zones away	
from future flood risk.	✓
☐ Resilience and Adaptation Scenarios that stimulates economic prosperity and development.	✓
☐ Preservation and protection of civil and human rights.	✓
	•

i I
For Every Ev
Program focused on single parents upport services for relicions w/p est cod service to accummodate element-pecial diets vocastion which can be accummodate people with medical issues or medical devices vocastion personnel training/plaining (e.g., movement of medical equipment, people w/ disabilities, older dud is ni-high-rule buildings) Jourseach and Education Louristent region wide revolution plain information (social media and non-digital channels) consistent region wide revolution plain information (social media and non-digital channels) consistent region wide revolution plain information (social media and non-digital channels) consistent region wide revolution plain information (social media and non-digital channels) which will information essions about resources and programs available for disaster preparation and assistance e.g., access to food, rediction, emclade devolutes, blankets etc. Social Services and Wellness revolutions and wellness revolutions are consistent of the programs and mental health assistant larger special teams to help community members access social service programs and mental health assistant larger special received.
ce Vulnerable Populations: Improve preparedness actions for SVPs
Communication and Outreach / Emergency Managemens
A as
Avoid loss of life in and injury during imparate in a large storm events. SVF
prove emergency preparedness for is
Superstorm Sandy type event 5
Yes - action focused on SVP needs
Supporting Action Connected to Translate all Emergency Preparedness Materials
Unknown N/A
N/A
3025-2030 N/A Short-term action
1-3 years Ongoing
American Red Cross Boys and Girls Club of America
American Red Cross Prepare NJ  Rezoning/Redevelopment: FEMAHazard Mitigation Forant Program (HMGP) — Structural Refortiture of Buldings
Energency  Management Panning- Preparedness  Cvaluate sub-actions

A. Description of Problem to be     A. Action Number: 2. Action Name: 3. Description of the Action: Addressed: 5.	7. Losses Avoided Action Type 6. Losses Avoided Description: 8. Estimated Benefits:	9. Level of 10. Populations 11. Addresses Protection: Addressed? SVP3: 12	14. Estimated Annual 2. Connection to Other Actions: 13. Estimated Cost: Maintenance Cost: Protected:	s 16. Ecological 17. Estimated Start 18. Estimated Lifespan of 20. Lead Area Protected: Decade: Project Duration Action: Organization: 21. Supporting Organizations:	23. Funding 24. Local Planning Currently Mechanisms to be Used 22. Potential Funding Sources: Available: in Implementation: 25. Critical Next Steps 25. Known Obstacles:
Atlantic Corp, Brigantion, Downbeach: Liggrade nisiting streets for subsurface conveyance without place.  Networked Green Infrastructure of fire groundwater reduction through evaportranspiration and structural sols.  Use the readway infrastructure to function as a performative network to mitigate downstream flash flood risks and facilitate infiltration.  1. Water can be collected, stored and slowed down by capitalizing on the depth of the public right of way.  2. A hydrodigic analysis of the existing topography informs the location for the implementation of street adaptations.  3. Bute streets convey water flow while green streets allow infiltration. Together, the roadway infrastructure is amplified to function as a performative network to mitigate downstream flash flood risks and facilitate with the control of the street convey water flow while green streets allow infiltration. Together, the roadway infrastructure is amplified to function as a performative network flow. "Instruction (a). and not oil and as it is under structure, is strong enough to be load-bearing but can also allow tree roots to grow freely and help alsoorh more water in storm." Fast Company 1412—Beach Green Duner Wild Ceaging 401, Vol. All performative landscape clusters for the storm of the structure of the	2 sq. mi. improved dramage for Abbrecon Island and Rigardine + additional caput. Produced subs. Infrastructure in and pedestrian using only Blue of the produced subs. Infrastructure in the produced subs. Infrastructure in an and pedestrian using only Blue of the produced subs. Infrastructure is the produced subs. Infrastructure is the produced subs. Infrastructure is the produced substantial substan	e network to storm event + 10% All (residents, (Planning Context -	Higher Capital costs than regular streets (see elevated roadway). His Deen costed at \$550 SF froadway for stormwater Lower Maintenance 10% increase in ribratructure only. Cost  and fail	2025-2000 Short-term action for gilot projects 2030-2050 MM-term action for for form action fo	Scormwater Management:  INDIAN - Counsal Resilience Grants for Castald Communities.  INDIAN - Hazard Magaintee of Canth for Castald Communities.  INDIAN - Hazard Magaintee Grant Forgram (MMGP) - Flood  Protection  NetW. Wells Stage - Resilient Communities Program - Natural ecosystems, Green Infrastructure, SLR  NWFV. Community Copacity Building and Gemostration  Projects - Advance social cohesion, green infrastructure  Altantic City Euric's Sustanable Communities Grant program - parks and community resilience purpose and program - parks and community resilience purpose and program - parks and community resilience purpose and program - protect, and improve public spaces such as local parks, natural projects (and improve public spaces such as local parks, natural and drift could goterntally fill wolds and improve public spaces such as local parks, natural sease, and recreation resources.  Note that the communities grant program - protect, and improve public spaces such as local parks, natural sease, and recreation resources.  Note that the communities grant program - protect, and improve public spaces such as local parks, natural sease, and recreation resources.  Note that the communities grant program - protect, and improve public spaces such as local parks, natural sease.  Note that the control of the projects (and improve public spaces such as local parks, natural seases).  Note that the control of the projects (and improve public spaces such as local parks, natural seases).  Note that the control of the projects (and improve public spaces such as local parks, natural seases).  Note that the control of the projects (and improve public spaces such as local parks, natural seases).  Note that the control of the projects (and improve public spaces such as local parks, natural seases).  Note that the control of the projects (and the proje
Region: Adapt existing parks and the golf course to serve as stormwater management. Link pumposations' effluent to new vested or parks and the golf course to serve as stormwater management. Link pumposations' effluent to new vested or parks (pather than discharge to the bay). Precedent Mains Basech Golf Course (Parks). The course of stormwater wested parks (pather than discharge to the bay). Precedent Mains Basech Golf Course (Pather Stormwater) and pather stormwater with a park of the pather stormwater with a pather sto	Beduce toss of readway furcision and reduced auto, and geodestrain mobility during high precipitation events. Reduce structure loss from stormwater management sy flush food events. Indige flush flood risks of the participation of the participation and the precipitation events. Reduce structure loss from stormwater management sy flush flood events. Indige flush flood risks.	art of the annual chance 24-hr concentrated system and storm event + 10% All (residents, (Planning Context - Su	6,643 (structures in impacted by 15,24 firewrite 100's increase in machine 15,24 firewrite 100's increase in management Unknown Unknown Unknown	Continued protection of 2025-2030 local person of the continued protection of 2025-2030 local person of the continued protection of 2025-2030 local person of the continued pe	Sommwater Management: NDAA - Casatal Resilience Grants for Coastal Communities (FMA- Hazard Milajore Grant Program (MMG) – Flood Protection NEW, Wells Stagno - Resilient Communities Program Natural ecosystems, Green Infrastructure, SLR NEW - Community Coastal Brain Communities Program Natural ecosystems, Green Infrastructure, SLR NEW - Community Coastal Brain Communities Grant program – parks and community resilience NUICP and New Jessey Evinonmental infrastructure Trust (Trust) - Rew Jessey Environmental Infrastructure (Trust) - Rew Jessey Environmental Infrastructure (Trust) - Rew Jessey Environmental Infrastructure (Trust) - Rew Jessey
Pleasantville, Northfield: Create new 'storm water management parks' on city-controlled land. Link pump stations' effluent to new wetland parks. Initial conceptual siting analysis completed using clusters of critical assets and vulnerable populations. Additional assessment necessary to determine feasibility. Northfield: Birth Grove Plant voul be retroffield with large state constructed wetland, biorelestion, changes in sol land suburface characteristics to increase storage capacities including implementation of lines, undoor retroffield in the control of the plant of the	Reduce loss of readway function and refused auto, and the refused auto, and refuse	Yes, has the potential to mind to project the potential to mind to project the potential to mind to project the potential to mind the potential to mental the potential to the potential to the potential to the potential to the potential the	6,643 (structures in impacted by 15 28th cent in 1995 of 18 28th cent in 1995		It is recommended to obtain/create a model that includes a storm sever network as well as the impact of in on bording to identify flocation of sever backups to factor that into the feasibility analysis.  Interest to "rebuild and strengthen their travel, to be used to "rebuild and strengthen the strengthen their travel, to be used to the strengthen their travel, to be used to "rebuild and strengthen their travel, to be used to "rebuild and strengthen their travel, to be used to "rebuild and strengthen their travel, to be travel, to the strengthen their travel, to be used to "rebuild a
Region: -  Support weatherization of homes that can retain heat or cooling during a power outage  Support solar with battery (nanogrid) at all buildings (examples: rooftop solar, solar tretiles on parking garages and large rooftop, Single howing rooftop solar)  Incovarge to directional charging for electric vehicles at all buildings (examples: rooftop) solar, solar tretiles on parking garages and large rooftop, Single howing rooftop solar)  Incovarge to directional charging for electric vehicles at all buildings (exit vehicles to building integration) - Incovarge to directional charging for electric vehicles and all buildings (exit vehicles will integrate into the microgrid and become a larger energy storage system than the standsione systems.  Solar Roofs Cudidates Beatlient Energy Retrofte   San Juan, Puerto Rico   Designed by Local Office This solar ranogrid powers the supermarket on the ground floor, allowing the doors to stay open during a Balkoot to provide produce for thoursands of people in San Juan. The relient energy system survived runtriceme Maria intict unlike standed arrays that were shattered during the storm  Develop policies/incentives that promote energy resiliency at all residences/f businesses during  Develop provider produces for a commercial facility and affordable housing that is critical to the community. A shipping container based battery will be added in the future to provide grower resiliency to top critical be about our provider produces for the future to provide of grid capacity at right.  Provide power resiliency to top critical to select the control of grid capacity at right.  Provide power resiliency to top critical to select the control of grid capacity at right.	The appeal of the VZX soluting flexible and able to be implied and solution to be implied anywhere, at essentially support to home installations could be implied anywhere, at essentially with the control of the solution of the solution of the size. The installation is of the size o	plemented yes, Les hierard yes, Les hierard yes, Les hierard yes, Les hierard potential to potential p	33,668 (all structures in the Action Planning Costs - Unknown N/A ACCR region)	Fermata Energy is a the nation's leader in proven V2X systems. They design, supply, and operate poleronering, pastends fectoring, and the electricity grid. They have a proving solution of the electricity grid. They have a proving solution of the electricity grid. They have grown and the electricity grid. They have grown and incentives are grid technology. Their integration approach involves utilizing electric vehicles and incentives grid sectoring assets that can aid in combating climate change assets that can aid in combating climate change (2009-2050).	US DOE - State Energy Program and Weatherization Assistance Program Microsoft - Breakthrough Energy Ventures Fund - invest in clean energy tendogly to combat de imake change to look on the control of t
Rezone parcels adjacent to Gardner's Basin and Delta Basin Basin General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardner's Basin and Delta Basin to introduce Industrial and Blue General Exposure parcels adjacent to Gardne	Avoid losses to adjacent extensive extensive extensive extensive extensive analysis of similar to builthead anning and Regulatory about Cry.	Yes, has the potential to potential to potential to positively impact Atlantic Cxy, where SVPs are concentrated SVPs are someonated with the SVPs are concentrated Svegor Workers OC 500, 6 for	supporting Action - connected to guitable Economic Growth Actions Planning Costs - Unknown N/A Unknown	No Mil-tern action 5-10 years Ongoing Atlantic City TBD	Rezoning/Redevelopment: FEMA - Hazer Minigation Grant Program (MMGP) — Structural Returning of Buildings Structural Resulting of Buildings Structural Resulting of Buildings Structural Resulting of Buildings GOAD - The Clasion Reinvestment Development Authority (IGOA) Altantic City Redevelopment Program USDOT - Better Utilizing Investments to Leverage Development (Build) Grant Program US DOE - State Energy Program and Westherization Assistance Program US DOE - State Energy Program and Westherization Assistance Program US DOE - Wind Energy Technologies Office (WTO) research, development, and demonstration projects will help the industry overcome key barriers to offshore wind development. New Jersy Appier Tax Credit Program New Jersy Appier Tax Credit Program New Jersy Appier Tax Credit Program Redevelopment US DOE - Wind Company (Indiana) Redevelopment US DOE - Wind Company (Indiana) Redevelopment US DOE - Wind (Indiana) Redevelopment (Indiana) Redevel
Long-term redevelopment in line with lateral mariner and blue economy, band uses. Dependent on if fand becomes available.  Current Cost Guard use is also related to blue economy. The air station's, at the airport current mission, focuses on the commission U.S. Costs:  Gueron Station Asteric City.  Gueron Station Asteric City.  and redevelop for Blue and rescue, blue officement, port security, and marine environmental and rescue, blue reforement, port security, and marine environmental to the commission of the c	Losses avoided dependent on long term development. Embedded term in the interim leverage conomic development are the conomic development are t	age Coast Guard Atlantic City, where ted to marine SVPs are concentrated	upporting Action: Equitable conomic Development   Planning Costs - Unknown   N/A   Unknown	No Long-term action redevelopment Ongoing Coast Guard Atlantic City	TEMM - **Leaved Mitigation Grant Program (MMGP) — Structural Retrofiting of Buildings  DIG FEMA - The Flood Mitigation Assistance (FMA) Program - risk of retroite Mood damage  CIDA.* The Casino Reinvestment Development Authority (CIDA) Altantic CIDA (PMC - PMC - P

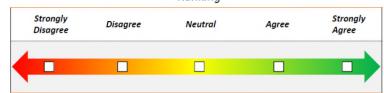
Action Number: 2. Action Name: 3. Description of the Action:	4. Description of Problem to be Addressed:	S. Action Type 6. L	7. Losses Avoided osses Avoided: Description:	9. Estimated Benefits: Pr	). Level of 10. Protection: Ad	. Populations 11. Addresses idressed? SVPs?:	12. Connection to Other Actions:	13. Estimated Cost:	14. Estimated Annual 15. 8 of Structure Maintenance Cost: Protected:	116. Ecological 17. Estimated Star Area Protected: Decade:	19. Total  18. Estimated Lifespan of 20. Project Duration Action: Org	Lead anization: 21. Supporting Organizations:	Curr	unding 24. Local Planninently Mechanisms to bable?: in Implementati	is to the control of	26. Known Obstacles:
Black Horse Pike Strategic Scenario 3: 9 Growth Confidor Country Drainage Project) for create new boulevand as corridor for exconomic development in Pleasantville	Equitable Economic Growth: Create a setting for new development in an area that less prone to flooding. Critical Fallisier: Potential to protect tick cluster of critical at risk sasets on the western end of Black Horse Pi	Panning and Regulatory N//	Minigate Rooding road-min flooding function, evacuation route impacts, emergency services.	Protect local commerce and roadway function and increase economic development.	All Precipitation events wo	Yes, has the potential in page of the potential of the po	Supporting Action: Equitable Economic Development	Planning Costs - Unknown	M/A M/A	2030-2050 No Mid-tern action	5-10 year redevelopment Ongoing Plea	nantville TBD	Recurring/Index-exispented ISSA- Nature Magation for an Program (MMGP) Structural Retrofiting of faultings IOF ERMA The Flood Mitigation Assistance (FMA) Program – risk of repetitive flood damage CIDA - The Cland Mitigation Assistance (FMA) Program – risk of repetitive flood damage CIDA - The Claim Generation Development Authority (CROA) ISSO - Certification Compania USSO - Certification Compania View (Certification Compania) View (Certification Certification Compania View (Certification Certification Cer	Redevelopment planning/Matter (2025 yelder)	Plan identify boundaries for economic development project. Determine long-term protection measures for Black Horse Pike for large storm events/storm surge.	Fortifying Black Horse Pille to a Sandy like event would require road raising of "7 feet."
Upzone arreas in Les  Atlantic City, Pleasantville: Upzone arreas in less vulnerable (High and Dry') areas with access to housing as to incentivize increased development.	Equitable Economic Development/Vulnerable Populations: In Jobo Increase access to safe and affordable housing.	Planning and Regulatory N/		Less area to protect Wore choices of where to locate business of refuge when the protect of refuge from the protect from the protec	ilR 2070 + Storm urge Ree	Yes, will positively impact Attantic City and Penantivelie, where SVPs are compared to the com	Supporting Action - Equitable Economic Devolument	Pfanning Costs - Unknown	N/A N/A	2030-2059 No Mid-tern action	5-10 years Ongoing Mur	nicipalities 780	Resoning/Redevelopment FEMA - Hazard Mitigation facin through in (MAGP) — Structural Retrofitting of Buildings OHS FEMA - The Flood Mitigation Assistance (FMA) Program - risk of repetitive flood damage CDA - The Calon Reinvestiment Development Authority (EXOA) Author Corp. Redevelopment Program Author Corp. Redevelopment Program USO CO: State (Halizage investments to teverage Development (BUILD) Great Program US ODC: State Energy Program and Weatherization Assistance Program US DOC: World Energy Program and Weatherization Assistance Program US DOC: World Energy Program and Weatherization Assistance Program US DOC: World Energy Program after the order to the order Research, development, and demonstration projects will help the industry overcome key larer tes to district owing development Keng Environment Program. Stalling the climate- resilience field by supporting activities to disseminate and Write to sale promiting climate-enlinence agreembles. No	Redevelopment Planning	ldentify uproning areas	Displacement considerations
Study for increased density to eccommodate more affordable housing options.  Region: Example - Atlantic Chy Commercial Corridor and Black Hone Pike Corridor, Invest in / Incentivize for the region's existing exidents (workforce etc.)  Region: Example - Atlantic Chy Commercial Corridor and Black Hone Pike Corridor, Invest in / Incentivize for the region's existing exidents (workforce etc.)  Transit and Johns		Planning and Regulatory N/A		Less area to protect  More choices of where to locate  Prosimity of refuge  Frosters social cohesion  Frants and evacuation  Compact Urbaniani, Costal Cities: Texas St.  &&M. Agrild's Extension)	J.R 2070 + Storm urge Res	Yes, will positively impact Alstract City, as well as some series of the	Supporting Action - Equitable Economic Development	Planning Costs - Unknown	N/A N/A	2030-2050 No Mid-term action	5-10 years Ongoing Mur	nicipalities TBD	Reconing/Redevelopment:  FEMA - Hazard Mitigation Grant Program (MMGP) – Structural Recording of Buildings  INS FEMA - The Facil Mitigation Assistance (FMA)  ORA - The Casion Selement Assistance (FMA)  Attentic CLasion Selement Program  USDOT - Better Utilizing Investments to Leverage Development (IRULI) Grant Program  USDOT - Setter Utilizing Investments to Leverage Development (IRULI) Grant Program  US DOS - State Energy Program and Weatherization Assistance Program  US DOS - Weather Company  US DOS - Wea	Establish Consensor trust essements Fransfer Devision Rights program	or oment	Displacement considerations
Note: Fields should be completed based on available information. If an action doesn't have known information for all fields, the action should still be included.	in the fat and the unknown fields should be indicated the state of the	ed with "Unknown".														

[\*\*Survey Logic Statement: Answer yes or no to the following questions. If answers are yes, continue to the evaluation tool. If any answers are no, return to the scenario development phase and improve the scenario to address the indicator. \*\*]

Vision Indicator	Does the Resilience and Adaptation Scenario support the overall community vision? YES
Risk Indicator	Does the Resilience and Adaptation Scenario reduce risk/adapt the region to life with risk? YES
Cost Indicator	Is the overall scenario cost effective? YES
Capacity Indicator	Does the region have the capability and capacity to implement the Resilience and Adaptation Scenario? YES
<b>Environmental Indicator</b>	Does the Resilience and Adaptation Scenario use nature-based solutions to enhance the local environment? YES
Adaptation/Timeframe Indicator	Has a timeline for implementation of each Resilience and Adaptation Scenario action been established? YES
Outreach and Partnership Indicator	Does the Resilience and Adaptation Scenario take into consideration community engagement and outreach? YES
Health and Populations Indicator	Does the Resilience and Adaptation Scenario equally strengthen health outcomes and the overall resilience of diverse populations? YES
Socio-Economic Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region? YES
Additional Indicator	Does the Resilience and Adaptation Scenario strengthen/diversify the social, cultural, and economic characteristics of the region?

## **Scenario Evaluation Tool**

#### Ranking



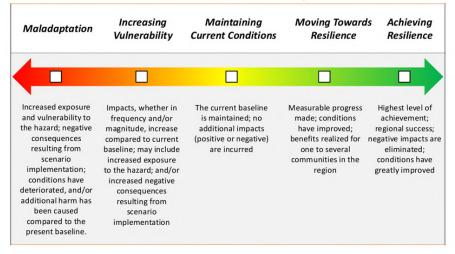
Once planning teams have developed resilience and adaptation scenarios, the following questionnaire should be used to evaluate how successfully the scenarios align with the resilience indicators. The gradient scale ranges from 2 (highest score, strongly agree) to -2 (lowest score, strongly disagree) to indicate the agreement for each question below. PLEASE FILL OUT THE RANKING SCORES IN COLUMN C TO PROVIDE INPUT FOR THE GENERATION OF THE SCENARIO EVALUATION GRAPHIC. REMEMBER TO ENABLE MACROS AND HIT THE "UPDATE CHART" BUTTON TO CREATE THE SCENARIO GRAPHIC.

- 2: Strongly Agree
- 1: Agree
- 0: Neutral
- -1: Disagree
- -2: Strongly Disagree

The mode score of each resilience indicator's section, indicates the resilience ranking for that particular indicator, using the following resilience scale. The average of all the indicators corresponds to the overall resilience ranking for the resilience and adaptation scenario as a whole. The scale is as follows:

- 2: Achieving Resilience: Highest level of achievement; regional success; negative impacts are eliminated; conditions have greatly improved;
- 1: Moving toward Resilience: Measurable progress made; conditions have improved; benefits realized for one to several communities in the region;
- 0: Maintaining Current Conditions: The current baseline is maintained; no additional impacts (positive or negative) are incurred;
- -1: Increasing Vulnerability: Impacts, whether in frequency and/or magnitude, increase compared to current baseline; may include increased exposure to the hazard; and/or increased negative consequences resulting from scenario implementation;
- -2: Maladaptation: Increased exposure and vulnerability to the hazard; negative consequences resulting from scenario implementation; conditions have deteriorated, and/or additional harm has been caused compared to the present baseline.

#### Vision Indicator Ranking



Number	Statement	Rank	Explain
Vision-1	The scenario accounts for changes in planned or expected development within the community.	1	
	Actions such as elevating buildings and other community characteristic changes align with the identity of the region		
Vision-2	outlined in the vision.	2	
Vision-3	The resilience and adaptation scenario supports the overall community vision.	2	
Vision-4	All regional values have the support of at least one action in the scenario.	2	
Vision-5	The scenario accounts for ongoing and expected demographic or economic trends.	1	
Vision-6	The scenario protects and enhances access to cultural assets.	1	
Vision-7	The scenario protects and adapts historic properties without compromising the historic integrity of the resource.	0	
Vision Mode		1	
Risk-1	The scenario protects and mitigates loss of the community's critical facilities and lifelines and their functions.	2	
Risk-2	Existing critical infrastructure (i.e. roadways, utilities, etc.) are protected if all actions in the scenario are implemented.	2	
Risk-3	Existing residential areas are protected if all actions in the scenario are implemented.	1	
Risk-4	Existing business districts, industrial and commercial zones are protected if all actions in the scenario are implemented.	1	
	The continuity of operations of assets/services without physical locations are protected from future flood risk (i.e. Meals-on-	_	
Risk-5	Wheels)	2	
Risk Mode	<u> </u>	2	
			<del>                                     </del>
			Decentralized approach - overall
	The region has the current financial capacity to implement the scenarios without external assistance or has identified		goal is to identify financial
	financial assistance measures that would allow the region to complete actions (e.g. FEMA HMA funding, levying new taxes,		assistance measures at
Cost-1	municipal bonds).	1	municipality level
Cost-2	The overall cost of the scenario is less than the financial benefits/loss reductions.	1	,,,
Cost-3	Annual maintenance costs and the responsible parties have been identified.	1	
Cost-4	Environmental remediation costs and the responsible parties have been identified.	0	
Cost-5	Funding sources and cost for each action have been identified.	0	
Cost Mode	Tunuing Jources and cost for each action have been actinitied.	1	
Cost Mode	The region has current staffing capacity or has identified opportunities to establish staffing capacity to implement and	-	
Capacity-1	maintain actions associated with the scenario.	1	
Capacity-1		_	
	The region has the current capabilities or has identified opportunities to establish capabilities to sustain the scenario's long-		
Capacity-2	term management and maintenance requirements (including likely replacement of actions with a limited lifespan).	1	
Capacity-3	The legal requirements of management and maintenance have been considered.	0	
	The planning team has determined which entities will be the local champion (municipal or NGO's) to help advocate for the		
Capacity-4	selected scenario.	1	
	The scenario supports resident and business owner capacity to build resilience in alignment with developed policies, zoning		
Capacity-5	changes, building code changes, etc.	2	
Capacity Mode		1	
Environmental-1	Actions generate or preserve green space/open space.	2	
Environmental-2	Actions improve air and water quality or reduce pollutants (including greenhouse gas emissions).	2	
Environmental-3	Actions increase floodplain management capacity and impacts.	2	
Environmental-4	Actions increase the use of nature-based stormwater management.	2	
Environmental-5	The scenario incorporates green infrastructure as a flood mitigation strategy.	2	
L	The scenario identifies how to incorporate water into the community, including strategies that support the philosophy of		
Environmental-6	living with water.	2	
Environmental Mode		2	
	The scenario actions account for changes in risk conditions, such as shifts in water levels, rainfall rates, storm intensities,		
Adaptation/Timeframe-1	and the natural environment.	2	
	Some actions have been developed to be adaptable, including the requirement of increased maintenance and/or		
Adaptation/Timeframe-2	monitoring to maintain intended level of protection.	2	
	Scenario actions are designed to be initiated in phases and completed to adequately address both current and future		
Adaptation/Timeframe-3	conditions.	1	
	The scenario identifies keystone action timeframes to track when certain actions need to be completed in order to maintain		
Adaptation/Timeframe-4	a functional scenario.	0	
			•

1	The scenario includes long term actions that are flexible and able to have the level of protection modified to meet the best		1
Adaptation/Timeframe-5	available flooding projections.	2	
Adaptation/Timeframe Mode		2	
	The scenario includes ample community education and outreach to positively influence public opinions regarding		
Outreach and Partnership-1	adaptation and resilience.	1	
Outreach and Partnership-2	The scenario includes actions where the leading organizations are external groups, organizations, and agencies.	2	
Outreach and Partnership-3	The scenario includes actions that involve ample public involvement and citizen participation.	1	
	The scenario identifies education/outreach actions that are necessary to support some of the most transformative scenario		
Outreach and Partnership-4	actions, requiring public support.	0	
Outreach and Partnership-5	The scenario identifies outreach and education actions that can be led and spearheaded by stakeholders.	0	
Outreach and Partnership Mode		1	
Health and Populations -1	Equity and inclusion for Socially Vulnerable Populations (SVP) are addressed in at least one scenario action.	1	
	The scenario provides mechanisms to facilitate SVP's to be moved to safer locations without contributing to gentrification.		
Health and Populations -2	Or, the scenario provides mechanisms to increase the flood resilience of locations with high densities of SVPs.	2	
	The scenario will result in an improvement in accessibility to public transit, open space, fresh foods, and other community		
Health and Populations -3	services.	1	
•	The scenario includes measures to increase public safety, comprehensive health benefits, and meantal health support for		
Health and Populations -4	the region.	1	
Health and Populations -5	Actions protect drinking water and food sources from risks such as flooding contamination or salt water intrusion.	0	
Health and Population Mode		1	
	The scenario supports relevant diversification of the regional economy, to increase the overall economic resilience of the		
Socio-Economic-1	region.	1	
Socio-Economic-2	The scenario includes provisions to protect ratables.	1	
Socio-Economic-3	The scenario includes actions to support the strengthening of the community's overall quality of life.	2	
Socio-Economic-4	The scenario protects/creates sustainable jobs for the region.	1	
	The scenario includes at least one action that supports the inclusion of youth in the implementation of resilience and		
Socio-Economic-5	adaptation strategies.	0	
Socio-Economic Mode		1	

