



# STRATEGIC RECOVERY PLANNING REPORT

## POST SANDY PLANNING ASSISTANCE GRANT



### ATLANTIC COUNTY, NEW JERSEY

NEW JERSEY DEPARTMENT OF COMMUNITY AFFAIRS  
OFFICE OF LOCAL PLANNING SERVICES

2014 DRAFT

PREPARED BY: HEYER, GRUEL & ASSOCIATES



## ACKNOWLEDGEMENTS

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## TABLE OF CONTENTS

1	INTRODUCTION
3	COUNTY PROFILE: ATLANTIC COUNTY
7	BACKGROUND DOCUMENTS
13	IMPACT ASSESSMENT & SUMMARY OF VULNERABILITIES/ OPPORTUNITIES
35	APPROACHES TO REBUILDING
39	RECOMMENDATIONS & PROPOSED PROJECTS



## INTRODUCTION

In October of 2012, Super Storm Sandy devastated New Jersey when the storm came on shore creating wide spread power outages, fuel shortages, and damage from high winds and flooding. Super Storm Sandy made landfall in Atlantic County, just south of Atlantic City at 8pm on October 29, 2012. The barrier island communities in the County bore the brunt of the storm's affects leading to mandatory evacuations, severe flooding, and large amounts of property damage. The Atlantic County Strategic Recovery Planning Report will help to organize the County's recovery efforts and identify further funding sources for planning related recovery efforts from the State of New Jersey. The report includes:

- Assessment of impacts from Super Storm Sandy on the County
- Summarization of the County's vulnerabilities created or exacerbated by the storm
- Identification of approaches to rebuilding that will be more resistant to damage and reduce vulnerabilities from future storm events
- Recommendations and prioritization of County actions to promote recovery from the effects of Sandy



*Photo Credit: H. Whitey Swartz*

Damage along Route 322 in Pleasantville



*Photo Credit: H. Whitey Swartz*

Destroyed Boardwalk on Jersey Shore in Atlantic County

- Description of proposed projects specifically related to an application for a NJ Department of Community Affairs' Post Sandy Planning Assistance Grant.
- Mapping the areas of critical current and future vulnerability, including FEMA flood plain zones and elevation requirements.

This report is intended to provide guidance for future planning related projects that may be eligible for grant funding under the Post Sandy Planning Assistance Grant program. As part of the Post Sandy Planning Assistance Grant program, Atlantic County was awarded funds to complete this report.



*Photo Credit: H. Whitey Swartz*

Debris and Damaged Homes in Atlantic County

### **Post Sandy Planning Assistance Grant**

The Strategic Recovery Planning Report is the first step in the larger Post Sandy Planning Assistance Grant Program administered by the New Jersey Department of Community Affairs, Office of Local Planning Services. The overall goal of the Post Sandy Planning Assistance Grant program is to support long range planning for redevelopment in communities and counties that sustained damage during Super Storm Sandy in October 2012. The grant program is intended to provide counties and local municipalities with planning support services to develop community recovery plans that strategically address the issues confronting them. The program's mission also includes providing local governments with tools needed to efficiently manage municipal operations, supplementing the ongoing efforts of the storm-impacted local and county governments to rebuild and revitalize.

## COUNTY PROFILE: ATLANTIC COUNTY

Atlantic County is located on the outer coastal plain of southern New Jersey, approximately 100 miles south of New York City and 60 miles east of Philadelphia. The County includes 23 municipalities within 671 square miles. These include:

- Absecon
- Atlantic City
- Brigantine
- Buena Boro
- Buena Vista Township
- Corbin City
- Egg Harbor City
- Egg Harbor Township
- Estell Manor
- Folsom Borough
- Galloway Township
- Hamilton Township
- Hammonton
- Linwood
- Longport
- Margate
- Mullica Township
- Northfield
- Pleasantville
- Port Republic
- Somers Point
- Ventnor
- Weymouth

Atlantic County's 2013 estimated population was 275,862, which is a .5% increase from the 2010 US Census population of 274,459 people. Egg Harbor Township (43,323 people) and Atlantic City (39,558 people) are the most populous municipalities within the County. To the East, the County borders the Atlantic Ocean with two narrow, flat, barrier beach islands: Brigantine and Absecon. The northern boundary is the Mullica River with the Great Egg Harbor and Tuckahoe Rivers forming the southern border. The estuaries of these rivers and the bays behind the barrier islands encompass wide areas of salt marsh.

Most of the interior of the County is part of the Pine Barrens region, a unique ecological area whose vegetation responds to acidic soil and water conditions. Inland areas within Buena Boro, Buena Vista Township, Egg Harbor City, Hammonton, Galloway Township, and Hamilton Township contain prime agricultural land supporting a significant area of upland agriculture including both row crops and orchards.

Along the Atlantic Coast, the County has a series of barrier island and bayside communities. These communities were impacted by Super Storm Sandy due to their location along the rivers, estuaries, bays, and barrier islands of the County. Municipalities along these areas are low

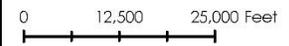
# Context Map

Atlantic County Strategic Recovery Plan

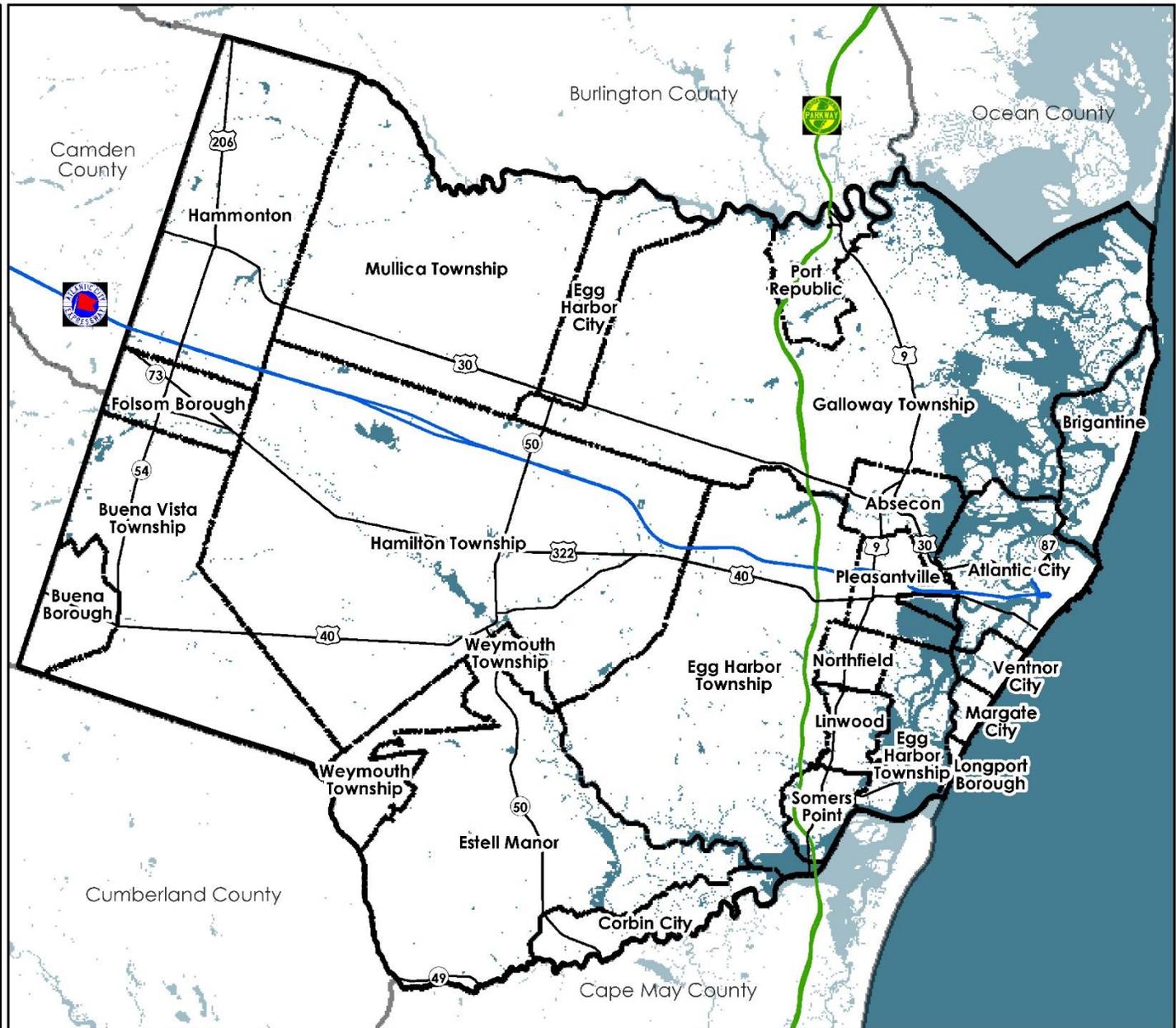
### Road Classification

-  U.S. Highway
-  State Highway
-  Atlantic City Expressway
-  Garden State Parkway

Source: NJGIN, NJOGIS, NJDOT, NJDEP, NJDOT, FEMA Preliminary BFE 2014



HEYER GRUEL & ASSOCIATES  
November 2014



lying with many of them entirely within the FEMA designated “AE” and “VE” zones. These municipalities include:

- Atlantic City
- Brigantine
- Longport
- Margate
- Ventnor

Atlantic County’s largest industry is Leisure and Hospitality with 46,156 people within the industry (NJ Dept. of Labor and Workforce Development, 2011). The Leisure and Hospitality industry represents 41.7% of the County’s workforce, making tourism significantly important to the vitality of the County and its municipalities. The large concentration of the leisure and hospitality industry is due to Atlantic City’s casino resorts, as well as the other hotels and resorts located along the shoreline.



## BACKGROUND PLANNING DOCUMENTS

### Atlantic County Master Plan, 2000

The Atlantic County Master Plan was completed in 2000 as a comprehensive vision for the County. Within the four chapters, the Plan identified issues and goals related to sustainability, resiliency, and infrastructure. These overarching goals include:

- Enhance the quality of life for County residents by expanding active recreation opportunities through the acquisition and development of an extensive County Park System.
- Ensure quality growth and development by planning and developing County infrastructure to complement land use goals established by State and local plans.
- Coordinate the planning and development of adequate potable water supply and wastewater treatment capacity to accommodate future growth.
- Preserve and enhance the quality of the natural resources of the County.
- Preserve selected critical natural areas supporting endangered species and wildlife habitat.
- Promote safe and efficient transportation systems for access to the County and within the County, including air, rail and motor vehicle systems.
- Preserve and protect the farmland and occupation of farming within the County.

Recommendations for the County in regards to sustainability and resiliency include:

- Establish a comprehensive bicycle routing system that will encourage the use of bicycles for commuting and recreation via bicycle compatible roadways.
- Assist in the development of alternative applications of treated wastewater.
- Assist in the promotion and education of water conservation.
- Assist and encourage the development of wastewater recycling.
- Encourage local governments and other agencies to establish consistent storm water management design standards.
  - Assist in educational opportunities in the protection of our coastal beaches and dunes, as well as, our estuarine resources.
  - Encourage and assist in the awareness of the importance of coastal and inland wetlands.

## **Atlantic County Open Space and Recreation Plan, 2000**

The Atlantic County Open Space and Recreation Plan was established as a guiding document by which Atlantic County could continue its mission to provide sufficient open space and recreation facilities to meet the needs of the public. The fundamental purpose of this Plan is as follows:

“To provide for a balanced open space and park system throughout the County which services the greatest number of residents and visitors, by developing and advancing mechanisms to enable efficient acquisition and development programs at all levels through Public and Private partnerships in order to respond to open space opportunities which may arise now and in the future.”

Goals and actions set forth in the Plan include:

- Set priorities based on the availability and competition for lands in :
  - Active Recreation
  - Educational, Historical and Cultural Resources
  - Preservation of Environmentally Sensitive Lands
  - Contiguity to lands presently owned by Public Agencies
- Provide to municipalities a portion of the County Open Space Tax Trust Fund in order to assist them in the acquisition of parkland commensurate with this Plan.
- Provide a program for Municipal-County joint projects in all areas of the County to provide land acquisition and/or development of parks.
- Purchase lands first that are experiencing developmental pressures.
- Develop active recreation facilities in County parks.
- Purchase lands specifically to develop a living history farm.
- Purchase land specifically to develop additional golf courses to provide affordable golf for County residents and the general public.
- Develop long range funding strategies that will provide additional recreation personnel to develop programs, coordinate activities and monitor progress of the County park system on a cost efficient basis.
- Develop a marketing plan that accentuates the County’s natural resources and eco-tourism industry and unites the visitor populations with the County-wide resources of Municipal, County, State and Federal park lands.
- Purchase lands that provide a link between existing parks to preserve environmentally sensitive lands, increase both

active and passive recreation opportunities and create important linkage between these resources.

- Purchase lands that provide efficient park management.
- Provide access to back bays and streams (coastal and inland waters).

**Atlantic County Multi-Jurisdictional Natural Hazard Mitigation Plan, 2010**

Atlantic County developed a Multi-Jurisdictional Natural Hazard Mitigation Plan to increase awareness that natural hazards, especially flood and wind, have the potential to affect people, physical assets and operations in Atlantic County. The Plan analyzes the County’s risk, sets goals and objectives as it pertains to hazard mitigation, and highlights planned projects by the County to prevent and mitigate the effects of future natural disasters.

The Plan summarizes the land uses and development trends in hazard areas for each of the County’s municipalities, highlighting the need for sustainable and resilient measures to mitigate from future major storm events.

**Atlantic County Land Development Standards, 2002**

Atlantic County adopted land development standards to provide procedures, rules, regulations, and standards for review and approval of land development applications along County roads and County drainage facilities. The standards include provisions for Pinelands procedures and storm water regulations as well as general standards for streets and intersections, public utilities, and traffic impact studies.

**Municipal Strategic Recovery Planning Reports, 2014**

Several municipalities within the County have already completed Strategic Recovery Planning Reports including:

- Margate
- Brigantine
- Atlantic City
- Ventnor
- Somers Point
- Pleasantville
- Hamilton

Recommendations and projects for these municipalities include:

*Margate*

- Environmental Design of Bayfront Area

- Environmental Design for Amherst Avenue Business District Infrastructure and Development
- Master Plan Development
- Zoning Ordinance Revisions- Design Standards
- Environmental Design of Beachfront Area
- Economic Development Element/ Community Development Plan for Business Districts
- Sustainable Community Plan
- Capital Improvement Plan
- Capital Improvement Plan for Regionalization and Shared Services
- Energy Audit/ Energy Saving Improvement Plan
- Bicycle and Pedestrian Plan
- Community Rating System

*Somers Point*

- Master Planning
- Zoning Ordinance Revisions
- Building Standards for Historic Preservation District
- Environmental Design for Bay Avenue Infrastructure and Redevelopment
- Capital Improvement Plan
- Environmental Design for the Route 9 West Neighborhood
- Community Development Plan for the Route 9 Business District

- Capital Improvement Plan for Regionalization and Shared Services
- Bicycle and Pedestrian Plan
- Energy Audit/ Energy Saving Improvement Plan

*Brigantine*

- Design Standards and Environmental Design of the Bayfront
- Community Development Plan for Business Districts
- Recreation and Open Space Element/ Municipal Public Access Plan
- Environmental Design for Brigantine Boulevard Improvements
- Master Plan Development
- Zoning Ordinance Revisions- Design Standards
- Capital Improvement Plan
- Capital Improvement Plan for Regionalization and Shared Services
- Energy Audit/ Energy Savings Improvement Plan

*Atlantic City*

- Storm Damage Mitigation Projects in Back Bay, North Inlet, and Gardner’s Basin

*Pleasantville*

- Ordinance Amendments

- Public Outreach, Community Resiliency and Preparedness
- Hazard Mitigation and Preparedness Grants
- Participation in FEMA’s Community Rating System
- Economic Recovery
- State and Federal Homeowner Recovery Programs
- Recovery for Displaced Families
- Affordable Housing
- Resiliency and Sustainability

*Hamilton*

- Environmental Design Plan: Lake Lenape Dam
- Environmental Design Plan: Watershed Study
- Economic Development Plan: Mays Landing
- Utility Services Plan
- Storm water Management Plan
- Open Space/ Recreation Plan
- Mays Landing/ Waterfront Development Plan
- Development of Ordinances
- Capital Improvement Plan

*Ventnor*

- Vulnerability Assessment
- Master Plan
- Redevelopment/ Rehabilitation Planning
- Zoning and Related Codes, Ordinances and Regulations
- Post Disaster Recovery Ordinance
- Capital Improvement Plan
- Shared Services Plan
- Design Standards
- Sustainability and Storm water Management Plans
- Blue Acres/ Buyouts
- Community Rating System
- Economic Development Plan for Business Districts



## IMPACT ASSESSMENT & SUMMARY OF VULNERABILITIES

### Impact Assessment

Based on Federal Emergency Management Agency's (FEMA) preliminary base flood area maps, many of Atlantic County's communities are impacted by flooding and storm surge. Within Atlantic County 7,385 buildings were affected by Super Storm Sandy as it washed ashore.

The 2014 preliminary maps indicate that much of the barrier islands that include Atlantic City, Brigantine, Ventnor, Margate, and Longport, are located within the areas most affected by flooding, the "AE" and "VE" zones. The "AE" zone indicates where there is a 1% chance annual flood hazard zone (100 year flood). With base flood elevations determined within the zone. The "VE" zone is an extension of the "AE" zone however this coastal flood zone is characterized as a velocity hazard with high wave action.

Many of the County's bayside communities are designated in the "AE" zone as well. These bayside communities are also classified in the "A" zone, which has a 1% chance annual flood hazard (100 year flood). With no base flood elevations determined. The maps also show a zone that indicates a 0.2% Annual chance of flood hazard (500 year flood).



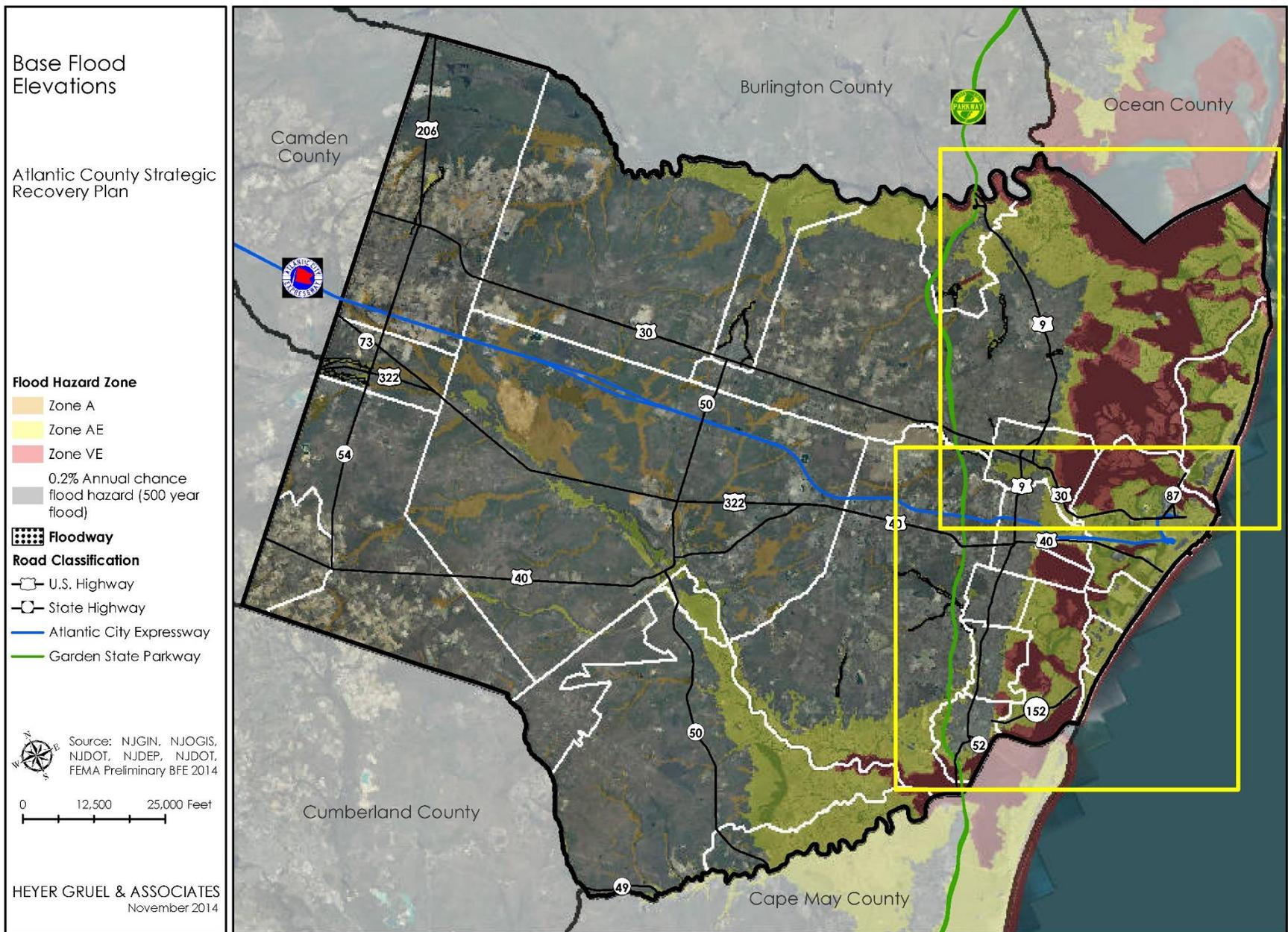
*Photo Credit: H. Whitey Swartz*

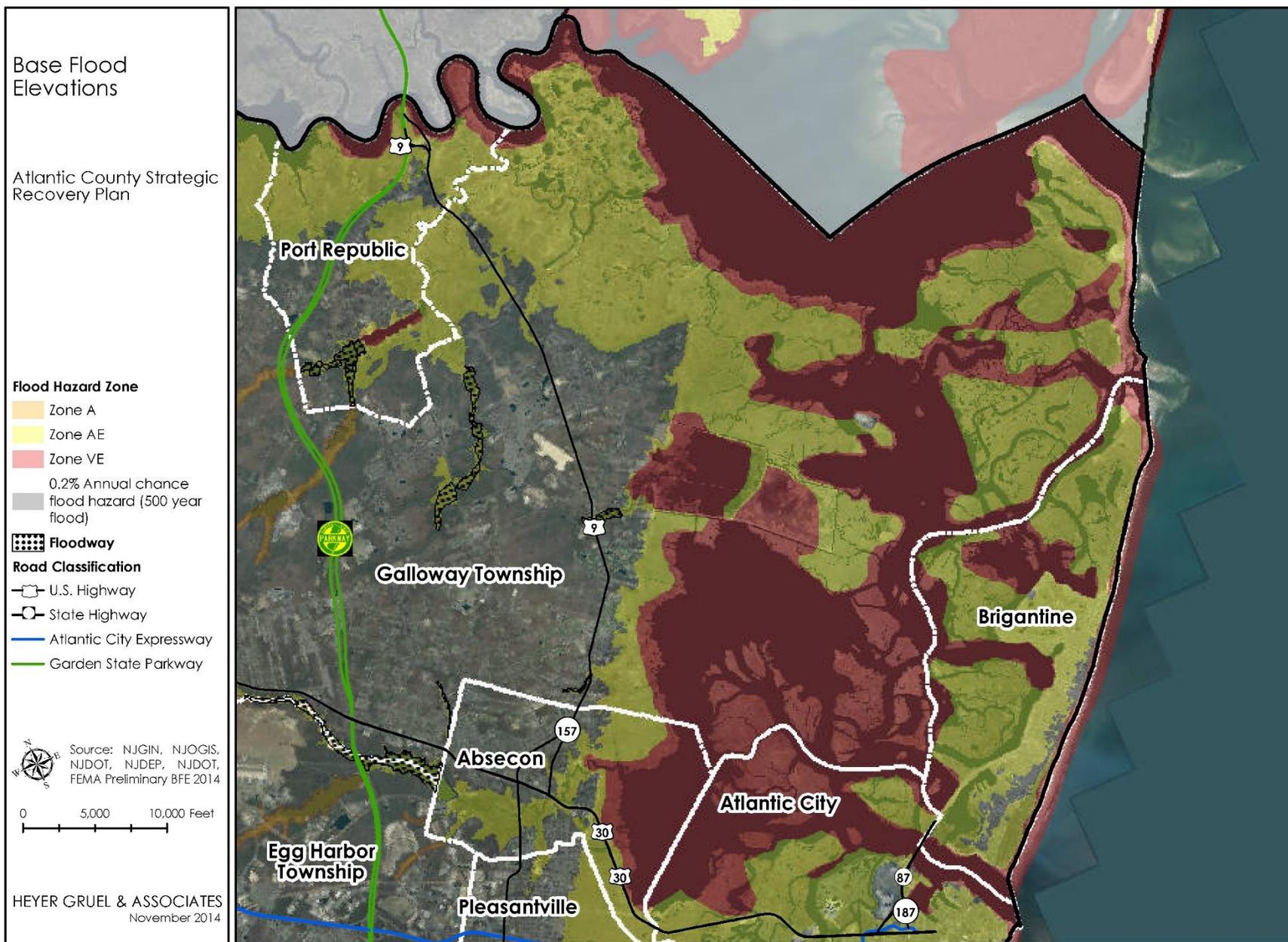
Flooded Roadways in Absecon

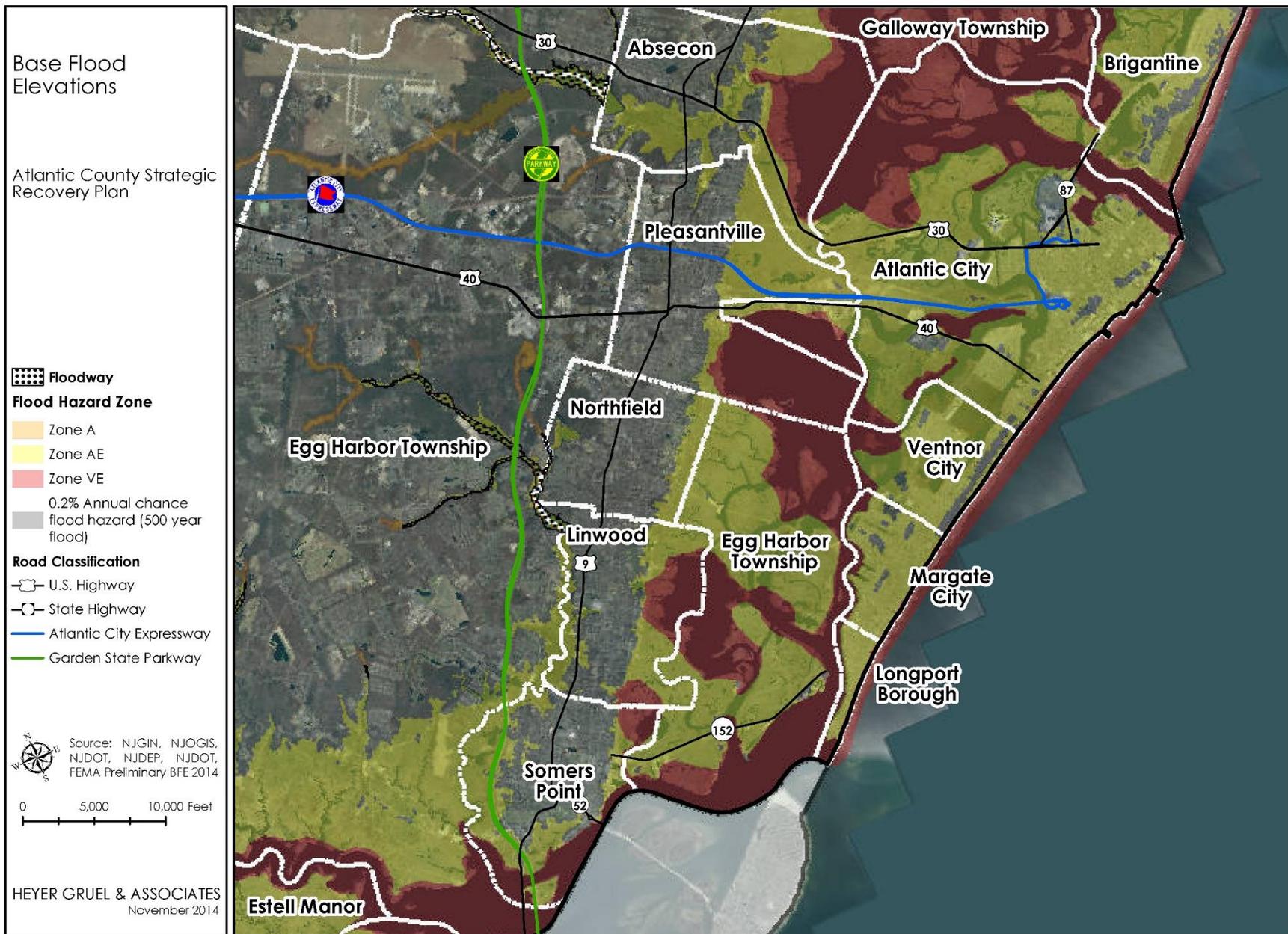


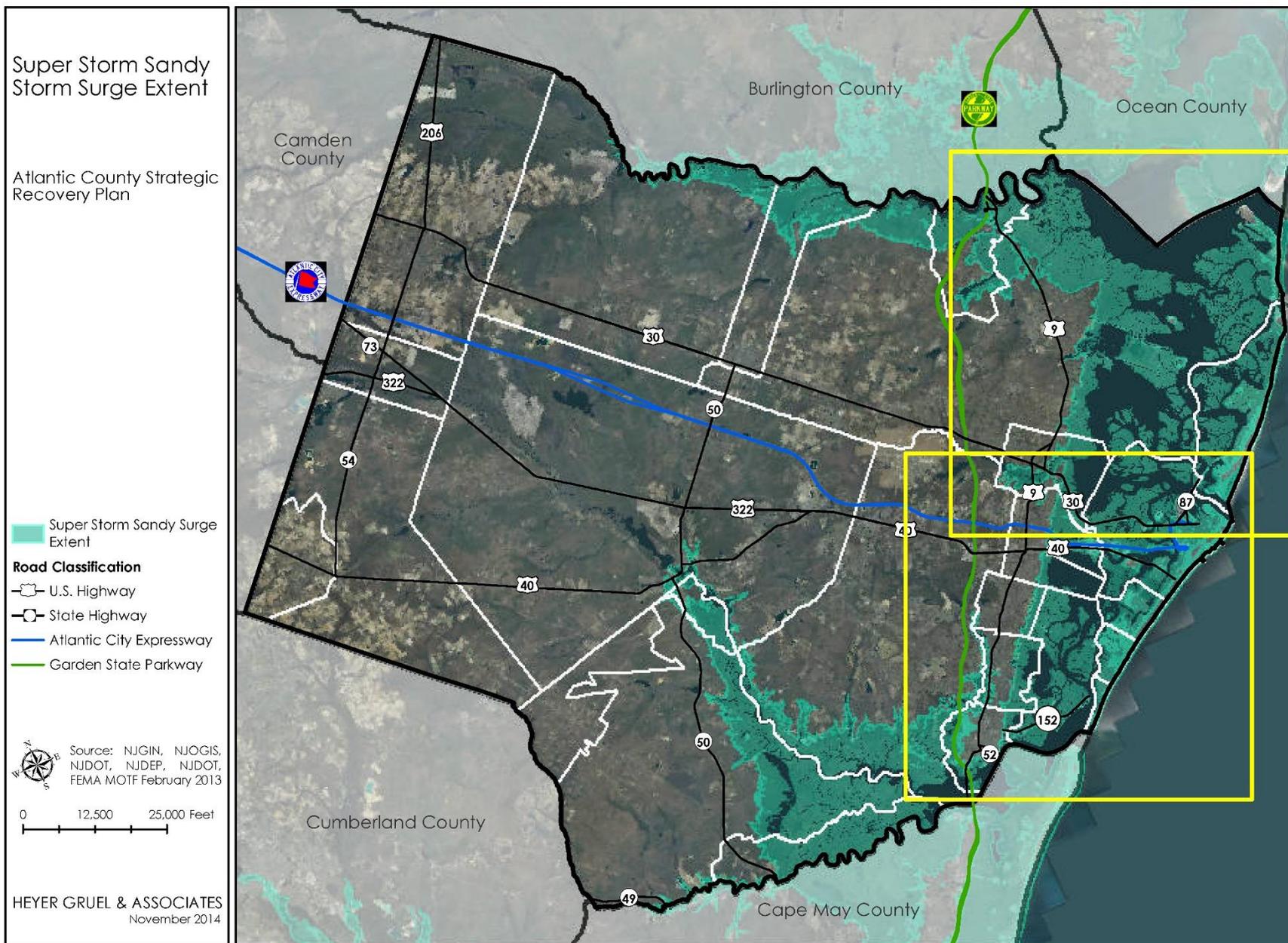
*Photo Credit: H. Whitey Swartz*

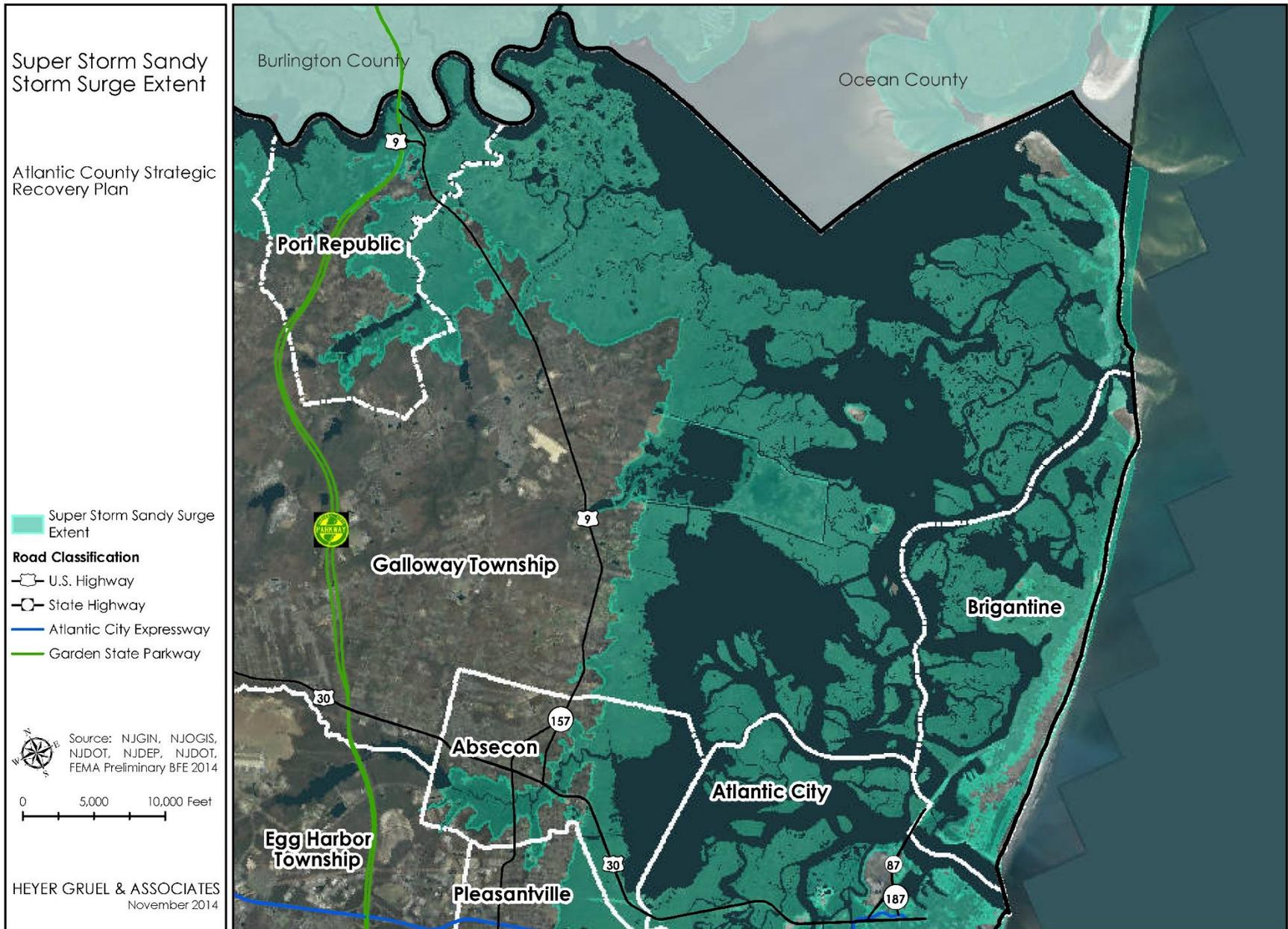
Route 30 Flooding near Atlantic City

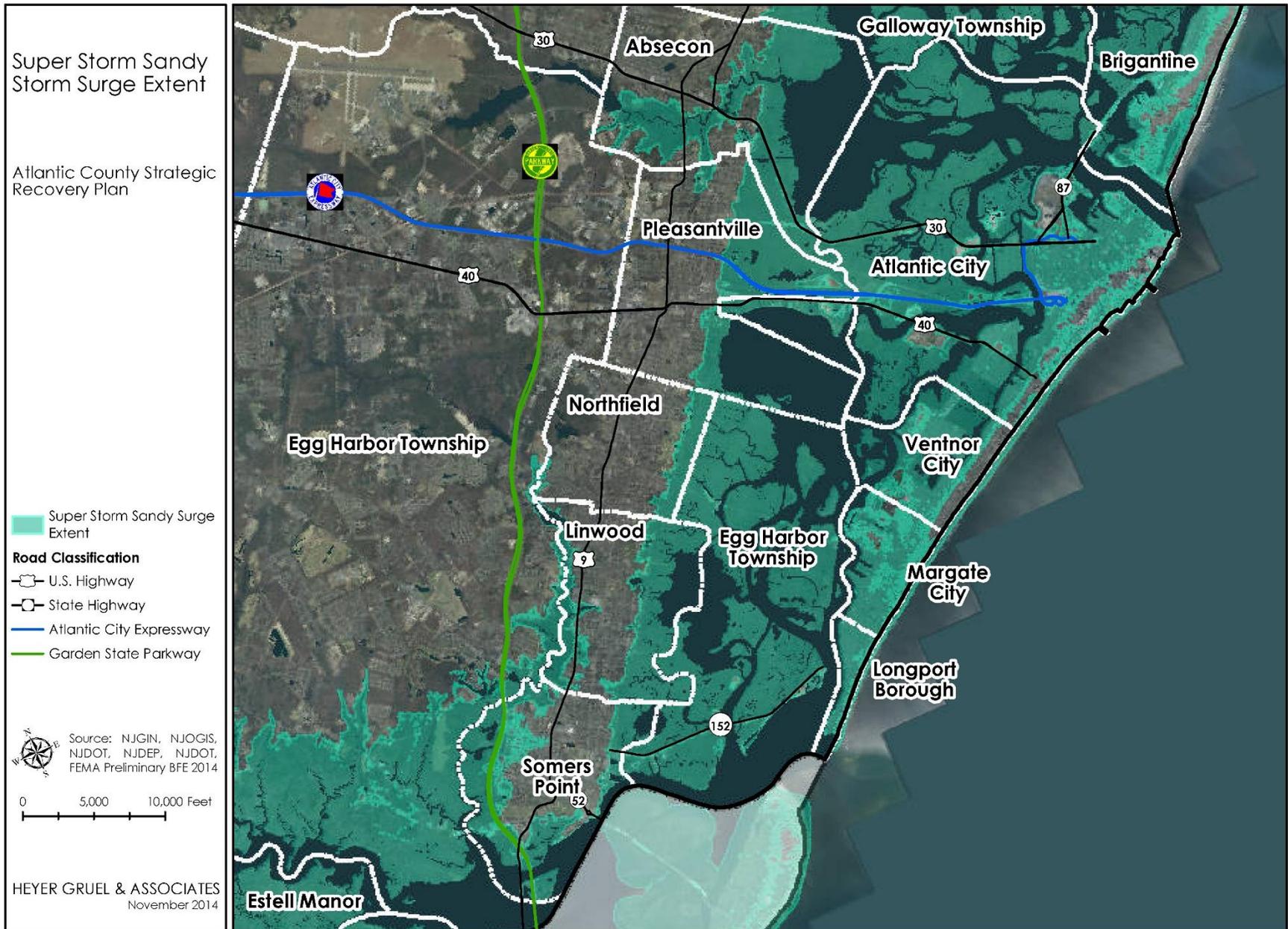












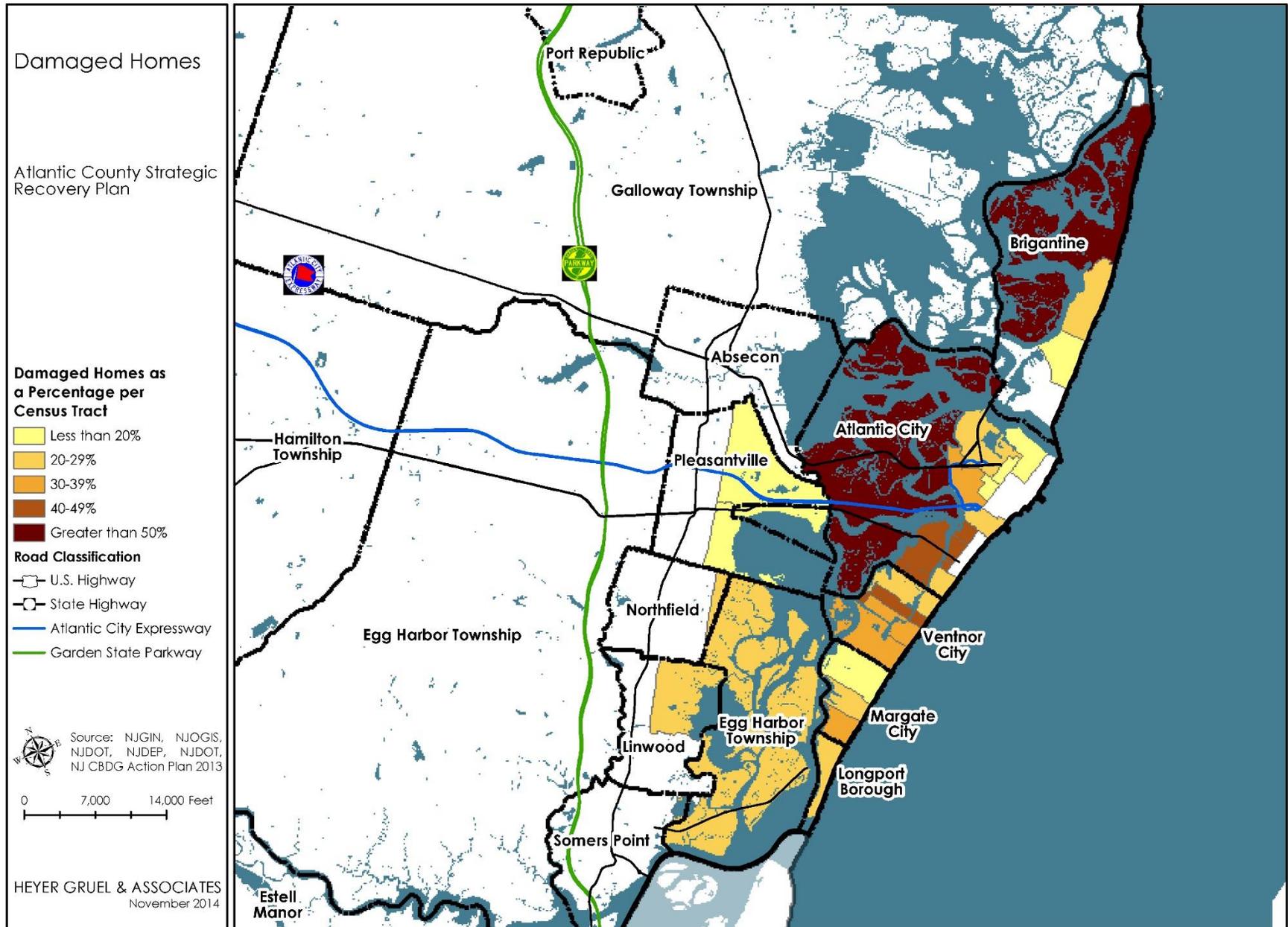
Also located on the maps are floodways, which are channels of a stream plus adjacent floodplain areas that must be kept from encroachment so that the 1% annual chance flood (100 year flood) can be carried out without substantial increases in flood heights.

#### *Insurance Claims & Damage Losses*

As reported by the New Jersey Department of Banking and Insurance, Atlantic County incurred approximately \$265 million worth a damage from the storm. Over 16,000 insurance claims were processed and 70% of those were paid out to the property owners. Of the total insurance claims, 4,709 or 28% were flood related claims, 8,456 or 50.2% were residential related claims, and 751 or 4.5% were commercial related claims. In comparison New Jersey overall saw 47.2% flood related claims, 23.5 % residential related claims, and 9.6% commercial related claims.

Based on insurance claims the barrier island communities suffered the greatest loss with Atlantic City reporting \$83.3 million in losses, followed by Brigantine with \$44.2 million in losses, Margate with \$39.1 million in losses, and Ventnor with \$37.4 million in losses. Bayside and inland communities suffered much less damage, with those municipalities only reporting up to 4.5 million in claimed losses with some reporting less than \$10,000 in losses.

<b>Super Storm Sandy Insurance Claims March 2013</b>				
<b>Zip code</b>	<b>All claims reported</b>	<b>All claims closed with</b>	<b>All paid losses</b>	<b>All incurred losses</b>
08037 Hammonton	285	185	\$2,491,986	\$2,670,025
08201 Absecon	304	215	\$2,155,269	\$2,556,609
08203 Brigantine	2,929	2,172	\$40,346,192	\$44,199,176
08205 Galloway	528	373	\$3,351,379	\$5,810,517
08213 Cologne	7	7	\$42,062	\$42,062
08215 Egg Harbor City	183	132	\$1,008,987	\$1,053,759
08217 Elwood	1	1	\$10,000	\$10,000
08220 Leeds Point	8	6	\$62,046	\$62,046
08221 Linwood	220	154	\$1,681,869	\$2,898,364
08225 Northfield	307	210	\$1,416,608	\$1,686,778
08231 Oceanville	6	5	\$53,135	\$53,135
08232 Pleasantville	762	557	\$6,357,405	\$7,380,191
08233 Pleasantville	2	2	\$9,435	\$9,435
08234 Egg Harbor Twp	1,038	703	\$7,296,503	\$7,764,267
08240 Pomona	19	13	\$80,001	\$80,932
08241 Port Republic	83	61	\$1,286,129	\$1,631,182
08244 Somers Point	420	270	\$4,474,827	\$5,185,153
08310 Buena	21	12	\$28,163	\$34,921
08317 Dorothy	2	1	\$9,135	\$9,135
08319 Estell Manor	3	1	\$250	\$250
08326 Landisville	10	6	\$128,177	\$130,677
08330 Mays Landing	324	221	\$2,053,802	\$2,198,154
08332 Millville	156	102	\$470,760	\$509,345
08340 Milmay	3	3	\$19,278	\$19,278
08341 Minotola	5	4	\$6,035	\$6,035
08342 Mizpah	0	0	\$0	\$0
08346 Newtonville	5	2	\$23,402	\$23,402
08350 Richland	2	2	\$20,402	\$20,402
08401 Atlantic City	3,596	2,501	\$51,588,367	\$83,305,670
08402 Margate City	2,289	1,567	\$31,616,650	\$39,105,192
08403 Longport	770	506	\$15,550,560	\$19,149,957
08405 Federal Aviation	1	1	\$14,121	\$14,121
08406 Ventnor City	2,559	1,851	\$33,891,366	\$37,409,845
<b>Atlantic County</b>	<b>16,848</b>	<b>11,846</b>	<b>\$207,544,301.00</b>	<b>\$265,030,015.00</b>
Percentage Closed with Payment		<b>70.3%</b>		



In terms of households, as a result of Super Storm Sandy, 9% of the households in Atlantic County had homes that sustained “severe” or “major” damage. According to HUD, “severe” damage is defined as homes FEMA determined to have greater than \$28,800 worth of physical damage or more than four feet of flooding on the first floor, while “major” damage is defined as homes FEMA determined to have between \$8,000 and \$28,799 worth of physical damage or more than one foot of flooding on the first floor. One census tract within Brigantine and one census tract in Atlantic City had more than 50% of households experience major or severe damage, another 12

communities had between 25% and 49% of households experience such damage, and 10 census tracts had between 10% and 24% of households experience such damage.

*Recovery Programs*

Following Super Storm Sandy many recovery programs were put in place to help residents and business owners rebuild. These included several Small Business Administration (SBA) loan programs and federal assistance through FEMA recovery grants. Within Atlantic

Super Storm Sandy Recovery Aid : SBA								
Municipality	SBA Disaster Loans							
	Business & Economic Injury Disaster		Home		Economic Injury Disaster/ Non-Profit		Total SBA	
	Claim	\$ Amount	Claim	\$ Amount	Claim	\$ Amount	Claim	\$ Amount
Absecon	0	\$ -	1	\$ 28,900.00	0	\$ -	1	\$ 28,900.00
Atlantic City	7	\$ 1,025,200.00	140	\$ 4,807,500.00	2	\$ 332,000.00	149	\$ 6,164,700.00
Brigantine	2	\$ 123,800.00	75	\$ 4,386,100.00	0	\$ -	77	\$ 4,509,900.00
Buena	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Buena Vista	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Corbin City	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Egg Harbor City	1	\$ 60,800.00	3	\$ 61,100.00	0	\$ -	4	\$ 121,900.00
Egg Harbor Twp.	2	\$ 310,300.00	32	\$ 2,114,100.00	0	\$ -	34	\$ 2,424,400.00
Estell Manor	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Folsom	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Galloway	0	\$ -	6	\$ 351,100.00	0	\$ -	6	\$ 351,100.00
Hamilton	0	\$ -	6	\$ 373,200.00	0	\$ -	6	\$ 373,200.00
Hammonton	0	\$ -	2	\$ 466,400.00	0	\$ -	2	\$ 466,400.00
Linwood	0	\$ -	7	\$ 373,700.00	0	\$ -	7	\$ 373,700.00
Longport	0	\$ -	7	\$ 375,900.00	0	\$ -	7	\$ 375,900.00
Margate	4	\$ 662,600.00	62	\$ 2,849,300.00	1	\$ 99,600.00	67	\$ 3,611,500.00
Mullica	0	\$ -	10	\$ 672,000.00	0	\$ -	10	\$ 672,000.00
Northfield	0	\$ -	3	\$ 181,600.00	0	\$ -	3	\$ 181,600.00
Pleasantville	2	\$ 99,400.00	6	\$ 201,900.00	2	\$ 95,500.00	10	\$ 396,800.00
Port Republic	1	\$ 88,000.00	4	\$ 256,600.00	0	\$ -	5	\$ 344,600.00
Somers Point	2	\$ 228,900.00	7	\$ 154,800.00	0	\$ -	9	\$ 383,700.00
Ventnor	4	\$ 238,100.00	92	\$ 4,356,000.00	0	\$ -	96	\$ 4,594,100.00
Weymouth	0	\$ -	3	\$ 91,900.00	0	\$ -	3	\$ 91,900.00
Atlantic County	25	\$ 2,837,100.00	466	\$ 22,102,100.00	5	\$ 527,100.00	496	\$ 25,466,300.00

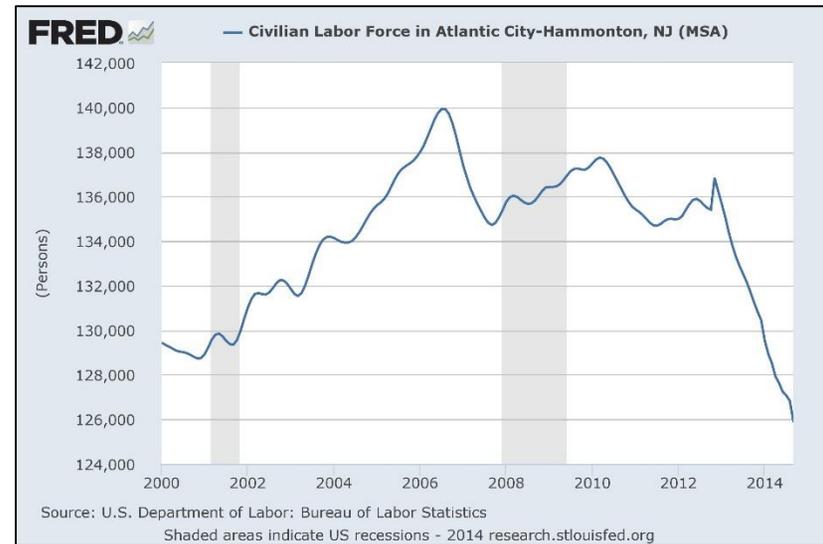
Super Storm Sandy Recovery Aid: FEMA					
Municipality	FEMA Public Assistance Grants				
	Protective Measures	Public Buildings & Public Utilities	Roads & Bridges Recreation & Other	Debris Removal	FEMA Total
Absecon	\$ 14,104.00	\$ 3,391.00	\$ -	\$ -	\$ 17,495.00
Atlantic City	\$ 383,256.00	\$ 42,249.00	\$ -	\$ -	\$ 425,505.00
Brigantine	\$ 540.00	\$ -	\$ 127,625.00	\$ 1,637,608.00	\$ 1,765,773.00
Buena	\$ -	\$ -	\$ -	\$ -	\$ -
Buena Vista	\$ -	\$ -	\$ -	\$ -	\$ -
Corbin City	\$ -	\$ -	\$ -	\$ -	\$ -
Egg Harbor City	\$ -	\$ -	\$ -	\$ -	\$ -
Egg Harbor Twp.	\$ 2,670.00	\$ 29,749.00	\$ -	\$ -	\$ 32,419.00
Estell Manor	\$ -	\$ -	\$ -	\$ -	\$ -
Folsom	\$ -	\$ -	\$ -	\$ -	\$ -
Galloway	\$ 10,314.00	\$ 3,558.00	\$ -	\$ 183,578.00	\$ 197,450.00
Hamilton	\$ -	\$ -	\$ -	\$ 14,453.00	\$ 14,453.00
Hammonton	\$ -	\$ -	\$ -	\$ -	\$ -
Linwood	\$ -	\$ -	\$ -	\$ 29,066.00	\$ 29,066.00
Longport	\$ 16,303.00	\$ -	\$ -	\$ 499,099.00	\$ 515,402.00
Margate	\$ 77,171.00	\$ -	\$ -	\$ 1,809,098.00	\$ 1,886,269.00
Mullica	\$ -	\$ -	\$ 1,277.00	\$ 59,137.00	\$ 60,414.00
Northfield	\$ -	\$ 750.00	\$ -	\$ -	\$ 750.00
Pleasantville	\$ -	\$ 750.00	\$ 35,347.00	\$ -	\$ 36,097.00
Port Republic	\$ 1,315.00	\$ 1,915.00	\$ -	\$ -	\$ 3,230.00
Somers Point	\$ -	\$ -	\$ -	\$ 6,825.00	\$ 6,825.00
Ventnor	\$ 92,769.00	\$ 3,181.00	\$ -	\$ -	\$ 95,950.00
Weymouth	\$ -	\$ -	\$ -	\$ 11,113.00	\$ 11,113.00
Atlantic County	\$ 598,442.00	\$ 85,543.00	\$ 164,249.00	\$ 4,249,977.00	\$ 5,098,211.00

County 496 SBA loans were distributed to residents and business owners totaling \$25,466,300.

Atlantic County municipalities received a total of \$5,098,211 in FEMA Public Assistance Grants for an array of recovery projects including funds for protective measures, public buildings, public utilities, roads and bridges, debris removal, and recreation. The Cities of Margate and Brigantine received the largest FEMA allocations totaling \$1.89 million and \$1.77 million respectively for debris removal, as well as road and bridge repair.

*Economic Impact*

Since 2012, Atlantic County has seen a rapid decline in the civilian labor force. Although this cannot be entirely attributed to the affects and damage sustained from Super Storm Sandy, the storm’s impacts were the beginning of the decline. Atlantic City casino and resorts were closed for an extended period of time after the storm. Public sentiment that more damage was sustained to Atlantic City than actually was exacerbating the economic impact and loss of revenue. Currently the civilian labor force is approximately 126,000 persons which is down from a high in 2006 of approximately 140,000. Since 2012 the rate has dropped 11,000 persons, is currently below the 2000 levels and is expected to continue to decline as several Casinos and resorts have closed in Atlantic City in recent months.



*Community Public Outreach*

As part of the Strategic Recovery Planning process, Atlantic County held a community meeting on October 15, 2014 in Brigantine. Members of the community attended to voice their experiences about Super Storm Sandy and the recovery efforts that are on-going. Issues and suggestions that were discussed included:

- Flooding in flood prone areas, specifically in Ventnor Heights, Margate, Atlantic City and Brigantine
- FEMA has been helpful, however communication issues exists
- Prolonged displacement is a major issue

- Rehabilitation, Reconstruction, Elevation and Mitigation (RREM) program was helpful however had many requirements that included other improvements needed to meet stated standards
- RREM project managers are not local to New Jersey
- County and FEMA rent/ mortgage assistance programs were beneficial
- 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
- Issues with utilities, gas company specifically requiring disconnection prior to permits and associated fees
- There were issues with flood insurance providers, depreciation, and contractors
- Storm water grates in Brigantine were blocked causing further flooding
- Discussions were had on whether to construct dunes or not
- Many bayside areas were flooded due to lack of bulkheads
- Some stated that raising homes was better than bulkhead solutions
- Inconsistent bulkhead locations and treatment led to further flooding



*Photo Credit: Atlantic County*

SRPR Community Meeting in Brigantine



*Photo Credit: Atlantic County*

SRPR Community Meeting in Brigantine

- Brigantine has challenges with “stilt homes” and preserving the character of the city
- Natural shorelines and other natural storm water management techniques were discussed as resiliency measures
- Debris and flooding of evacuation routes, government buildings (county library), and catch basins was a major issue
- A need for a refuge area outside the floodplain was discussed
- A statement was made about the lack of knowledge the local construction officials had
- There were service outage issues with cellular communications
- There was a need for more information about shelters for displaced residents
- Predatory contractors were a concern



**ATLANTIC COUNTY  
PUBLIC MEETING**

**Post-Sandy  
Redevelopment**

**Wednesday, October 15 at 6 PM**  
**Brigantine Community Center**  
**265 42nd Street, Brigantine**

Atlantic County seeks public input from citizens, businesses, emergency responders and anyone who was impacted by Superstorm Sandy for preparation of a Strategic Recovery Planning Report.

The final report will assist affected municipalities in their efforts to rebuild their communities and reduce their vulnerabilities to future storm events.

Atlantic County Executive Dennis Levinson  
Atlantic County Board of Freeholders • Frank D. Formica, Chairman

The poster features a background image of a yellow excavator working on a sandy beach near a pier. A black lamppost stands in the foreground. The Atlantic County seal is visible in the upper right corner.

## Vulnerabilities

Due to Atlantic County's location along the Atlantic Coast, the County is vulnerable to a variety of natural disasters and occurrences such as hurricanes and coastal storms, sea level rise, and climate change.

Climate change and sea level rise are of concern in many of Atlantic County's communities. Many of the coastal and bayside communities are located entirely within the 100 year flood zone putting them at increased risk as the climate becomes more volatile. According to the National Oceanic and Atmospheric Administration (NOAA), mean sea level rise from 1911 to 2006 was equivalent to a change of 1.31 feet over 100 years. This rate is expected to increase as warming at the Earth's poles continues to contribute to the ongoing melting of the planet's ice sheets. NOAA also expects future rates to increase the sea level by up to 3 feet by 2100. These predictions, if true, would pose a difficult problem for many of Atlantic County's coastal communities.

Climate change and sea level rise exacerbate the existing concerns and vulnerabilities the County already faces. Due to Super Storm Sandy, New Jersey became more aware of how vulnerable it is to major coastal storms and the need for further planning to mitigate from them. Other vulnerabilities the County faces include:



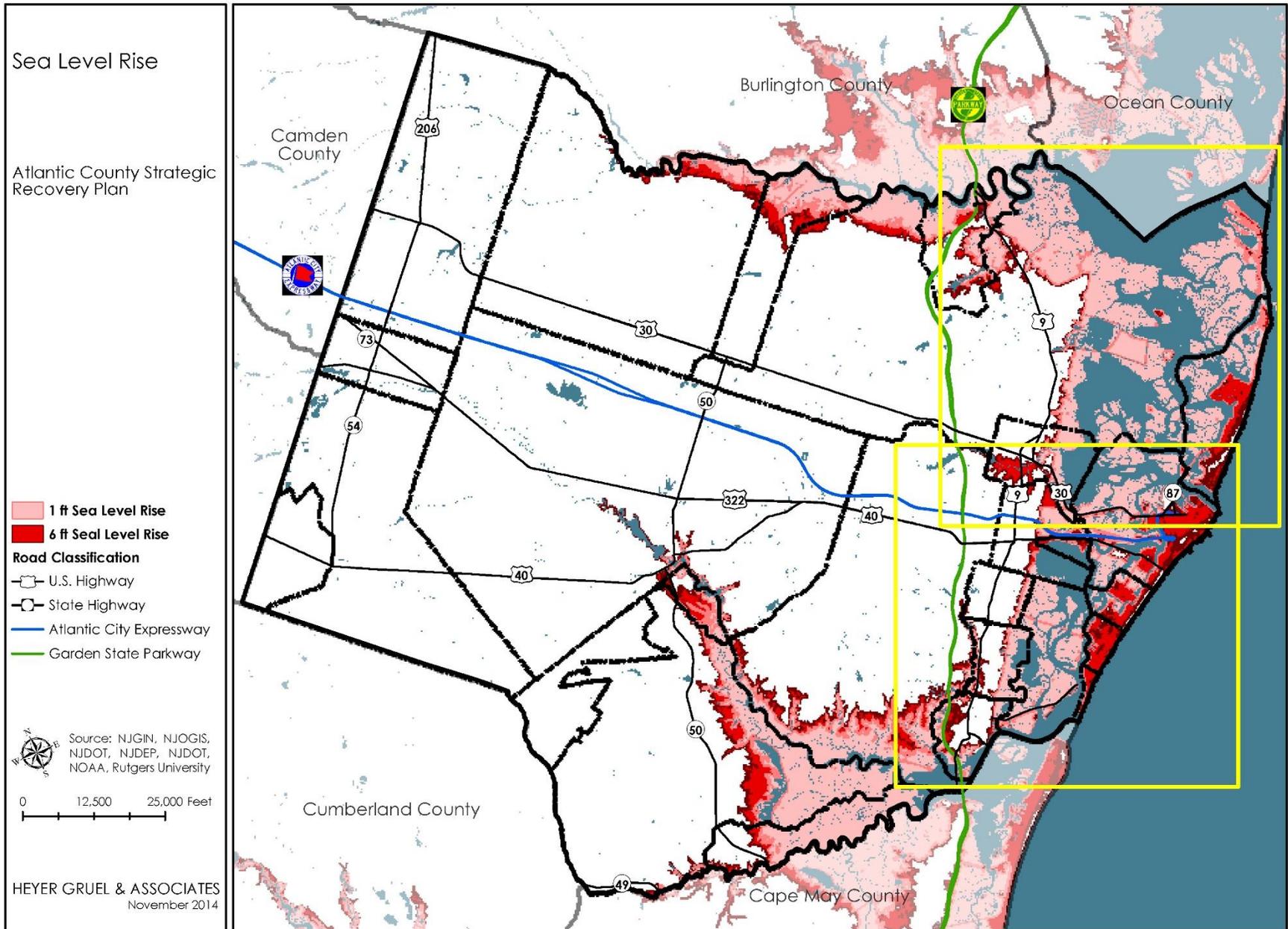
*Photo Credit: H. Whitey Swartz*

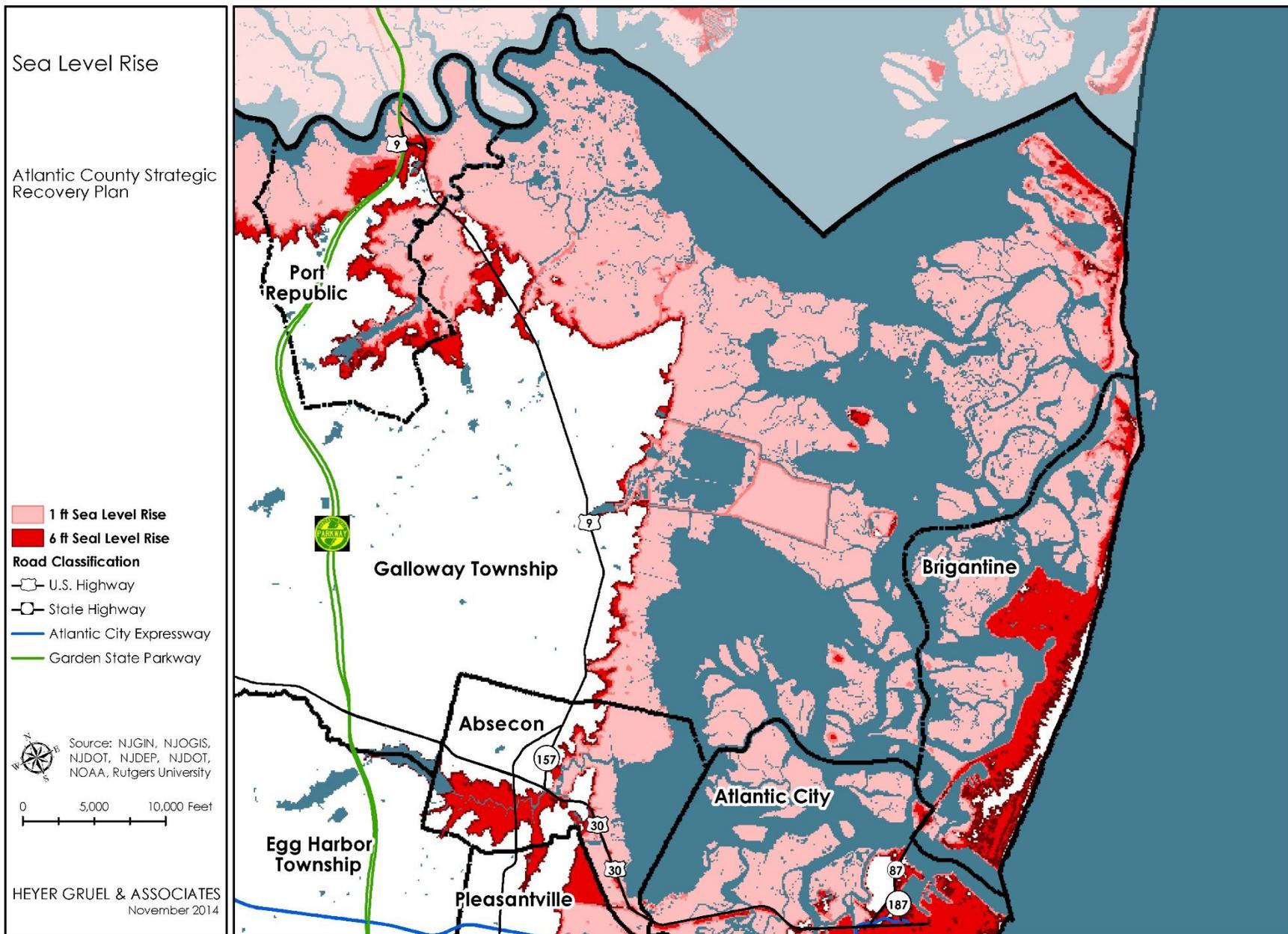
Damage to Residential Homes along Lakes Bay

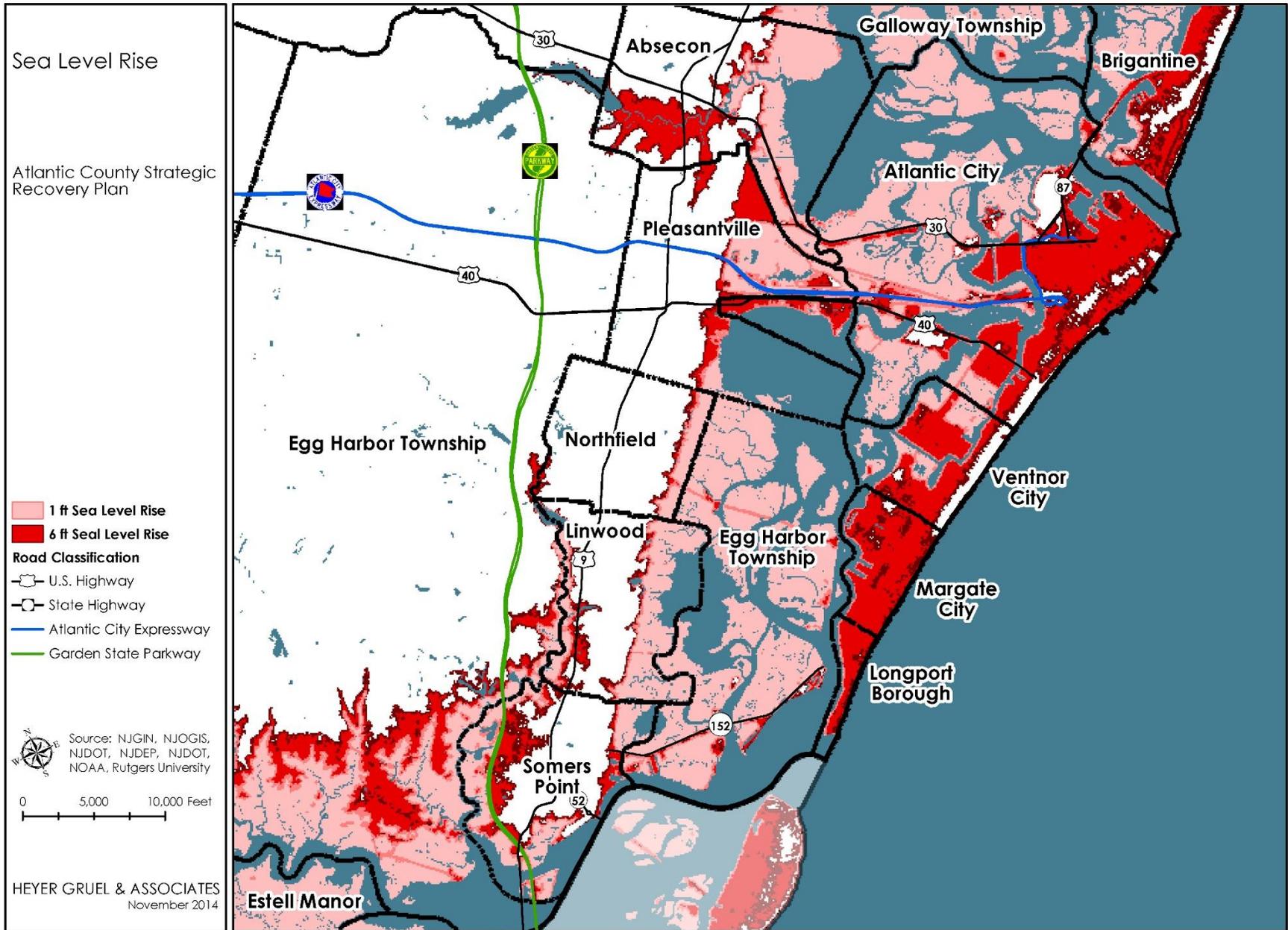


*Photo Credit: H. Whitey Swartz*

Widespread Flooding in Atlantic County







- *Repairs and Evaluation of Evacuation Routes*

Since Atlantic County is susceptible to future major storm events, the maintenance and repair of evacuation routes is vitally important to the safety and well-being of the County's residents. The evaluation and constant maintenance of these evacuation routes is crucial in the County's storm preparations.

During Super Storm Sandy many of the County's evacuation routes became submerged with flood waters and were impassable. Sections of all the access roads to the County's barrier island communities were flooded impeding rescue and recovery efforts. These included:

- Atlantic City Expressway
- US Route 40
- US Route 30
- Margate Boulevard
- NJ Route 152 (Somers Point Longport Blvd)

- *Population and Infrastructure is Concentrated on Barrier Islands*

Currently Atlantic County's population and infrastructure is concentrated along the shoreline in the County's coastal and bayside communities. These areas are within the FEMA designated zones with the highest probability of recurring

flooding. Many of these municipalities have been proactive with their approaches towards rebuilding from Super Storm Sandy as well as implementing design and building standards that help to prevent severe damage from future major storm events.

- *Percentage of "second" homes in flood prone areas*

Due to Atlantic County's location along the Jersey Shore, the County has a large proportion of properties that are not the primary homes of the owners. Only 56% of residential properties in the County are the primary homes of the homeowners based on the 2014 Residential Tax Assessment Data. As major storms become more frequent, "second" homes become more susceptible to damage and unlike primary homes, second homeowners have more limited options when rebuilding after a storm. This may lead to blighted properties and neighborhoods where "second" home owners do not have the funds to rebuild or raise their structures.

- *Impact Natural Disasters and Climate Change will have on the Tourism/ Leisure and Hospitality Industry*

Super Storm Sandy took a substantial toll on New Jersey's and Atlantic County's economy in 2012. In many respects

Atlantic County is still reeling from the effects of the storm and the downturn of the Casino industry in Atlantic City. The County's economy will continue to be affected greatly by coastal storms and the damage they cause. Since the economy is so dependent on gaming and tourism, these industries are disproportionately affected.

- *Aging Infrastructure and Unreliable Tax Base*

Atlantic County experienced a building boom in the 1960's and 1970's. Much of the County's infrastructure was constructed during this time and is in need of upgrading and repair. At the on-set of Super Storm Sandy it became apparent that there was a need for further flood mitigation infrastructure along the County's oceanfront, bayside, rivers, and creeks. These mitigation techniques would protect residential neighborhoods and businesses from future major storm events. The cost of these upgrades and mitigation techniques will be a concern since the recent decline of the casino and gaming industry has led to an unreliable tax revenue stream. With the closure of four Atlantic City casino resorts in the last year and the possibility of more in the future, the County will have to find additional revenue to pay for improvements as well as encourage a further



Rescue and Recovery Crews during Super Storm Sandy



Downed Utility Wires in Atlantic County

diversification of the County's economy away from the casino and gaming industry.

- *Storm Debris Removal*

According to FEMA, Atlantic County municipalities received the largest amount of recovery aid for storm debris removal, totaling more than \$4.2 million. Due to the high cost of debris removal for the municipalities and the potential for more frequent larger storms, the County is more vulnerable to larger expenses for such recovery work.

- *Flooding in Low Lying Populated Areas*

Homeowners and residents located in low-lying areas close to waterways and the ocean are vulnerable to flooding. The areas most susceptible to flooding are the barrier island and bayside communities including:

- Absecon
- Atlantic City
- Brigantine
- Egg Harbor Township
- Galloway Township
- Linwood
- Longport
- Margate
- Northfield
- Pleasantville
- Somers Point
- Ventnor



Photo Credit: H. Whitey Swartz

Storm Debris on US Route 40 near Atlantic City



Photo Credit: H. Whitey Swartz

Storm Debris along Lakes Bay

Additional areas of high flood risk include communities and neighborhoods along the County's streams, creeks, and rivers. These areas include:

- Corbin City along the Tuckahoe River
  - Mays Landing along the Great Egg Harbor River
  - Somers Point, Linwood, and Northfield along the Patcong Creek and Mill Creek
  - Port Republic along the Nacote Creek
- *High Hazard Dams*

According to the 2010 Atlantic County Multi-Jurisdictional Natural Hazard Mitigation Plan, Atlantic County has one high hazard dam in Hamilton Township along the Great Egg Harbor River. The Lake Lenape Dam is also classified by USGS as "major" dam. According to USGS, major dams are described as 50 feet or more in height, or with a normal storage capacity of 5,000 acre-feet or more, or with a maximum storage capacity of 25,000 acre-feet or more, and represent the most significant hazard risk based on the potential consequences of a dam failure. Sources in the Township of Hamilton estimate that under certain circumstances the effects of a failure would be felt up to five miles downstream of the dam and would impact approximately 75 residential structures and 12 commercial properties.



Atlantic City Boardwalk Damage



Flooding along Route 40 near Atlantic City and Pleasantville

## Opportunities

Super Storm Sandy shed light on the areas in which Atlantic County may improve its sustainability and resiliency to future storm events.

Several opportunities include:

- Encouraging public understanding of hazard mitigation and resiliency techniques;
- Focusing municipalities and public authorities on community vulnerabilities to hazards such as widespread flooding, storm debris removal, and storm damage;
- Promoting regional coordination on solutions to flooding and major storm impacts
- Ensuring that future capital projects are designed and constructed to incorporate sustainable and resilient techniques.

## APPROACHES TO REBUILDING

Atlantic County has been proactive in their approach to disaster response and planning. The County has set up an online portal explaining to residents and businesses the importance of preparing and planning for major storm events. ReadyAtlantic.org is a tool to disseminate information about current storms and prepare the community for future storms.

The County also consistently updates their [www.aclink.org/rebuild](http://www.aclink.org/rebuild) website with information pertaining directly to rebuilding efforts after Super Storm Sandy. Links to Federal, State, and local recovery programs are provided as well as news and helpful documents. Helpful tools and links are offered for the following programs:

- Governor’s Office of Recovery and Rebuilding
- Super Storm Sandy Housing Recovery Assistance Programs- RenewJerseyStronger
- Stronger NJ Business Loans and Grants Program
- NJ Business Portal- Recovery Information for Businesses
- Atlantic County Sandy Homeowner and Renter Assistance Program
- Super Storm Sandy CDBG-DR Program
- FEMA- SandyNJ
- SBA- Sandy

The following strategies are specific to Atlantic County and have been identified as approaches to rebuilding that will make the County more resilient to damage from future storm events.

### Sustainable/ Resilient Design Best Practices

- Rebuilding and renovating structures in accordance with flood hazard and resiliency based construction codes.
- Locate critical systems, specifically emergency generators and pump stations, above flood levels so to withstand flooding and extreme weather events.
- Optimize the use of on-site renewable energy.
- Provide redundant water storage for use during emergencies.
- Provide redundant electric systems with at least minimal back-up power capacity, such as a fuel-fired electric generator (with adequate fuel storage) or a solar-electric system with islanding capability.
- Design vegetated roofs and rainwater bio-swales to reduce the urban heat island effect and manage storm water.
- Design and build (or rebuild) physical infrastructure, such as culverts, storm sewers, roadways, and bridges, to handle increased storm water flows.
- Work to ensure the resiliency of cell phone towers so that communications can be maintained during times of emergency.
- Consider potential extreme weather events and climate change in determining locations of critical facilities and systems.
- Protect natural areas that currently buffer developed neighborhoods and businesses from storm damage and storm surge.
- Educate residents, business owners, builders, and developers about flood hazards and flood mitigation techniques in codes.

**Continued Participation in FEMA’s Community Rating System**

Several communities within Atlantic County participate in FEMA’s Community Rating System to reduce flood insurance costs. The municipalities with the best rating are Longport and Margate. Both communities have a current class rating of 5 which enabled their residents to receive a 25% discount on their flood insurance premiums.

<b>FEMA, NFIP Community Rating System Participation</b>			
<b>Municipality</b>	<b>Current Class</b>	<b>% Discount for SFHA</b>	<b>% Discount for Non-SFHA</b>
Absecon	8	10%	5%
Atlantic City	9	5%	5%
Brigantine	6	20%	10%
Hamilton	8	10%	5%
Linwood	7	15%	5%
Longport	5	25%	10%
Margate	5	25%	10%
Pleasantville	7	15%	5%
Ventnor	7	15%	5%

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood damage to insurable property
2. Strengthen and support the insurance aspects of the NFIP
3. Encourage a comprehensive approach to floodplain management.

In 2013, the NFIP enacted changes to the CRS Coordinators Manual for the Community Rating System. The upcoming changes will drive new achievements in the following six core flood loss reduction areas important to the NFIP:

1. Reduce liabilities to the NFIP Fund
2. Improve disaster resiliency and sustainability of communities
3. Integrate a Whole Community approach to addressing emergency management
4. Promote natural and beneficial functions of floodplains
5. Increase understanding of risk
6. Strengthen adoption and enforcement of disaster-resistant building codes.

**Continued Support of Identifying Resources and Recovery Programs for Second Home Owners**

The County should continue its efforts in identifying resources and recovery programs to help second home owners who have suffered severe and moderate damage to their properties. Second homes make up a large portion of the housing stock located within the coastal communities of the County. As part of being conscious about

factors affecting the County’s economic development, relief for these types of property owners is essential. Relief and recovery programs targeted towards second homeowners will combat blight and restore the character to many of the County’s communities hit hardest by Super Storm Sandy.

### **Rehabilitation and Redevelopment of Existing Properties with more Resilient Standards**

The County should continue its support of the RREM Program and other forms of Super Storm Sandy federal and state aid to help residents and businesses continue to recover.

To prepare for future storms, the County may encourage the creation of sustainable and resilient design standards. An important aspect of resiliency measures are design standards that can be used in an ordinance driven approach for retrofits, rehabilitation, and new development as it relates to residential, commercial, and industrial properties throughout the County. The Sustainable/ Resilient Design Best Practices listed on the previous page may act as a basis for proposed municipal and county standards.

### **Development of Green Infrastructure and Green Buffers**

Preparing guidelines and ordinances that use green infrastructure techniques toward resilient design will be an important mitigation

tool within Atlantic County. Future storm surges will inevitably be exacerbated by continued rising sea levels. Guidelines and ordinances encouraging sustainable engineering techniques may be utilized to mitigate the effects of future storm surges along the oceanfront and bayside neighborhoods most affected by Super Storm Sandy. These guidelines and ordinances may include “green” engineering techniques to be reinforced during future infrastructure replacement and upgrades throughout the County.

### **Support and Guidance for the Development of Resiliency Based Codes**

Atlantic County may support and guide local municipalities in the development of codes requiring and specifying the location of emergency generators above flood elevations. The County may also encourage the development of alternative energy sources for public and private uses located in the floodplain.

### **Community Education Programs**

The County may establish programs that can disseminate information about resilient design, proper rehabilitation strategies, and storm preparation.

The creation of community hubs that can serve as gathering places during emergencies and interruptions in services is important. These

facilities should be outfitted with access to key services, including water, electricity for charging cell phones, etc. Such capabilities could be integrated into schools and other existing community facilities.

## RECOMMENDATIONS & PROPOSED PROJECTS

### Recommendations

Atlantic County has discussed several capital and programmatic improvements in order to recover from Super Storm Sandy and to improve response and increase resiliency to future storms. These actions have been developed in consultation with the officials from a variety of County offices, and are intended to promote resiliency to future storms.

A series of meetings were conducted with county and municipal officials to discuss proposed projects and recommendations. A public meeting was held in Brigantine on October 15, 2014 to gain input from the community at large. The actions that this SRPR recommends have been listed by priority. However, the various actions presented could be reprioritized as opportunities arise and funding becomes available.

Recommendations for projects are listed by priority and are classified by short term and long term projects.

#### *Short Term (1-2 years)*

- *Preparation and Update of Atlantic County Master Plan*
- *Update and Revisions to Open Space Plan/ Farmland Preservation Plan*
- *Implementation of Resiliency-Oriented Land Development Standards*
- *Preparation of a Sustainability & Resiliency Master Plan Element*
- *Model Resiliency Guidelines for Municipal Implementation*
- *Continued support for an update to the Atlantic County's Hazard Mitigation Plan*

#### *Long Term (2-5 years)*

- *Continued support for an update to the Atlantic County's Hazard Mitigation Plan*
- *ACUA Resiliency Projects*
- *Infrastructure Rehabilitation Projects- Bridge & Dam Replacement*

## Proposed Projects

### **1. *Preparation and Update of Atlantic County Master Plan, Land Use***

Atlantic County completed its last comprehensive master planning process in 2000. Since then, the County has expanded, grown and experienced changes that should be reflected in an updated Master Plan that can set forth goals and objectives for the County's future. In the aftermath of Super Storm Sandy, it has become of great importance to incorporate resiliency techniques into Master Planning documents, especially in flood prone and coastal areas.

This project will update the Land Use Element. As part of this project, a review and update of existing conditions and community outreach will be conducted. Issues will be identified, and goals and objectives will be created to guide the master planning process and its elements.

### **2. *Update and Revisions to Open Space Plan/Farmland Preservation Plan***

Atlantic County's most recent Open Space Plan was completed in 2000. A revised plan should be completed adhering to Green Acres standards and providing guidance

for how the County can continue to implement a vision for its open space, parks, and recreation programs. Connectivity and networking of open space areas should be discussed.

As part of this project, an update the Atlantic County Master Plan Farmland Preservation Element will be created as well.

### **3. *Preparation and Update of Atlantic County Master Plan, Infrastructure and Utilities***

Atlantic County will prepare and update the Infrastructure and Utilities Elements of its Master Plan. Resiliency techniques and suggested implementation methods will be discussed in reference to how the County can prepare for future storm events and mitigate from severe storm damage. Within these elements, goals and objectives will be discussed that improve the resiliency and sustainability of the County's infrastructure and prepare it for future storms.

### **4. *Implementation of Resiliency-Oriented Land Development Standards***

The Atlantic County Land Development Standards will be designed to incorporate procedures and guidelines for

development within the County. The purpose of these Regulations is to:

- Provide the rules, regulations and standards for the subdivision, development and redevelopment of land affecting County roads or drainage facilities and to guide the design of development of land affecting County roads in Atlantic County.
  - Ensure that land development within the County proceeds in accordance with, and is consistent with, the goals and objectives of the Atlantic County Master Plan and other adopted County plans.
  - Allow land development that is compatible and harmonious with the existing, planned and contemplated infrastructure base of the County.
  - Institute standards for assessing developers for a proportionate share of the cost of County improvements located outside of a given development which must be made to accommodate the increased traffic or runoff which would be generated as a result of the development.
  - Mitigate adverse traffic and drainage impacts from proposed development on roads, drainage facilities, buildings and lands owned and/or maintained by the county.
- Facilitate pedestrian and/or bicycle traffic along county roads.
  - Create and/or maintain aesthetically pleasing landscapes along county roads.
  - Ensure that development and redevelopment occurring under the County's jurisdiction minimizes any adverse impacts to the physical and living environment and is developed with the long-term goal of energy and natural resource conservation and environmental sustainability.
  - Achieve maximum coordination between the applicants' professionals, the local municipality and the county development review staff.
  - Provide Design Standards that municipalities within Atlantic County can incorporate into their Zoning and Development Ordinances, and which are intended to encourage the attractive, sustainable and smart growth development of land within Atlantic County.
  - Provide for the coordinated review of development projects involving various other State and County agencies.
  - To promote the public health, safety, convenience and general welfare of the citizens of Atlantic County.

**5. Preparation of a Sustainability and Resiliency Master Plan Element**

The preparation of a Sustainability and Resiliency Element within the County’s Master Plan will allow Atlantic County to plan accordingly for the implementation of various ordinances and guidelines to make the County more sustainable. The Element would lay the groundwork for future programs to be enacted that better prepare the County for future storm events.

**6. Model Resiliency Guidelines for Municipal Implementation**

The preparation of a framework for a consistent approach toward emergency management procedures and resiliency guidelines will help to prepare the County’s municipalities for future storm events.

**7. Infrastructure Rehabilitation Projects- Bridge & Dam Replacement**

The County has several bridges and dams that it has identified as in need of repair or replacement. These projects include:

- Lenape Dam
- Neschaque Dam
- Lakes Creak Bridge
- Jobs Point Bridge

- Miry Run Bridge
- Cotton Mills Bridge
- Pals Creek Bridge
- Port Republic Nacote Creek Bridge

**8. ACUA Pump Station Resiliency Project**

Due to the location of City Island Treatment Plant, and the coastal region it serves, hurricanes and storm tide conditions have the highest potential for natural disaster affecting the Atlantic County Utilities Authority (ACUA) Wastewater Treatment Plant. High tide and hurricane conditions can impose three (3) major problems; (1) loss of power, (2) blocked access to and within the treatment plant and pump stations, and (3) inundation of plant and collection systems buildings. The cost of the sewer system project for the treatment plant involves several mitigation measures to make the ACUA’s pump stations resistant to these problems. The ACUA is developing a project to protect certain facilities located at each of the ACUA’s Regional Pumping Stations. These improvements are designed to protect the individual pump stations from potential storm surge water from hurricane type events similar to the Super Storm Sandy. The intent of this project is to provide portable flood protection measures and to remove some existing underground storage tanks and replace them with above ground units.

### **9. ACUA Treatment Plant Resiliency Project – Emergency Power**

Due to the location of City Island Treatment Plant, and the coastal region it serves, hurricanes and storm tide conditions have the highest potential for natural disaster affecting the Atlantic County Utilities Authority (ACUA) Wastewater Treatment Plant. High tide and hurricane conditions can impose three (3) major problems; (1) loss of power, (2) blocked access to and within the treatment plant and pump stations, and (3) inundation of plant and collection systems buildings. The cost of the sewer system project for the treatment plant involves several mitigation measures to provide emergency power to the ACUA's Treatment plant. The proposed improvements at the Treatment Plant and other facilities related to the collection and treatment process are:

- Plant Complex - Raise high voltage manholes.
- Operations Building - Replace the remaining underground storage tanks with above ground units.
- Effluent Pump House – Provide back-up emergency power for two, 1,250 Horsepower (HP) pumps, plus obtaining a third generator as a back-up to the existing, including the raising of the elevation of the existing controls.
- Solids Handling Facility – Install an emergency generator at this location.

- TAS Building – Increase generator capacity at this location.
- All Collection System Pump Stations – Two portable emergency generators and portable emergency fuel supply.
- Vehicle Maintenance Facility (Egg Harbor Township Staging Area) – Provide an emergency generator.

### **10. ACUA Seawall**

The ACUA is developing a project to protect the entire treatment plant site from potential storm surge water from hurricane type events similar to the Super Storm Sandy. The intent of this project would be to construct a seawall (or bulkhead) around the entire City Island Treatment Plant site.

### **11. STP Mitigation Projects**

The ACUA is developing a project to protect certain facilities within the waste water treatment plant site from potential storm surge water from hurricane type events similar to the Super Storm Sandy. The intent of this project would be to provide portable open trailer mounted pumps to be able to pump out facilities at the plant, construct permanent sump areas within existing building structures to be able to pump out storm surge and to raise the treatment plant access road elevation to above flood level.

### **Post Sandy Planning Assistance Grant Projects**

Based on the foregoing priorities, the County will be seeking additional funding from the NJ Department of Community Affairs as part of the Post Sandy Planning Assistance Grant Program (PSPAGP) for the following activities eligible for funding under the program. Descriptions of the projects can be found on in the Proposed Project section of this report.

- Preparation and Update of Atlantic County Master Plan Land Use Element (\$50,000)
- Preparation and Update of Atlantic County Master Plan Infrastructure and Utilities Elements (\$50,000)
- Update and Revisions to Open Space Plan/Farmland Preservation Plan (\$50,000)
- Implementation of Resiliency-Oriented Land Development Standards (\$50,000)
- Preparation of a Sustainability & Resiliency Master Plan Element (\$50,000)
- Preparation of Model Resiliency Guidelines for Municipal Implementation (\$20,000)