Strategic Recovery Planning Report
Building a Stronger, More Resilient City

Prepared For:
City of Margate
Margate, New Jersey

Prepared By:
Rutala Associates
Linwood, New Jersey

May 2014

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Michael Becker

Commissioners
Maury Blumberg
Brenda Taube

Business Administrator
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City Clerk
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City Engineer
Edward Walberg

City Solicitor
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Richard Deaney
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Ellen Lichtenstein
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Monica Coffey, Green Team Chair
Roger Rubin, Zoning Officer
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1.0 INTRODUCTION

The Strategic Recovery Planning Report is a comprehensive planning document that contains actionable recommendations both for rebuilding the community and increasing the resilience of infrastructure and buildings. This report will analyze the City of Margate's flood risks. It will also outline multi-year investments to increase economic development and make recommendations to protect neighborhoods and infrastructure from future natural disasters.

To ensure the plan's success a series of public meetings were held to gather input from the people who live and work in Margate. A Steering Committee was also established consisting of public officials, business leaders, and local residents to guide development of this plan. In addition, meetings were held with the Planning Board and the Green Team.

This Strategic Recovery Planning Report (SRPR) was fully funded by a grant provided by the New Jersey Department of Community Affairs using Community Development Block Grant – Disaster Recovery funds. To qualify for this funding the community had to be in one of the nine counties in New Jersey that were significantly impacted by Superstorm Sandy and demonstrate that they lost more than $1 million in ratables due to the storm.

2.0 EXISTING CONDITIONS

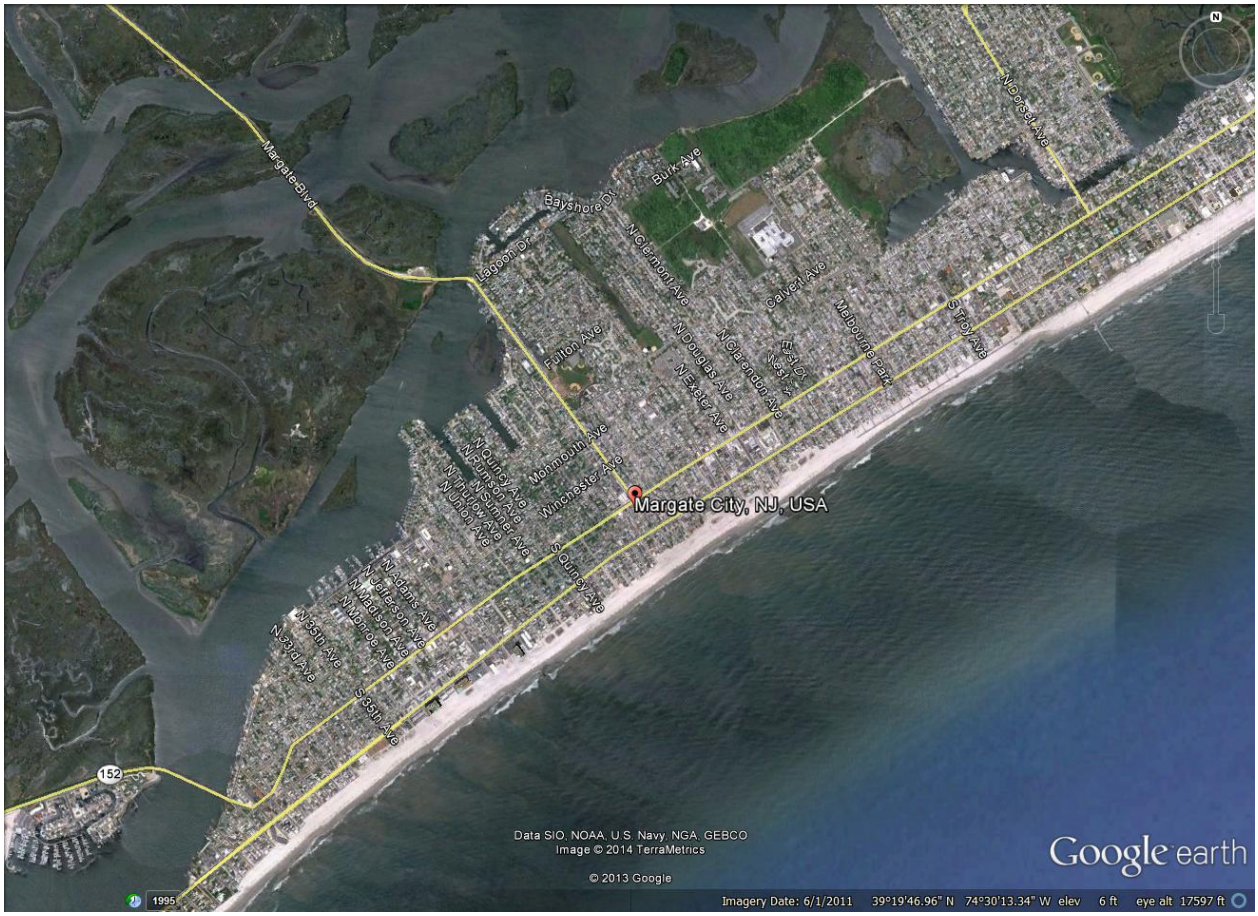
The City of Margate is 1.4 square miles and is approximately 1.5 miles long and 1 mile wide at its widest point. It is located on Absecon Island and is bordered by Ventnor City to the east and Longport Borough to the west, with the Atlantic Ocean to the south and the Bay to the north. The City is characterized by attractive residential and commercial areas, as well as its historic district, Marven Gardens. The City is located approximately two miles west of Atlantic City.

The City is a developed barrier island residential community with nearly 73 percent of the total land area or 453 acres devoted to residential use. Most of this development takes the form of single-family detached housing on individual lots. Multi-family developments are concentrated primarily in the City's Overlay Area with a few multi-family developments scattered throughout the City. Figure 1 provides an aerial view of Margate.

Margate had a 2010 year round population of 6,354 persons. The population of Margate decreased by over 22 percent between 2000 and 2010. This drop from 8,193 persons to 6, 354 persons is similar in percentage to other New Jersey beach communities. The population density also dropped from 5,810 people per square mile in 2000 to 4,539 people per square mile in 2010.

According to the 2004 Master Plan the City's population can swell fivefold on peak summer days to over 25,000 people. The 2010 Census reveals there are 7,114 housing units in Margate. This represents a 108 unit increase from the 2000 Census. Approximately one-half or 3,616 housing units are listed as seasonal, recreational or occasional use.

Figure 1- Aerial View of the City of Margate

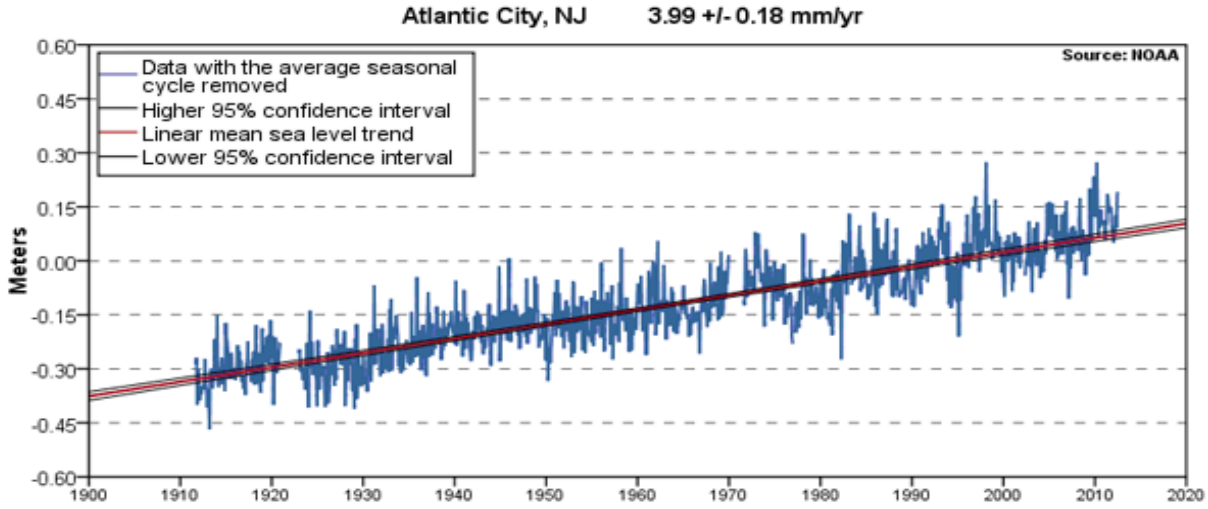


Source: Google Earth 2013

Margate is located entirely within a special flood hazard area and is subject to flooding from both the Atlantic Ocean and the bay waters know as Beach Thorofare. While the change in sea level is a slow process and storm flooding more immediate, there is a linkage between the two since as the shoreline changes there is a corresponding change to the upper limits of the 100 year flood plain. The potential impact of these changes is significant.

According to the National Oceanic and Atmospheric Administration the mean sea level trend is 3.99 millimeters/year with a 95 percent confidence interval of +/- 0.18 mm/year based on monthly mean sea level data from 1911 to 2006 with is equivalent to a change of 1.31 feet in 100 years. Hence, the historical rate of sea level rise along the New Jersey coast over the past half century was 0.14 inches/year, while predicted future rates are expected to increase to 0.5 inches/year. This means that by 2050 sea level is expected to rise by approximately 1 foot and by 2100 sea level is projected to rise about 3 feet along the Jersey Shore (Figure 2).

Figure 2 – Historical and Projected Sea Level Rise Change for the Jersey Coast



Source: National Oceanic and Atmospheric Administration

Climate Central, a Princeton based non-profit, released an analysis in April 2014 which projects a main range of local sea level rise from 0.6-1.8 feet by 2050, and 1.9-6.3 feet by 2100, at the Battery in New York City, using sea level in 2012 as the baseline. Projections for Atlantic City and Cape May are about half a foot higher than these by the end of the century.

The 2010 Atlantic County Hazard Mitigation Plan reports that the current (pre-Sandy) Flood Insurance Rate Maps indicate that 98.9 percent of Margate in a high-risk area (V, VE, A or AE zones). The 2010 Atlantic County Hazard Mitigation Plan also reports that the improved value of land in Margate is $662,149,894. Over 98 percent of the improved land value in Margate is in a high risk area with improved land in the V and VE zone valued at $181,572 and improved land in the A and AE zones valued at $649,879,825. A little more than one percent of Margate's land area is in a moderate flood risk zone and has a value of $12,088,497. Figure 3 provides excerpts from the Atlantic County All Hazard Mitigation Plan identifying the land area located in flood hazard areas in the City of Margate.

Table 3a.16
Summary of FEMA Q3 Flood Data by Municipality: Land in Hazard Areas

Municipality	Total Land Area (Acres)	High Flood Risk (Acres)		Moderate Flood Risk (Acres)	Low Flood Risk (Acres)	Possible But Undetermined Risk (Acres)	Land in High Flood Risk %		Land in Moderate Flood Risk %
		VE	A, AE	X500	X	D	VE	A, AE	X500
Absecon, City of	3,728	0	1,912	389	1,382	45	0.0%	51.3%	10.4%
Atlantic City, City of	7,232	3,407*	3,686	139	0	0	47.1%	51.0%	1.9%
Brigantine, City of	2,077	495*	1,582	0	0	0	23.8%	76.2%	0.0%
Buena, Borough of	4,855	0	95	0	4,760	0	0.0%	2.0%	0.0%
Buena Vista, Township of	26,631	0	1,554	1	25,076	0	0.0%	5.8%	0.0%
Corbin City, City of	5,130	0	712	309	973	3136	0.0%	13.9%	6.0%
Egg Harbor City, City of	7,124	0	3,004	639	3,481	0	0.0%	42.2%	9.0%
Egg Harbor, Township of	43,741	0	11,838	1,937	29,965	0	0.0%	27.1%	4.4%
Estell Manor, City of	34,660	0	9,850	0	24,762	48	0.0%	28.4%	0.0%
Folsom, Borough of	5,368	0	1,492	130	3,745	0	0.0%	27.8%	2.4%
Galloway, Township of	57,257	0	21,392	1,280	34,585	0	0.0%	37.4%	2.2%
Hamilton, Township of	72,131	0	23,317	582	48,229	0	0.0%	32.3%	0.8%
Hammonton, Town of	26,621	0	2,996	99	15,055	8470	0.0%	11.3%	0.4%
Linwood, City of	2,557	0	1,235	292	1,030	0	0.0%	48.3%	11.4%
Longport, Borough of	248	14	234	0	0	0	5.6%	94.4%	0.0%
Margate City, City of	930	37	883	10	0	0	4.0%	94.9%	1.1%
Mullica, Township of	36,195	0	6,319	502	26,542	2836	0.0%	17.5%	1.4%
Northfield, City of	2,324	0	354	71	1,900	0	0.0%	15.2%	3.1%
Pleasantville, City of	3,664	0	1,263	177	2,224	0	0.0%	34.5%	4.8%
Port Republic, City of	5,040	0	2,665	723	1,652	0	0.0%	52.9%	14.3%
Somers Point, City of	2,631	0	1,237	497	897	0	0.0%	47.0%	18.9%
Ventnor City, City of	1,335	35	1,144	156	0	0	2.6%	85.7%	11.7%
Weymouth, Township of	7,670	0	1,413	1	6,256	0	0.0%	18.4%	0.0%
Atlantic County Total	*359,149*	*3,988*	*100,177*	*7,935*	*232,515*	*0*	*1.1%*	*27.9%*	*2.2%*

Figure 3 and 4: Excerpt from the Atlantic County All Hazard Mitigation Plan identifying improved values located in flood hazard areas within Margate.

Table 3a.17
Summary of FEMA Q3 Flood Data by Municipality: Improved Values in Hazard Areas

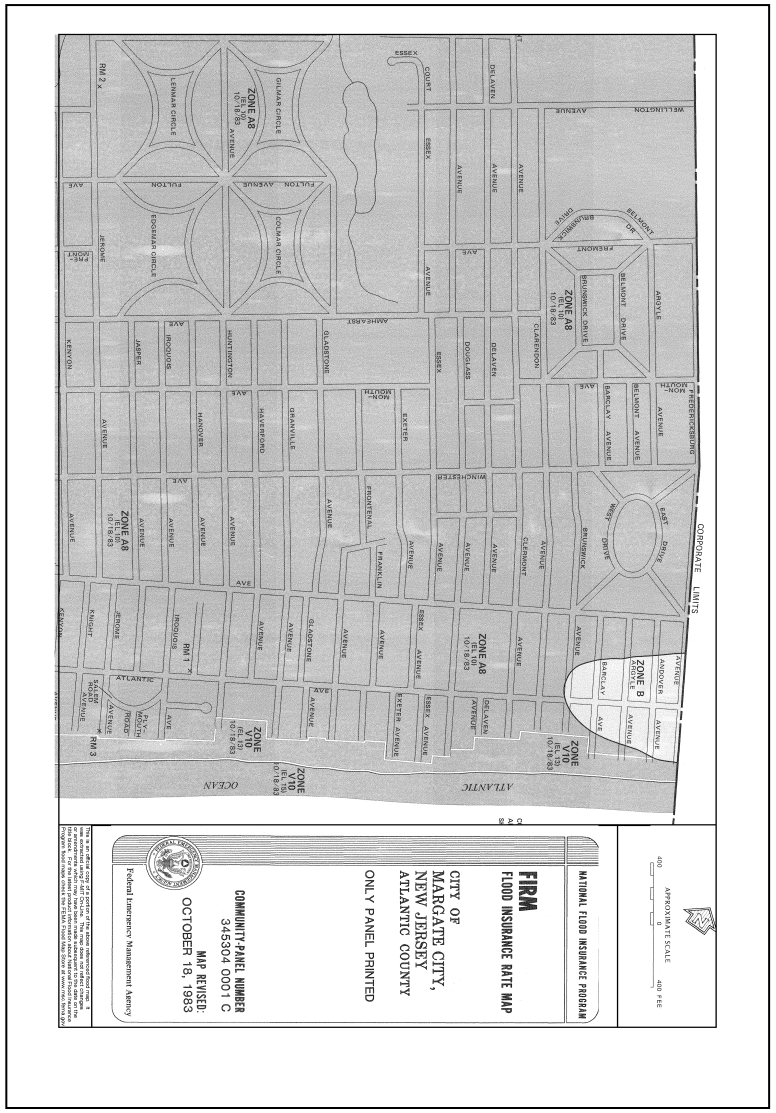
Municipality	Total Improved Value	Improved Value in High Flood Risk Areas		Improved Value in Moderate Flood Risk Areas	Improved Value in Low Flood Risk Areas	Improved Value in High Flood Risk Areas %		Improved Value in Moderate Flood Risk Areas %
		VE	A, AE	X500	X	VE	A, AE	X500
Absecon, City of	$263,139,927	$0	$29,724,892	$30,013,100	$203,401,935	0%	11.3%	11.4%
Atlantic City, City of	$5,847,037,300	$77,986,239	$5,560,144,493	$208,906,487	$0	1.3%	95.1%	3.6%
Brigantine, City of	$513,295,303	$23,405,230	$489,890,073	$0	$0	4.6%	95.4%	0%
Buena, Borough of	$132,115,107	$0	$566,522	$0	$131,179,439	0%	0.4%	0%
Buena Vista, Township of	$479,119,804	$0	$15,307,091	$14,019	$463,567,116	0%	3.2%	0%
Corbin City, City of	$28,793,922	$0	$9,166,217	$4,992,579	$14,635,126	0%	31.8%	17.3%
Egg Harbor City, City of	$80,098,041	$0	$1,202,802	$1,310,315	$77,584,923	0%	1.5%	1.6%
Egg Harbor, Township of	$3,470,834,305	$0	$265,355,808	$125,222,825	$3,080,255,671	0%	7.6%	3.6%
Estell Manor, City of	$102,859,729	$0	$1,864,380	$0	$100,995,348	0%	1.8%	0%
Folsom, Borough of	$148,509,885	$0	$13,363,424	$13,209,915	$121,908,590	0%	9.0%	8.9%
Galloway, Township of	$2,285,757,329	$0	$47,483,423	$12,687,353	$2,225,585,621	0%	2.1%	0.6%
Hamilton, Township of	$1,728,805,249	$0	$86,078,691	$62,854,493	$1,579,872,064	0%	5.0%	3.6%
Hammonton, Town of	$936,333,112	$0	$41,515,877	$4,875,744	$887,941,507	0%	4.4%	0.5%
Linwood, City of	$498,008,251	$0	$65,208,322	$74,727,989	$358,071,941	0%	13.1%	15.0%
Longport, Borough of	$165,551,868	$64,292	$165,487,576	$0	$0	0.04%	99.96%	0%
Margate City, City of	$662,149,894	$181,572	$649,879,825	$12,088,497	$0	0.03%	98.1%	1.8%
Mullica, Township of	$402,224,021	$0	$60,891,985	$30,889,251	$310,395,101	0%	15.1%	7.7%
Northfield, City of	$800,316,450	$0	$7,142,473	$18,599,479	$774,574,498	0%	0.9%	2.3%
Pleasantville, City of	$1,134,689,566	$0	$41,540,030	$49,774,919	$1,043,374,617	0%	3.7%	4.4%
Port Republic, City of	$92,347,407	$0	$16,728,898	$19,713,045	$55,905,464	0%	18.1%	21.3%
Somers Point, City of	$1,034,500,500	$0	$225,320,851	$243,098,319	$566,081,329	0%	21.8%	23.5%
Ventnor City, City of	$380,608,771	$577,952	$286,374,593	$93,656,225	$0	0.2%	75.2%	24.6%
Weymouth, Township of	$111,684,498	$0	$13,494,252	$0	$98,144,835	0%	12.1%	0%
Atlantic County Total	*$21,298,780,238*	*$102,215,285*	*$8,093,732,498*	*$1,006,634,554*	*$12,093,475,126*	*0.48%*	*38.0%*	*4.7%*

Since 1978 when FEMA first began to computerize their records, the City of Margate has registered 3,093 insurance losses with total payouts of $71,051,123.

FEMA's Preliminary Work Maps reveal that the beach front area and bay front areas have been designated as a VE zone. The remainder of the City is located in the AE flood hazard zone. V zones on the Flood Insurance Rate Map (FIRM), are the areas of the coastal floodplain subject to the highest risk. Typically, this is the area where the computed wave heights for the base (one-percent-annual-chance) flood are 3 feet or more. V zones are subject to more stringent building requirements and different flood insurance rates than other zones shown on the FIRM because these areas are exposed to a higher level of risk than other coastal flooding areas. Coastal A Zones are portions of the Special Flood Hazard Area landward of a V zone (i.e., areas where wave heights are computed as less than 3 feet) and are mapped as A' zones on the FIRM. While the wave forces in coastal A zones are not as severe as those in V zones, the capacity for the damage or destruction of buildings is still present. A zones are areas of high flood risk subject to inundation by the 1% annual-chance flood event. Figures 6 and 7 compares the existing FIRM map to FEMA's Preliminary Work Map.

Figure 5: Superstorm Sandy Damage in Downtown Margate at the Intersection of Washington Avenue and Ventnor Avenue

Figure 6: Comparison of the existing FIRM to the FEMA's Preliminary Work Map for the eastern area of Margate



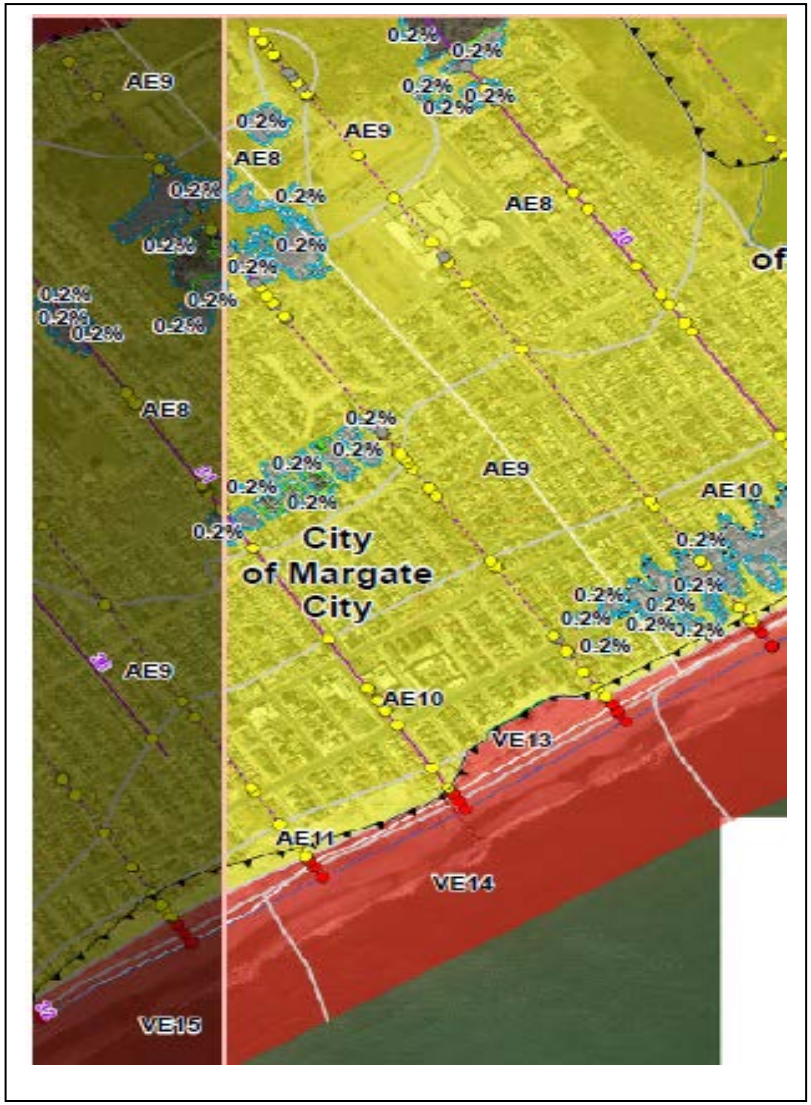
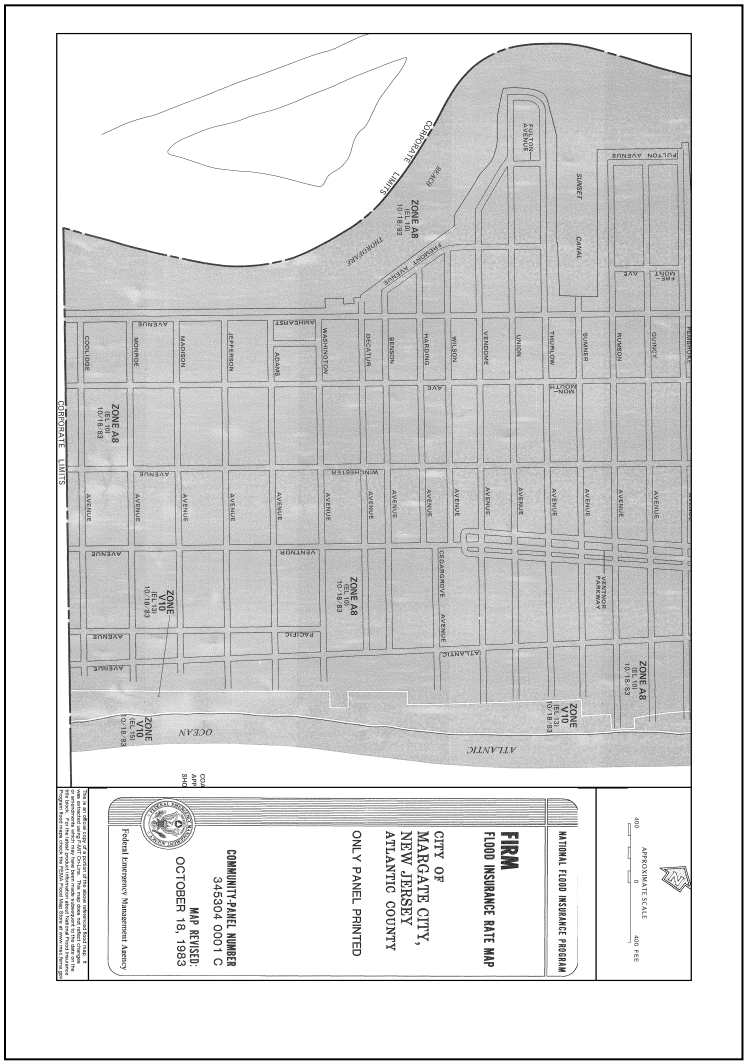
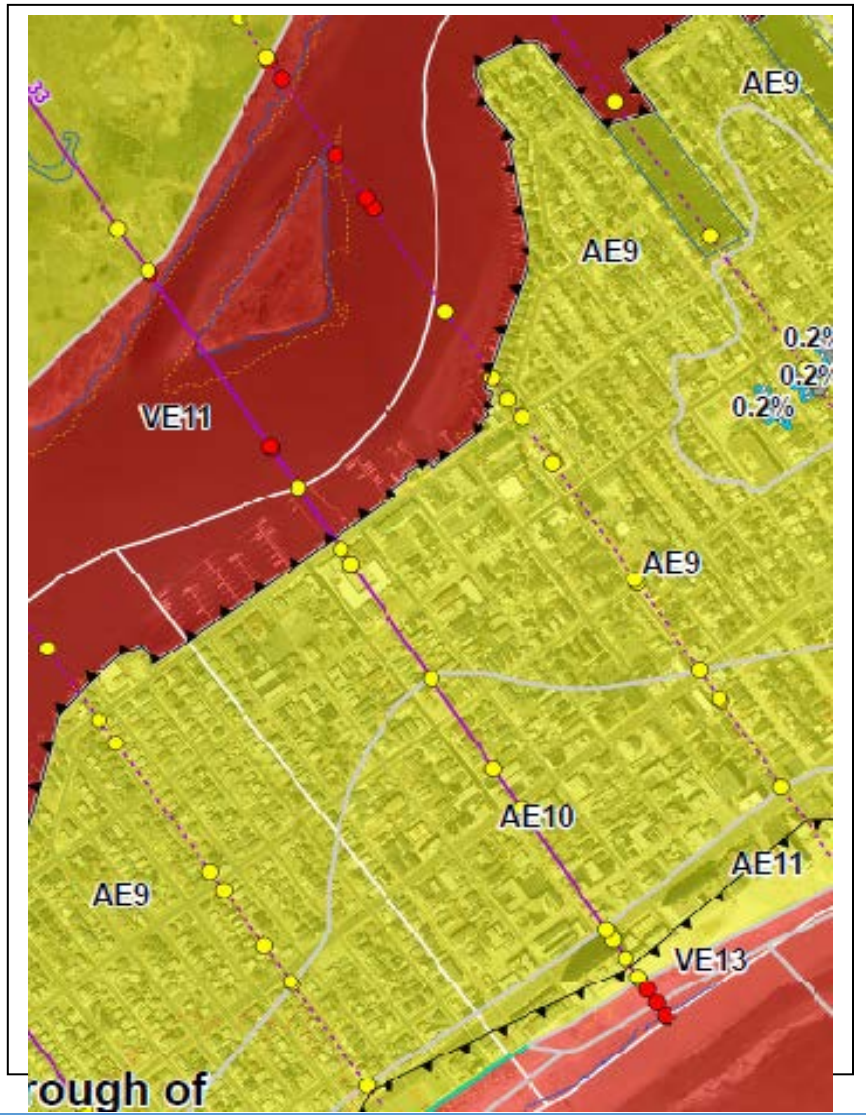


Figure 7: Comparison of the existing FIRM to FEMA's Preliminary Work Map for the western area of Margate





The 2007 report from the Intergovernmental Panel on Climate Change projects that the world's oceans will rise from 8 inches to 2 feet by the end of the century. Examples of current sea level and the impacts that a 1-foot and a 2-foot increase in sea level may have on the most vulnerable areas of Margate are shown on the following screen shots from njfloodmapper.com, which are identified as figures 8 through 10.

Figure 8 - Current sea level (Source: njfloodmapper.com)

Figure 9 - Forecasted impacts of a 1 ft rise in sea level (Source: njfloodmapper.com)

Figure 10 -Forecasted impact of a 2 ft rise in sea level. (Source: njfloodmapper.com)

The impacted areas that are portrayed on these maps include:

- North Huntington Avenue from Lagoon Drive to Amherst Avenue
- Intersection of North Fredericksburg Avenue and Winchester Avenue
- Ventnor Avenue from North Washington Avenue to North Coolidge Avenue
- Amherst Avenue/Monmouth Avenue Waterfront District

The City of Margate has experienced many natural-hazard events that received a federal declaration, including the most recent events listed below:

April 14 – 20, 2007	Nor'easter	DR-1694
November 11 – 15, 2009	Nor'easter	DR-1967
December 19 – 20, 2009	Snowstorm	DR-1873
February 5 – 6, 2010	Severe Winter Storm	DR-1889
December 26 – 27, 2010	Severe Winter Storm	DR-1897
August 26 – September 5, 2011	Hurricane Irene	DR-4021
June 29 – 30, 2012	Derecho	DR-4070
October 26 - November 8, 2012	Superstorm Sandy	DR-4086

2.1 Documented Damage from Superstorm Sandy

The City experienced extensive damage as a result of Hurricane Sandy with 1,114 insurance claims paid as of September 15, 2013 with $10,258,561 losses paid according to the New Jersey Department of Banking and Insurance. This compares to the flooding history in the City where only 3,094 insurance claims were filed between January 1, 1978 and January 31, 2014. Hence, 36 percent of the flood claims paid in the City of Margate in the last 35 years were as a result of Superstorm Sandy.

Figure 11- Insurance Claims Resulting from Superstorm Sandy for the City of Margate As of September 15, 2013

Total Claims	
Claims filed:	1,587
Percent paid:	66.7 percent
Closed, no payment:	473
Total losses:	1,114
Losses paid:	$10,258,561
Average paid:	$9,687
Losses incurred:	$10,981,022
Average loss:	$6,919

Source: New Jersey Department of Banking and Insurance

A total of 92 structures were deemed substantially damaged as of April 1, 2014 by the City's Building Official. A substantially damaged structure as defined in 59.1 of the National Flood Insurance Program (NFIP) regulations is when:

> *"damage of any origin is sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred."*

A substantially damaged structure must be brought into compliance with NJIP regulation for new construction; that is, the structure must be elevated (or flood-proofed if it is a non-residential or historic structure) to or above the level of the base flood elevation.

If a substantially damaged structure is located in a velocity zone (V-Zone), it not only must be elevated but it also must comply with additional requirements contained in the NFIP regulations. These regulations call for the elevation to be on pilings or columns so that the bottom of the lowest horizontal structural member of the lowest floor is elevated to or above the base flood elevation.

The ratable base of the City was reduced by $3,377,600 as of March 1, 2013 as a direct result of Superstorm Sandy. Only the municipalities of Brigantine ($11,360,900), Atlantic City ($6,201,555) and Ventnor ($4,992,360) had a higher ratable loss in Atlantic County.

The City of Margate was without power for six days, making the recovery very challenging. Emergency generators were used to power the various public buildings and infrastructure pumps.

City Hall was damaged by Superstorm Sandy and the municipal offices were immediately moved to 9001 Winchester Avenue, the site of a closed elementary school. The City has made this location the permanent municipal building.

The public works building was water damaged. Insurance claims have been settled for this building and contents and repairs have been made.

The police department building at 111 N. Decatur Avenue was also damaged by Superstorm Sandy., along with the historic society buildings at 7 S. Washington Avenue and the Martin Bloom Pavilion at Huntington Avenue and the beach.

Bulkheads at Kenyon and Lancaster Avenues were severely damaged. Many vehicles including fire engines were damaged by Superstorm Sandy. Many businesses were damaged as well.

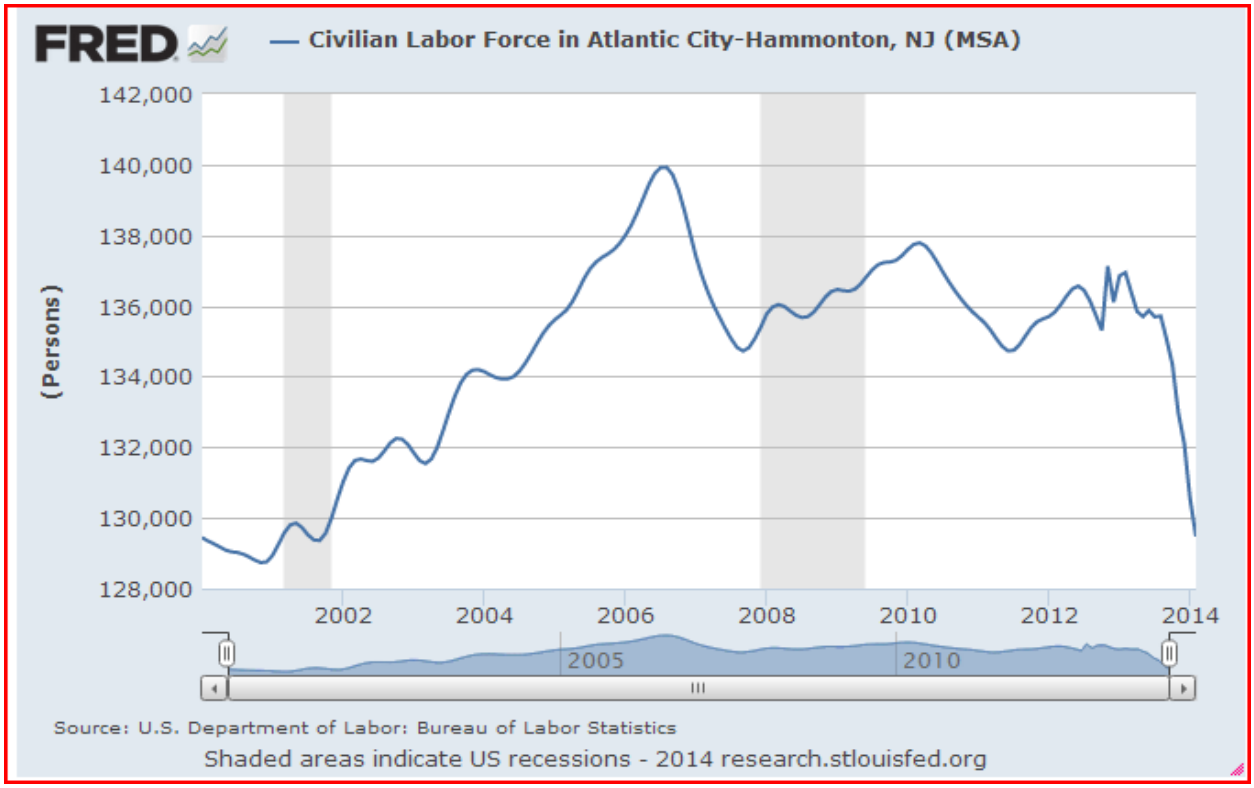
Sandy washed from the beaches on to the streets and around many beach front homes. Hundreds of tons of debris was removed from City streets. The photograph below depicts sand filled properties near the beach. FEMA provided $2,412,131.87 or 90 percent of the cost to remove sand and debris. A total of eight contractors assisted City employees with debris removal.

To prepare for future storms, the City has taken ownership of several military surplus vehicles.

To assist homeowners, the Board of Commissioners adopted an ordinance giving home owners of storm damaged houses the opportunity to raise their homes to an elevation of 13 feet without a variance.

The Jersey Shore economy has not fully recovered since Superstorm Sandy. The civilian labor force is the smallest it has been since 2003. Civilian labor force is a term used by the U.S. Bureau of Labor Statistics to describe the subset of Americans who have jobs or are seeking a job. The civilian labor force for Atlantic County was starting to recover before Superstorm Sandy, but it has rapidly declined since the storm, from 137,000 to 129,470 as of February 2014. This includes the closing of the Atlantic Club Casino Hotel in January 2014, which resulted in the loss of 1,600 direct jobs and 800 indirect jobs. The rapidly decreasing labor force has had a significant impact on the regional housing market, commercial growth and the overall ratable base.

Figure 12: Civilian Labor Force in the Atlantic City-Hammonton, NJ MSA



The county ratable base is expected to fall for the sixth consecutive year. However, Margate's ratable base has been relatively stable in the past few years despite the recession and the impacts of Superstorm Sandy. While most coastal communities along the Jersey Shore have witnessed a decline in ratable, Margate has not decreased.

Figure 13: Ratable History for the City of Margate

Year	Ratable	Ratio	
2007	$3,306,431,100	88.06	
2008	$3,406,787,400	84.43	
2009	$3,434,199,300	82.50	
2010	$3,455,724,000	84.28	
2011	$3,469,380,300	88.07	
2012	$3,484,981,200	88.63	
2013	$3,499,646,000	90.56	
2014	$3,525,938,500	90.99	Certification Pending

The Atlantic City-Hammonton, NJ Metropolitan Statistical Area (MSA) is listed as 358 out the country's 372 metropolitan areas in unemployment. The U.S. Bureau of Labor Statistics data shows that for January 2014, the Atlantic City-Hammonton MSA is one of only 21 metropolitan areas that have jobless rates of at least 10 percent. This lack of employment opportunities indicates that the impact of Superstorm Sandy has had a continued economic impact on the region.

Figure 14 - Atlantic City Demographics Information

	Atlantic City	Atlantic Co.	NJ	United States	
Population:	39,558	274,549	8,791,894	308,745,538[1]	
Unemployment:	13.1%	13.1%	7.1%	6.7%[2]	
Poverty Rate:	23.8%	10.6%	9.4%	14.3%[3]	
Percent Minority:	73.3%	33.6%	29.8%	26.7%[1]	
Per Capita Income:	$20,760	$27,634	$34,566	$ 26,530[3]	
Median Hhld Income	$30,237	$54,766	$69,811	$51,914	
Persons Below Poverty	25.3%	11.8%	9.1%	13.8%	
Renter Occupied:	67.7%	30.4%	32.9%	33.1%	
High School Grads	74.3%	84.7%	87.3%	85.0%	
Bachelor's Degrees	16.6%	23.6%	34.6%	27.9%	

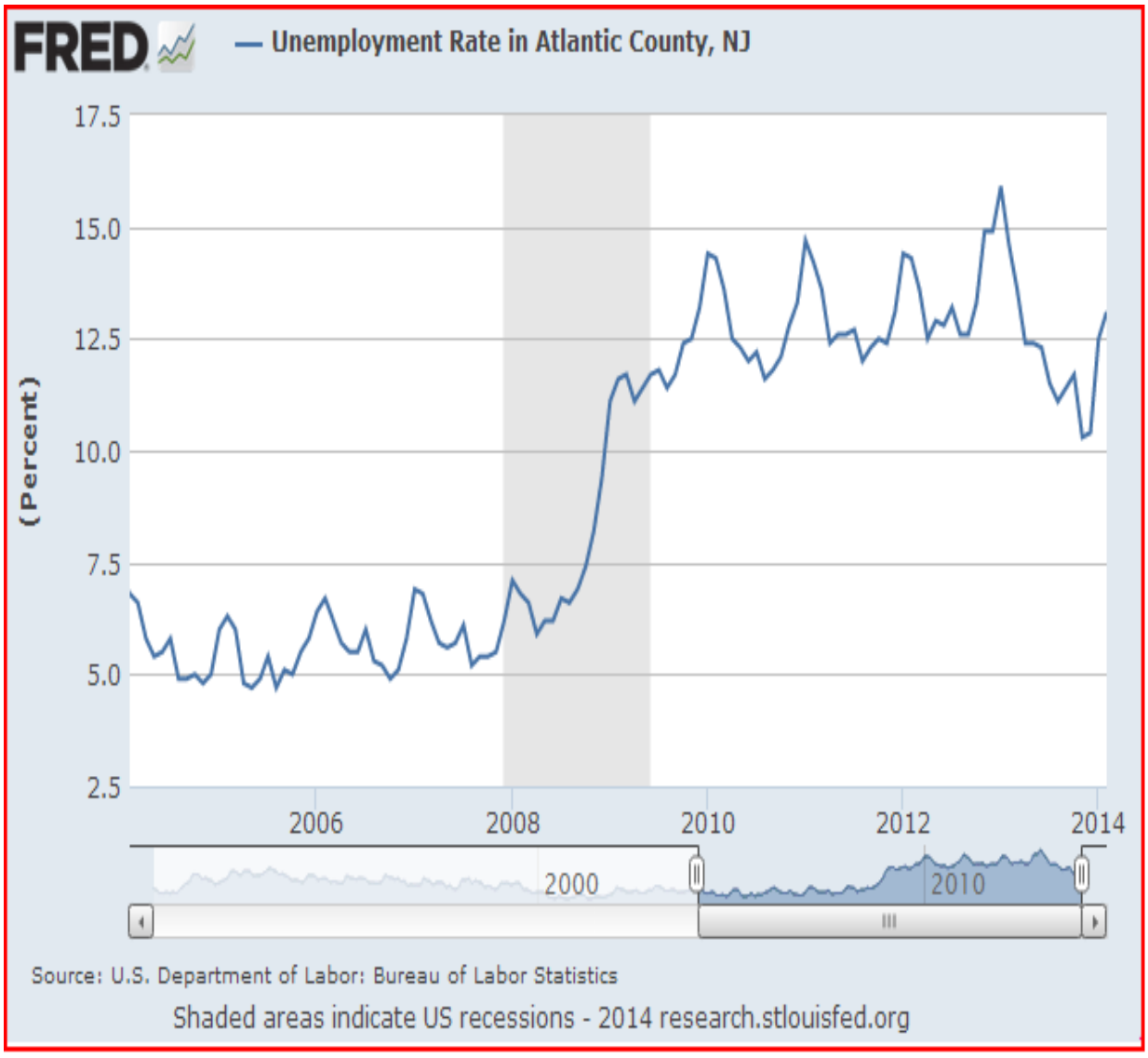
[1]Data is from the 2010 U.S. Census data and is available at http://www.census.gov/
[2]Data is from the Bureau of Labor Statistics and is available at www.bls.gov
[3]Data is from the 2009 American Community Survey and is available at http://www.census.gov/newsroom/releases/archives/income_wealth/cb10-144.html

The Atlantic City-Hammonton MSA had the nation's largest over-the-year unemployment rate decrease in November 2013 (-4.7 percentage points), from 14.9 percent in November

2012, days after Superstorm Sandy, to 10.2 percent in November 2013. In February 2014, the Atlantic City unemployment rate was 13.1 percent compared to 7.1 for the State of New Jersey and 6.7 percent for the nation. When the unemployment rate and the civilian labor force decrease, generally it is because for various reasons people have opted out of the labor market.

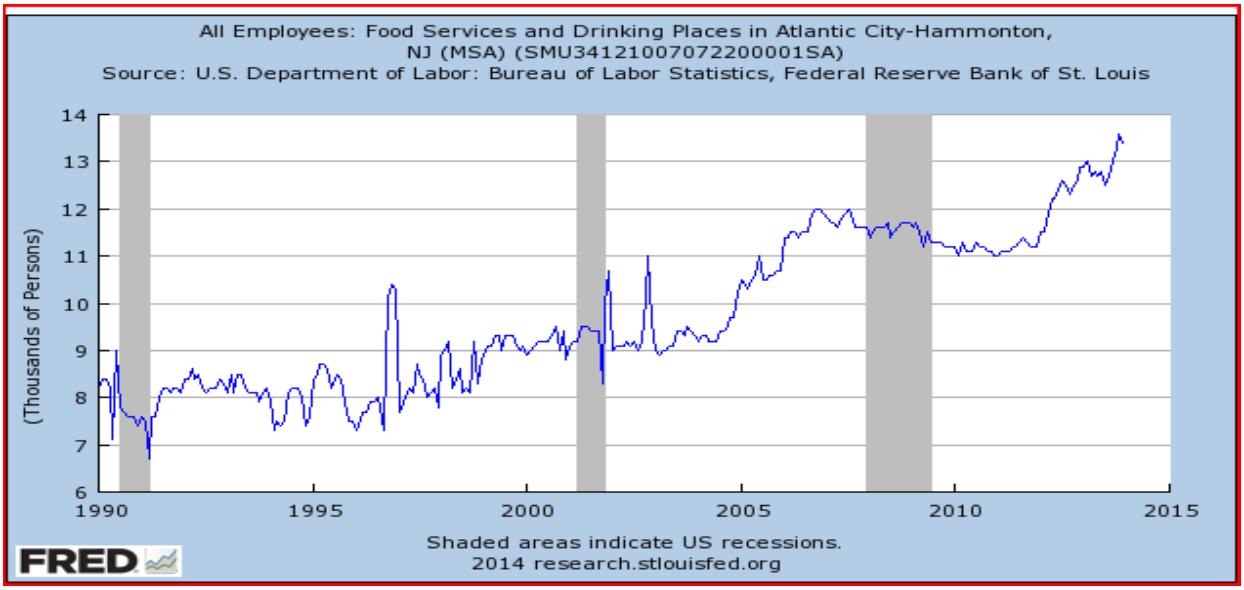
Figure 15 shows that the unemployment rate for the Atlantic City-Hammonton MSA peaked after Superstorm Sandy at more than 15 percent.

Figure 15 – Unemployment Rate in Atlantic County, NJ



On a positive note, a segment of the Atlantic County economy that is growing is the Food Services and Drinking Places sector. As shown in Figure 16, this sector peaked at more than 13,000 employees in 2014, by far the highest level ever achieved in our region.

Figure 16 – Employment Trends in the Food and Beverage Sector in Atlantic County



According to data released by the Federal Reserve Bank of Philadelphia, housing prices in the Atlantic City-Hammonton MSA have continued to drop. The data for the third quarter showed a decrease of 0.4 percent, while all other sections of the State of New Jersey, except for Cumberland and Cape May counties, witnessed an increase in values. The decrease in value may be a result of Superstorm Sandy and flood insurance changes.

Data from the New Jersey Association of Realtors indicates that in 2013 the island communities in Atlantic County, including Margate, witnessed an 11 percent decrease in home sales.

2.2 Funding Assistance Provided

The State allocated $710 million from the first tranche of Community Development Block Grant – Disaster Recovery (CDBG-DR) funds to the Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program. These RREM funds only addressed 41 percent of the need. To address the unmet need, the second tranche of CDBE-DR funds allocates another $390 million to the RREM Program. Even with these additional funds it in not expected that all of the wait-listed owners will receive funding. Additional funding sources for home elevation will be discussed later in this Report.

As of January 20, 2014, only $7,600 in RREM funds was paid to one homeowner in Margate. A total of 174 homeowners applied for the RREM program (a grants of up to $150,000) and 7 owners were awarded grants of the 32 applicants who were found eligible in addition 95 were wait-listed, 15 were in intake, 29 were rejected and 3 were on appeal.

A total of 252 homeowners in the City of Margate applied for New Jersey Resettlement Grants and 158 grants were awarded. These grants provided $10,000 to encourage homeowners to stay in their existing home or in the same county. This grant can be used for many expenses, including payment of flood insurance premiums. A total of $215 million in Resettlement Grants were paid by January 20, 2014.

2.4 Community Vulnerabilities

Many vulnerabilities has been identified in the City of Margate as a result of Superstorm Sandy. These vulnerabilities will be briefly described here but will be detailed with solutions in the recommendation sections of this Report.

Probably the most pressing issue facing the City and its residents is the need to elevate homes throughout the community. Limited funds are available through Block Grants and the City will continue to pursue these and other funding sources.

Given the frequency and severity of storm activity, non-grid power sources are needed for all critical facilities including the municipal building and sewer, water and stormwater pump stations.

Another infrastructure need is to harden the protective barriers around the island. The City of Margate is exposed to flooding from two sources – storm events (e.g. coastal flooding, ponding, urban drainage, etc.) and sea level rise. The bayside street elevations are five to six feet above sea level, which leaves the City's low-lying areas vulnerable to flooding during coastal storms. In an attempt to reduce the flooding, the City installed has increased the bulkhead height requirements. However, a seven-foot tide still caused backflow from the bays to flood streets, threaten homes, inhibit the safe passage of first responders and block the only evacuation route available to residents. Bulkheads and seawall need to be improved and in some cases elevated to provide needed protection. New technologies including living shorelines will be carefully evaluated.

The elevation of Ventnor Avenue will be considered to provide access during flood events.

2.4 National Flood Insurance Program

The National Flood Insurance Program (NFIP) was established with the passage of the National Flood Insurance Act of 1968. The NFIP is a federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages.

There are currently over 230,000 flood insurance policies in- force for the residents of New Jersey. Nationally, that number has risen well-beyond 5.6 million. Significant changes have also been made over the years to the NFIP, most notably the establishment of the Community Rating System (CRS) during the 1990s, and a grant program for mitigation projects and plans.

Additionally, more than 20,000 communities in the United States and United States-held territories have had flood insurance made available, and nearly 100 private companies now offer nationwide flood insurance backed by the federal government. Because of the NFIP, millions of taxpayer dollars are saved every year when it comes to disaster recovery.

There are 5,835 flood insurance policies in-force in the City of Margate paying premiums of $5,632,117 on properties valued at $1,371,141,600.

Since 1978, a total of $71,467,922 in flood insurance has been paid to Margate property owners, in Atlantic County only Atlantic City ($110,510,513); Brigantine ($88,598,825) and Ventnor ($80,794,270) have had higher pay outs. There are 85 properties with repetitive loss claims that have received $6,657,971 and 8 properties with severe repetitive loss claims resulting in payments equaling $1,067,413 or $133,427 per property.

FEMA defines a Repetitive Loss (RL) property as "any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978."

A Severe Repetitive Loss (SRL) is defined as "a single family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding $5,000 and with cumulative amount of such claims payments exceeding $20,000; or for which at least 2 separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property."

The CRS program is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Through the CRS a community can lower flood insurance premiums up to 45 percent. There are 18 activities in the CRS program under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction and Flood Preparedness.

The Biggert-Waters Reform Act of 2012 required the NFIP to raise insurance rates for some pre-FIRM properties to reflect the actual cost without subsidies. There are 88,601 pre-FIRM properties in New Jersey, or 37 percent of the housing stock. Pre-FIRM for the City of Margate is prior to January 1, 1975. Many of the pre-FIRM properties in high-risk areas do not meet current standards for construction and elevation, and they have been receiving subsidized rates that do not reflect their actual risk. The subsidized rates are being eliminated in some cases, as noted in the Figure 10. Some current policyholders and all future policyholders owning pre-FIRM properties in high-risk areas will pay rates based on their full risk of flood damage. However, most NFIP-insured properties are not affected by the changes.

FEMA is currently producing new flood-risk data for the State of New Jersey. Last year, FEMA provided the City of Margate and all coastal communities with a working Flood Insurance Rate Map (FIRM). These maps have been reviewed and various changes have been agreed to based upon scientific evidence that indicated errors in the mapping. These

maps are available at www.region2coastal.com. The remainder of the process for adoption of these maps is as follows:

May 2014	Preliminary FIRM and Flood Insurance Study (FIS) Released
July 2014 or later	60-day review period ends
Oct. 2014 or later	90-day appeal period ends
April 2015 or later	Six-month adoption period ends
Mid 2015 or later	Letter of Final Determination issued by FEMA

With the new flood maps comes a new starting point for measuring mean sea level (MSL). The current method called NGVD29 is being replaced with a more accurate method called NGVD88. The conversion varies from community to community and the best source of an accurate conversion is a professional land surveyor. In Margate, the NGVD88 is roughly 1.3 feet higher than the same measurement in NGVD29 datum. With this in mind, a measurement of 10 feet in NGVD29 datum in Margate would equal 8.7 feet in NAVD88 datum.

The FIRM and FIS become effective at the end of the six-month period. The effective date is also the date when flood insurance rates will be based on the new flood data for new construction built after this date. The effective FIRM will be used by federally insured or regulated lenders to determine if flood insurance is required as a condition of a loan.

Figure 17 – Projected NFIP Annual Flood Insurance Premiums for V Zone and A Zone Properties with $250,000 Residential Building Coverage

V Zone

Lowest Floor Elevation	No Contents Covered	$100,000 Contents Covered
3 Feet Above	$2,403	$2,923
2 Feet Above	$3,278	$4,048
1 Feet Above	$4,728	$5,918
At BFE	$6,803	$8,603
1 Foot Below	$9,003	$11,583
2 Feet Below	$12,074	$15,764
3 Feet Below	$15,524	$20,474
4 Feet Below	$17,334	$23,304
6 Feet Below	$23,449	$32,019

A Zone

Lowest Floor Elevation	No Contents Covered	$100,000 Contents Covered
3 Feet Above	$376	$561
2 Feet Above	$448	$633
1 Feet Above	$660	$845
At BFE	$1,359	$1,724
1 Foot Below	$4,527	$5,255

2 Feet Below	$5,924	$8,308
3 Feet Below	$7,204	$10,554
4 Feet Below	$9,551	$14,370
6 Feet Below	$18,830	$28,535

On March 21, 2014 the Homeowner's Flood Insurance Affordability Act (HFIAA-14) was signed by President Obama to address rate hikes associated with FEMA's National Flood Insurance Program, bringing relief to homeowners while not significantly impacting the program's solvency.

HFIAA-14 is designed to slow down the time frame to true-risk rates that BW-12 implemented for Pre-FIRM subsidized policies. Post-FIRM policies currently have a non-subsidized true-risk rate.

This law is not expected to be fully implemented until spring of 2015. Effective May 1, 2014, pre-FIRM rate tables were to be used when more favorable than true-risk rates for policies processed after May 1, 2014 and for policies expiring on or after September 1, 2014 for:

- New applications or policy assignments for pre-FIRM buildings in A and V zones.
- Renewal of all pre-FIRM buildings that were not insured on July 6, 2012.
- Additionally, elevation certificates are not required for pre-FIRM buildings after May 1, 2014.

Biggert-Waters 2012 (BW-12) Rate Triggers remain in effect with HFIAA-14 for commercial buildings, non-primary homes, substantially damaged or improved homes, and severely repetitive loss properties.

HFIAA-14 Rate Increases will be between 5 and 18%.

Policy Surcharges – the 5 percent reserve fund assessment is replaced by:

- $25 for primary residential and condominiums. $250 for all other policies.

Remapping

- Grandfathering was eliminated with BW-12 but will be brought back with HFIAA-14.
- The BW-12 rates phase in for non-compliant structures is eliminated.

Refunds

Refunds will not affect all subsidized policyholders who received rate increases as directed by Congress in BW-12, only policyholders for whom the rate increases under BW-12 were revoked by the new law. Refund checks will probably begin to be processed in spring 2015.

- **REFUNDS APPLY TO:** Policyholders in high-risk areas who were required to pay their full- risk rate after purchasing a new flood insurance policy on or after July 6, 2012.

- **REFUNDS MAY APPLY TO:** Policyholders who renewed their policy after the HFIAA was enacted on May 21, 2014 and whose premium increased more than 18 percent.

Coming with HFIAA-14

- Monthly installments are coming next year.
- Maximum residential deductible increased from $5,000 to $10,000.
- FEMA will reimburse for successful map appeals.
- BW-12 changed substantial improvement requirement to 30% - HFIAA-14 returns to 50%.
- FEMA must report to congress annually on their mapping methodology.
- A consumer advocate office will be created.

3.0 REVIEW OF PLANS AND REGULATIONS

An objective of a Strategic Recovery Planning Report is to examine the adequacy of the existing planning documents and describe what changes are needed, if any, to support municipal planning related to post storm recover and to mitigate future storm impacts. The following planning documents were reviewed.

- Margate Master Plan, January 2004
- Margate Master Plan Revision, July 2006
- Flood Protection Information Sheet, September 2008
- City of Margate Ordinances 1of 2013, 7 of 2013 and 17 of 2013
- Margate City Codes, adopted thru August 15, 2013
- Atlantic County Hazard Mitigation Plan 2010

Figure 17 is the Community Plan Checklist which lists municipal document that may be helpful in developing a Strategic Recovery Planning Report.

Figure 18 – Summary of Plans and Ordinances for the City of Margate

Plans, Ordinances, and Codes	Yes	No	Adopted Year	Update Frequency
Municipal Master Plan	x		2006	6 to 10 years
Vision Plan		x		
All-Hazard Mitigation Plan	x		2010	County Adopted
Floodplain Management Plan	x		2007	
Evacuation Plan	x		1986	Latest Update 2014
Emergency Response Plan	x		2000	Latest Update 2014

Continuity of Operations Plan	x		1986	Latest Update 2014
Disaster Recovery Plan	x		2010	Latest Update 2014
Post-Disaster Recovery Plan	x		2013	Every 4 years
Capital Improvements Plan		x		See Note 1
Economic Development Plan	x		2014	Every 4 years
Coastal Plan or Element		x		State Plan is in effect
Shoreline Restoration Plan		x		State Plan is in effect
Open Space & Recreation Plan	x		2006	Element of Master Plan
Stormwater Management Plan	x		1998	Latest Update 2014
Historic Preservation Plan		x		
Zoning Ordinance	x		2006	Significantly Undated 2013
Subdivision Ordinance	x		2006	As Needed
Building Code	x		2009	Latest Update 2009
NFIP Flood Damage Prevention Ordinance	x		2012	
Cumulative Substantial Damage		x		
Greater than One Foot Freeboard	x		2012	

Note 1: While the Capital Improvement Plan is not formally adopted, a Capital Plan is included in the Annual Operating Budget.

The purpose of the Post Sandy Planning Assistance Grant Program is to support long-range planning for community redevelopment in the municipalities and counties sustaining damage from Superstorm Sandy. Due to the damage caused by the storm, many New Jersey municipalities and counties face a myriad of recovery challenges. Among them is the need for planning support to develop community recovery plans that strategically address the issues that now confront them. In furtherance of its mission to provide local government officials with the tools needed to efficiently manage municipal operations, the NJDCA has created a local planning-assistance program that will supplement the ongoing efforts of storm-impacted local and county governments to rebuild and revitalize. The program will offer grants to the counties of Atlantic, Bergen, Cape May, Essex, Hudson, Middlesex, Monmouth, Ocean and Union and all municipalities within those counties that have

sustained a ratable loss attributable to Superstorm Sandy of at least 1 percent or $1 million and demonstrate how assistance will lead to greater community resilience.

3.1 Margate Master Plan 2004

The 2004 Margate City Master Plan reports that Margate is a nearly completely developed barrier island community and typical of many beach communities the highest land elevations are located along the oceanfront, with lower elevations approaching the bay front. The topography is gentle and there are no areas of severely sloped ground. The highest elevations are located in the southeastern corner near the ocean, with elevations in excess of 10 feet. The lowest elevations are located in the City's southwestern corner with elevations slightly below 6 feet. The Master Plan contains an elevations map which provides local elevations for the entire community. The plan also indicates that all of Margate is located within a special flood hazard area and the City is subject to serious flooding conditions from both ocean and bay waters during major storms.

The overall intent of the Master Plan is to preserve and enhance Margate's character by protecting its existing residential neighborhoods, providing community facilities and amenities that meet the needs and expectations of Margate residents and targeting reinvestment within the City's Commercial Districts. The Plan includes ten chapters: Goals and Objectives, Land Use and Urban Design, Community Profile, Housing, Circulation, Community Facilities, Parks and Recreation, Historic Preservation, Recycling, and Relationship to Other Plans.

The 2004 Master Plan identified the following vision for the City:

> *Margate has reinforced its image as a desirable, predominantly year round shore town with a strong sense of community. New home construction has been compatible in scale, and architectural detail with the character of the neighborhoods. Historic neighborhoods have been enhanced through context sensitive renovations. The Central Business District along Ventnor Avenue and Washington Avenue has become an active "downtown" with sufficient parking. A strong physical and visual connection has been successfully created along Washington Avenue between the beach, the CBD and the bay front. This pedestrian friendly environment has been enhanced through appropriately located parking, new bikeways and streetscape improvements.*
>
> *The bay front 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 neighborhoods. A new park and nature preserve near Margate Terrace has been added to the City's park network. Gateway and way finding signage have assisted in defining the City as a desirable community.*

The following goals or objectives from the 2004 Master Plan directly or indirectly, address flood hazards:

- Create a new park/nature preserve in the northeastern section of the City.
- Continue the revitalization of the City's bay front district.
- Create walking scale linkages between the bay front, the CBD and the ocean.

- Maintain and enhance the existing community facilities consistent with the character and development of the City.
- Respect the Marven Gardens Historic District when making land use policies and decisions.

In addition to the above goals the Land Use Element of the 2004 Master Plan recommends the following specific zoning amendments that will directly or indirectly address flood hazard conditions.

- Establish a Government and Open Space zone to include publicly owned parcels particularly those owned by the City, Board of Education, and Margate Terrace.
- Establishment a Riparian Zone for properties covered by the high tide.
- Revise the Waterfront Special District boundaries to exclude lots fronting on Monmouth Avenue.
- Modify bulk standards to reduce the mass, bulk and height of residential structures by modifying building height for residential structures to not exceed 2-1/2 stories and 34 feet above the curb or 30 feet above finished first floor, whichever is greater regardless of elevation.
- Modify floor area ratio (FAR) setbacks and building coverage standards to reduce impervious coverage,
- Limit rear yard decks and patios in rear yards if they exceed 10 inches. Require that all decks and patios allow penetration of water and macadam and concrete patios should be prohibited.
- Decks with spacing between boards and no impervious surface below or brick pavers laid in sand and stone dust with no impervious layer below should be permitted.

The Parks and Recreation Element of the 2004 Master Plan recommends acquisition of the 20 acre area between Burk Street, Clermont Street, Fremont Avenue and Fredericksburg Street on the Ventnor border. It is recommended that the majority of the area be maintained as a nature preserve with the potential establishment of a "boardwalk" network. The preservation of this area enhances the adjacent habitat area in Ventnor.

The Parks and Recreation Element also recommends the vacant parcel at the corner of Granville Avenue and Ventnor Avenue (portion of Block 208, Lot 116) be acquired as open space. The site is adjacent to the commercial district and can serve as a "gateway" into the commercial district. This site can be designed as a passive park with benches, landscaping and possible public art.

3.2 Reexamination Report 2006

The Reexamination Report identifies the community's concern regarding the bulk, mass and height of new development and emphasizes the community's concern with protecting the character of existing residential neighborhoods. The Reexamination Report continues to recommend that design standards be developed to limit the size of new residential units. The report also recommends that building height be limited to 30 feet above the finished first floor or 34 feet above the curb whichever is greater.

The Reexamination Report recommends that the ordinance be amended to provide an exemption from Board review for existing single family and two family structures that are raising the finished first floor elevation for flood proofing purposes, provided the height is not increased by more than three feet. Such renovation would still require the City Engineer's review and standard construction permitting. A condition of this provision would be that no usable space of any type would be created below the finished first floor elevation; and no building shall be raised more than 1.5 feet above base flood elevation.

3.3 Flood Brochure 2008

The City of Margate has been proactive in providing information to residents and potential residents about the potential danger from flooding in Margate. The 2008 Flood Brochure provides useful information on flooding. The Brochure is available on the City's web page.

The flood brochure states that Margate City is entirely in a Special Flood Hazard Zone, and residents should be aware that the question is not if there will be a flood, due to a hurricane, but when. The report outlines various techniques that can be used to flood proof existing structures and thereby reduce or eliminate the potential of future flood damage. Retrofitting alternatives recommended are raising or relocating a structure, use of levees or flood walls, sealing of a structure and the protection of utilities. A copy of "The Design Manual for Retrofitting Flood-Prone Structures" (FEMA Publication No. 114-9/86) is available for review at the Margate City Building Department.

The brochure advises residents that the National Flood Insurance Program requires that, if a building is damaged by any means (fire, flood, wind, etc.) and the cost of reconstruction, rehabilitation, addition or other improvements equals or exceeds 50% of the building's market value, then the building must meet the same construction requirements as a new building. New construction or substantial reconstruction must be elevated above the base flood elevation, be adequately anchored to prevent flotation, collapse, or lateral movement and must be constructed with materials resistant to flood damage and be constructed with all utilities designed so as to prevent water from entering or accumulating within the components during flooding.

The Brochure also points out that the Margate City Department of Public Works maintains the City's surface water drainage system by regular cleaning of the catch basins in the corners of all intersections to avoid street flooding. In addition, the City has ordinances prohibiting sweeping of debris or litter into gutters and/or surface water storm drains to help to avoid clogged drains.

Recently an entirely new and larger drainage system has been installed in Ventnor Avenue the length of the City and tidal check valves have been installed on 21 storm water outfall pipes along the bay front to prevent water backing up into the drainage systems causing street flooding.

The City's largest and most important natural function in our floodplain is the beach. The beach allows flood tides to spread over a large area to provide water storage and reduce wind and wave velocity impact on protective bulkheads. Another important location providing a natural function is known as Minnie Creek at Lagoon Drive. This also serves as

flood tide storage in addition to a wildlife habitat for waterfowl and breeding and feeding grounds.

3.4 Development Regulations

Recently the City has modified its Codes to address flooding as a result of Hurricane Sandy. Changes have occurred to address the Advisory Base Flood Elevation Maps (ABFE) and then the Preliminary Work Maps (PWM) promulgated by the Federal Emergency Management Agency and the New Jersey Department of Environmental Protection. The PWM significantly revised the scope and breadth of the A and V zones from those established under the ABFE maps. Notable changes have been made to Chapter 145 Flood Damage Prevention and Chapter 175 Land Use.

Chapter 145 Flood Damage Prevention

Chapter 145 Flood Damage Prevention defines "Substantial Improvement" as any reconstruction, rehabilitation, addition, or other improvement of a structure during a 7 year period the cost of which exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed or "repetitive loss".

In all areas of special flood hazard where base flood elevation data have been provided the following standards are required.

New residential construction and substantial improvement

New residential construction and substantial improvement of any residential structure shall have the lowest floor, including basement, together with the attendant utilities and sanitary facilities, elevated at or above the base flood elevation or advisory base flood elevation, whichever is more restrictive, plus one foot of freeboard in any A Zone or two feet of freeboard in a V Zone. Within any A Zone on the municipality's FIRM, it is required that all new construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated above the highest adjacent grade one foot above the depth number specified in feet (at least three feet if no depth number is specified) or at above the advisory base flood elevation plus one foot, whichever is more restrictive. Adequate drainage paths around structures on slopes to guide floodwater around and away from proposed structures are also required

Nonresidential construction

Nonresidential construction in an area of special flood hazard shall have the lowest floor, including basement, together with the attendant utilities and sanitary facilities, either:

elevate to or above the base flood elevation or advisory base flood elevation, whichever is more restrictive, plus one foot of freeboard in any A Zone or two feet of freeboard in a V zone; and require, within any A Zone or V Zone on the municipality's FIRM, that nonresidential structure shall either have the lowest floor, including basement, elevated above the highest adjacent grade one foot above the depth number specified in feet (at

least three feet if no depth number is specified) or at or above the advisory base flood elevation plus one foot of freeboard in any A Zone or two feet of freeboard in any V Zone; and require adequate drainage paths around structures on slopes to guide floodwaters around and way from proposed structures; or

Nonresidential construction shall be flood proofed to the base flood level plus one foot, or advisory base flood elevation plus one foot of freeboard in any A Zone or two feet of freeboard in any V Zone, the structure is watertight with walls substantially impermeable to the passage of water; have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the applicable provisions of this subsection.

Manufactured Homes

Manufactured homes shall be anchored in accordance with this ordinance. All manufactured homes to be placed or substantially improved within an area of special flood hazard shall be elevated on a permanent foundation such that the top of the lowest floor is at or above the base flood elevation or advisory base flood elevation, plus the applicable freeboard, the same being one foot in any A Zone and two feet in any V Zone.

Coastal high-hazard areas

In coastal high-hazard areas (V or VE Zones) the following provisions apply.

All buildings or structures, with the exception of those buildings or structures currently in existence, shall be located landward of the reach of mean high tide. Any building or structure currently in existence and being beyond the mean high tide may be replaced in the same or lesser footprint subject to NJDEP approval. All new construction and substantial improvements shall be elevated on piling or columns so that the bottom of the lowest horizontal structural member of the lowest floor, excluding the piling or columns, is elevated to or above the base flood elevation, advisory base flood elevation or as required by the Uniform Construction Code whichever is more restrictive, plus two feet of freeboard and all space below the lowest floor's supporting member shall be open so as to not impede the flow of water, except for breakaway walls.

All new structural support construction and substantial improvements shall be securely anchored on piling or columns. The pile or column foundation and structure attached thereto shall be anchored to resist flotation, collapse or lateral movement due to the effects of wind and water loading values, each of which shall have a one-percent chance of being equaled or exceeded in any given year. There shall be no fill used for structural support.

A registered professional engineer or architect shall develop or review the structural design specifications and plans for the construction and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for compliance with the provisions.

For spaces below the lowest floor elevation, any alteration, repair, reconstruction or improvement to a structure started after the enactment of this chapter shall not enclose the

space below the lowest floor unless breakaway walls, open wood latticework or insect screening are used.

Breakaway walls, open wood latticework or insect screening shall be allowed below the base flood elevation, provided that they are intended to collapse under wind and water loads without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Breakaway walls shall be designed for a safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meets the following conditions:

> (1) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood.
> (2) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement or other structural damage due to the effects of wind and water load acting simultaneously on all building components, structural and nonstructural. Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State and local building standards.
> (3) If breakaway walls are utilized, such enclosed space shall be use solely for parking of vehicles, building access or storage and not for human habitation.
> (4) Prior to construction, plans for any breakaway wall must be submitted to the Construction Official for approval.

Finally the ordinance state's there shall be no alteration of sand dunes which would increase potential flood damage.

Chapter 175 Land Use

In addition to adopting the above flood prevention standards the Land Use Code (Chapter 175 Land Use) has been amended to address some of the changes brought about by Hurricane Sandy. The new flood maps reflect a higher minimum first floor elevation requirement than that established in 1983. The amendments provide a mechanism to use the advisory base flood elevation and create a Design Committee consisting of the City's Zoning Officer, Construction Code Official and a member of the Planning Board who with the assistance of the City Engineer may review and approve certain design elements as they relate to the advisory base flood elevations.

The ordinance was also amended to:

- Create an overlay zone based on the ABFE.
- Permits height exceptions where the new finish floor elevations would not permit proper crawl spaces and still achieve the required height and roof pitch.
- Exempt increases in the finish floor elevation for flood proofing renovation for existing residential structures without Board action provided the area below the finish floor is not outfitted for human habitation.

- Requires all residential lots have a minimum of 35% of the lot landscaped.

3.5 NFIP Community Rating System

The City of Margate is a statewide leader in the NFIP's Community Rating System. The City currently has a Class 5 rating, which provides for a 25 percent discount on flood insurance. More than 1,200 communities nationwide, including 61 in New Jersey, participate in the CRS. Only a dozen communities are in Class 5, the highest ranking for any community in the State of New Jersey. Currently only Roseville, California is in Class 1 which receives a 45 percent insurance discount.

The CRS recognizes and encourages community floodplain management activities that exceed the minimum NFIP standards. In addition to the benefit of reduced insurance rates, CRS floodplain management activities enhance public safety, reduce damage to property and public infrastructure, avoid economic disruption and losses, reduce human suffering and protect the environment. Participating in the CRS provides an incentive to maintain and improve a community's floodplain management program over the years. Implementing some CRS activities can help projects qualify for certain other federal assistance programs. Participating communities can earn credit for undertaking a variety of flood-reduction measures, including preserving open space, mandating that buildings in flood zones be elevated higher than FEMA requires, and incorporating predictions of future sea-level rise into their regulatory maps. Overall, creditable activities are grouped into four categories: public information, mapping and regulations, flood damage reduction, and warning and response. Different amounts of points are awarded for different measures, as explained in the FEMA manual.

3.6 Atlantic County Multi-Hazard Mitigation Plan 2005

Mitigation plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction and repeated damage. Atlantic County prepared a Multi-Hazard Mitigation Plan for nineteen municipalities, including Margate, in 2005. The planning process created a framework for risk-based decision making to reduce damage to lives, property and the economy from future disasters. Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards. The County plans to revise Multi-Hazard Mitigation Plan in the next year and the City of Margate will participate in this process.

3.7 Atlantic County Flood Control Study 2007

The Atlantic County Flood Hazard Inventory identifies recurring flooded roadways. Each flood hazard mitigation project identified in this study is given a score of up to 100 points based on three major criteria: emergency travel factors – whether it is a major evacuation route (45 possible points); daily travel factors – traffic counts, population served, etc.; and cost-effectiveness feasibility–estimated cost/traffic volumes.

Figure 19 – Margate Project Identified in the Atlantic County Flood Control Study

Road	Score	Cost	Description
Ventnor Avenue	62	$900,000	Elevate five blocks; 1,500 feet

3.8 Local Government Energy Audit Report 2009

The City received grant funding from the New Jersey Board of Public Utilities to complete a comprehensive energy audit of all public municipal buildings including the public schools. The audit identified the annual energy cost of each building and a variety of energy conservation measures, their costs and annual savings. The annual budget of all public buildings in 2009 is summarized in Figure 20.

Figure 20: Annual Energy Budget for Public Buildings in Margate, 2009

Building	**Electric Budget**	**Gas Budget**	**Total Budget**
Municipal Building 9001 Winchester Avenue	$43,162	$39,019	$82,181
William H. Ross III School	$141,970	$39,153	$181,123
Eugene A. Tighe School	$138,309	$59,140	$197,449
City Hall & Firehouse #1	$36,079	$20,709	$56,788
Public Works	$7,129	$7,430	$14,559
Police Department	$29,758	$4,894	$34,652
Firehouse #2	$2,878	$3,092	$5,970
Martin Bloom Pavilion	$12,302	$0	$12,302
Building Department	$5,717	$3,185	$8,902
Total	**$417,304**	**$176,622**	**$593,926**

Source: Margate School District Energy Audit, Dome-Tech, Inc., October 2009
Margate Public Buildings Energy Audit, Concord Engineering Group, 2009

The recommended energy conservation measures (ECMs), net installation costs and annual savings are provided in Figure 21.

Figure 21: Net Installation Cost of ECMs, Projected Annual Savings and Simple Payback for Public Buildings in Margate

Building	ECMs	Annual Savings	Simple Payback
Municipal Building 9001 Winchester Avenue	$169,115	$30,950	5.4 years
William H. Ross III School	$361,080	$49,860	7.2 years
Eugene A. Tighe School	$392,040	$91,860	4.3 years
City Hall & Firehouse #1	$112,010	$13,627	8.2 years
Public Works	$9,254	$1,639	5.6 years
Police Department	$25,713	$5,426	4.7 years
Firehouse #2	$7,171	$1,168	6.1 years
Martin Bloom Pavilion	$13,450	$4,855	2.7 years
Building Department	$1,005	$554	1.8 years
Total	**$1,090,838**	**$199,939**	**5.3 years**

3.9 Sustainable Jersey Green Team

The governing body established the Margate Green Team on March 19, 2009 by resolution. Since being established five years ago the Green Team has completed many actions including the Local Government Energy Audit discuss above and a Climate Adoption: Flood Risk action as part of the preparation of this Report.

The Sustainable Jersey certification program offers points toward various actions that are recommended including:

1. Certification for a community's Sustainable Land Use Pledge. The Sustainable Land Use Pledge is a public affirmation of a municipality's intent to support sustainable smart growth land-use policies. This tool provides a model resolution to be adopted by a municipality as a first step towards community sustainability. The adoption of the resolution commits the municipality to a thoughtful, longer-term re-evaluation of current land use practices and planning policies.

2. Credits to communities with a Sustainability Master Plan Revision, which entails adding a Green Building and Environmental Sustainability Element to the community's Municipal Master Plan.

3. Points for communities with Natural Resource Protection Ordinances. Natural Resource Protection Ordinances are designed to provide municipalities with the ability to protect various resources within the community from possible harmful effects caused by development. Municipalities with a Natural Resource Inventory (NRI) should implement ordinances to protect vulnerable resources outlined in their inventories.

4. Credit for communities with an Open Space and Recreation Plan (OSRP). An OSRP is a comprehensive document that guides municipal, county, and/or regional open space protection and preservation.

4.0 ZONING AND REGULATORY RECOMMENDATION

Consistent with the 2004 Master Plan and the 2006 Reexamination Report the following action have been implemented.

4.1 Created New Zones

The creation of the following two new zones were recommended to help limit future flooding by insuring that any future development of government owned property and riparian areas is limited.

a. A Government and Open Space zone to include publicly owned parcels particularly those owned by the City, Board of Education and Margate Terrace.
b. A Riparian Zone for properties covered by the high tide.

4.2 Revised the Waterfront Special District

The Waterfront Special District boundary was revised to exclude lots fronting on Monmouth Avenue.

4.3 Revised Zoning and Regulatory Codes

The following actions were taken to reduce the effect of rising sea levels and flooding.

a. Modified FAR and bulk standards to reduce the mass, bulk and height of residential structures.
b. Developed design standards to limit the size of new residential units.
c. Provided an exemption from Board review for existing single family and two family structures that are raising the finished first floor elevation for flood proofing purposes provided the height is not increased by more than 3 feet.
d. Insured that definitions in the Land Use Code are compatible with those found in the Flood Damage Prevention Code (substantial improvement, building height, flood map, etc.).
e. Insured that all City codes reference the most recent flood data and flood maps.

4.4 Reduced Impervious Surfaces

In order to lessen storm water runoff and help reduce ponding and urban flooding Margate reduced the amount of impervious surface permitted on development sites by considering the following strategies.

a. Modifying building FAR.
b. Reducing building coverage standards.
c. Limiting rear yard decks and patios in rear yards if they exceed 10 inches.
d. Requiring that all decks and patios allow penetration of water by prohibiting macadam and concrete patios or require brick pavers laid in sand and stone dust.
e. Permitting only decks with spacing between boards and no impervious surface below.

4.5 Amended Building Height Requirements

a. Margate exceeded state-mandated one foot of freeboard for any residential or nonresidential structures in the A zones. The City made revisions to require three feet of freeboard in the AE 8 Zone and two feet of freeboard in the AE 9, 10 and 11 zones.
b. Given past concern with building height a careful review of all provisions that impact building height will be undertaken to make certain that structures can be raised to an appropriate height without compromising neighborhood character.

4.6 Property Acquisition

Consistent with the 2004 Master Plan's Parks and Recreation Element it is recommended that the City acquire the remaining privately owned parcels in the 20 acre area between Burk Street, Clermont Street, Fremont Avenue and Fredericksburg Street on the Ventnor border and create a nature preserve with the potential establishment of a "boardwalk" network.

4.7 Green Infrastructure

Green infrastructure or blue-green infrastructure is a network providing the "ingredients" for solving urban and climatic challenges by building with nature. The main components of this approach include stormwater management, climate adaptation, less heat stress, more biodiversity, food production, better air quality, sustainable energy production, clean water and healthy soils, as well as the more anthropocentric functions such as increased quality of life through recreation and providing shade and shelter in and around towns and cities.

Figure 21: Photograph of Living Shoreline

Green infrastructure decreases pollution to local waterways by treating rain where it falls and keeping polluted stormwater from entering sewer systems. Green infrastructure tools and techniques include green roofs, downspout disconnection, planter boxes, bioswales, green parking, living shorelines, urban tree canopies, land conservation, permeable

pavement, alternative designs for streets and buildings, trees, rain gardens and rain harvesting systems.

Green infrastructure is also a critical tool for addressing climate change and mitigating its impacts by making communities more resilient. Green infrastructure can increase the capacity of sewer systems by reducing the flow into them, making the systems more resilient.

Green infrastructure programs managed by the U.S. Environmental Protection Agency and partner organizations are intended to improve water quality generally through more extensive management of stormwater runoff. The practices are expected to reduce stress on traditional water drainage infrastructure, which are typically extensive networks of underground pipes and/or surface water channels. Improved stormwater management is expected to reduce the frequency of system overflows, reduce the impacts of flooding and provide other environmental benefits.

For example, the City of Philadelphia has installed or supported a variety of retrofit projects in neighborhoods throughout the city. Installed improvements include:

- Permeable pavements in parks, basketball courts and parking lots.
- Rain gardens and bioretention systems at schools and other public facilities.
- Construction of wetlands for management of stormwater runoff.

Some of these facilities reduce the volume of runoff entering the city's aging combined sewer system and thereby reduce the extent of system overflows during rainstorms.

Shorelines are often stabilized with hardened structures, such as bulkheads, revetment and concrete seawalls. Ironically, these structures often increase the rate of coastal erosion, remove the ability of the shoreline to carry out natural processes, and provide little habitat for estuarine species. Living shorelines use plants, sand and limited use of rock to provide shoreline protection and maintain valuable habitat.

Living-shoreline projects utilize a variety of structural and organic materials, such as wetland plants, submerged aquatic vegetation, oyster reefs, coir fiber logs, sand fill and stone. The benefits of living shorelines include:

- Stabilization of the shoreline.
- Protection of surrounding riparian and intertidal environment.
- Improvement of water quality via filtration of upland runoff.
- Creation of habitat for aquatic and terrestrial species.

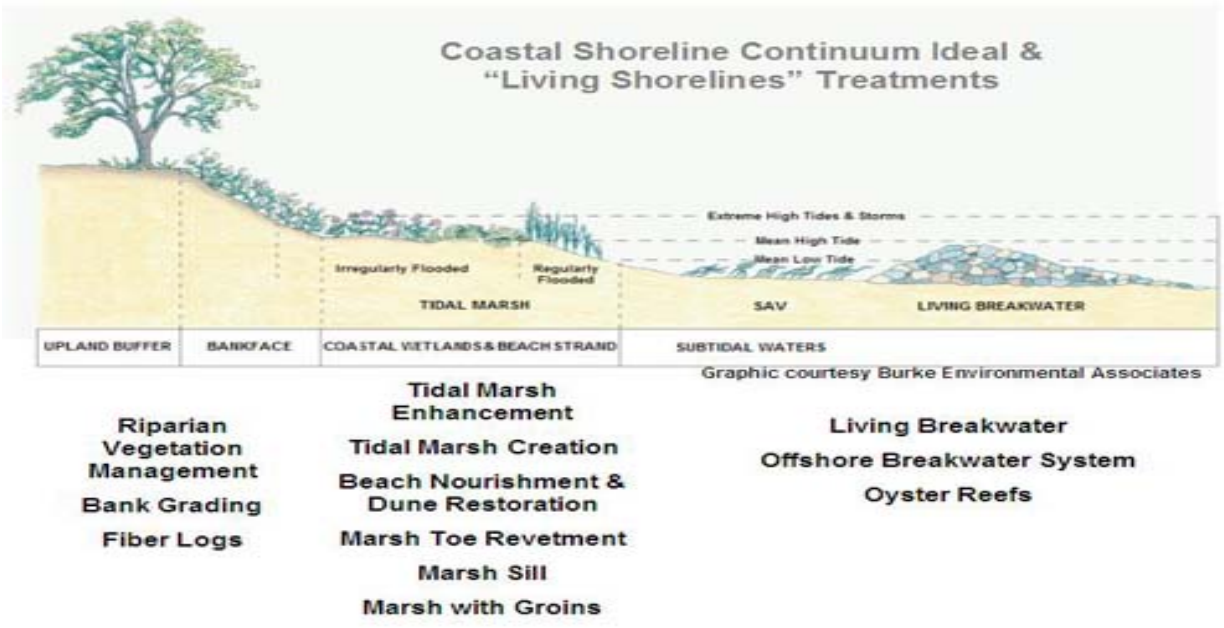


Figure 22: Coastal Shoreline Protection Options

5.0 POST SANDY RECOMMENDATIONS

The following post Sandy planning recommendations have been identified by the steering committee and are presented in priority order.

5.1 Environmental Design of Bayfront Area - $50,000

The City's bayfront witnessed significant damage from Superstorm Sandy and previous storms. Most of the repetitive loss properties in Margate are located on the bay side of the community. Twenty seven substantially damaged homes are located in a four block area bounded by Benson Avenue, Fremont Avenue, Union Avenue and Amherst Avenue – this area should receive special attention. To address the Bayfront issues it is recommended that a NJDCA Post Sandy Planning Grant be secured to fund a planning initiative to determine infrastructure needs, complete a bathymetric survey of the bayfront waters, a terrestrial survey of existing infrastructure and environmental design to protect and enhance this important district. The scope of work will include:

Task 1: Inspecting the entire bayfront to identify where bulkheads do not exist and to determine where bulkhead replacement and elevation is needed. A complete inventory of private and public bulkheads will be completed. ($15,000)

Task 2: Determining the ideal height of the bulkheads to enhance the resiliency of the community. The City is currently in the process of raising the bulkhead height by changing from NGVD 1929 datum to NGVD 1988 datum, thereby raising the bulkhead height by 1.3 feet. The new bulkhead requirement will be required of all new development and for substantially improved property. However, surveys, an engineering evaluation and a

surrounding land-use analysis are needed to determine the ideal height. Providing revised land use guidance taking into account the new bulkheads heights. With higher bulkheads comes the need to evaluate setbacks and heights of decks, landscaping requirements, building height requirements, and other land use guidelines. ($35,000)

Timetable:

Task 1	2 months
Task 2	10 months

5.2 Environmental Design for Amherst Avenue Business District Infrastructure and Development - $50,000

The City of Margate has a Bayfront District that is a regional attraction with restaurants, bars, housing and marinas. Over the years, Margate has focused a great deal of attention on the revitalization of this area located along Amherst Avenue. The renaissance of this area is readily apparent by the new housing as well as commercial reinvestment taking the form of new restaurants. A waterfront park has been established at the Washington Avenue street end.

This area was severely impacted by Superstorm Sandy. This Report details the need to fully replace the Bulkhead along Amherst Avenue, at a higher elevation. A boardwalk along the waterfront has been suggested to provide additional pedestrian access. Given these proposed changes in bulkhead elevation, the entire neighborhood should be evaluated and new design standards provided. It is recommended that a NJDCA Post Sandy Planning Grant be secured to fund this Community Development Plan and that the following elements be included:

Tasks:

1. Conceptual Design – provide design concepts for improvements in the study area based on public input. ($11,000)

2. Preliminary Surveying – complete site surveying, a bathymetric survey of the Bayfront waters and a terrestrial survey of existing infrastructure. ($28,500)

3. Environmental Design of boardwalk, public space and infrastructure improvements. Develop planning incentives and economic development tools to encourage proper development. ($2,500)

Timetable:

Conceptual and Preliminary Surveying	4 months
Environmental Design	6 months
Planning and Funding Incentives	2 months

5.3 Master Plan Development - $50,000

The Master Plan Reexamination was completed in 2006 and City Officials feel that a new Plan is needed to take into account the impacts of Superstorm Sandy and to guide the community for the next decade. It is recommended that a NJDCA Post Sandy Planning Grant be secured to fund this comprehensive master plan and that includes the following:

- Natural Resource Inventory
- Land Use Element – which takes into account the new FIRM maps, the floodplain management plan and associated requirements and discourages property owners from building in high-risk areas.
- Community Facility Element – to ensure that critical facilities and public properties are properly sited and adequately protected.
- Open Space and Recreation Plan Element – to identify and create an implementation plan for the acquisition and management of critical open-space areas.
- Historic Preservation Element – to preserve historic areas and buildings and develop a plan for strategically utilizing funding that is available through the RREM program. The Marven Gardens Historic District is a new land use designation added in 2006. The designation was created specifically to acknowledge the historic character of this distinct area. The area is generally bounded by Ventnor Avenue, Brunswick Avenue, Fredericksburg Avenue and Winchester Avenue. This is a designated historic district with a very unusual pattern of land development and very high urban design values. The area includes curvilinear lots, shared driveways, zero lot line garages, and a very unique street system. The design guidelines for this areas will be evaluated.

The new Master Plan will identify resilience within its mission statement or goals. Coastal hazards will be addressed in the elements of the Master Plan along with the impacts they may have on infrastructure, land uses, housing and community facilities. The Plan will also make recommendations to reduce hazard vulnerability thorough land use planning.

Tasks:

Task 1: Existing Conditions Analysis – Provide updated land-use, economic, demographic, environmental, housing and other needed data for use in preparing a Master Plan. This first task proposes the preparation of a comprehensive inventory and assessment of existing conditions in the study area to identify the primary needs, challenges and opportunities. ($10,000)

Task 2: Plan Preparation – This task will entail a significant public involvement process to develop, articulate and visualize future scenarios and develop a consensus around priorities and objectives. Information and analysis collected under Task 1 will be used to inform participants about needs, limitations and opportunities to be considered in order to ground the planning process in a real-world, present-day context. ($25,000)

Task 3: Implementation Plan - Building upon each of the previous tasks, specific actions and recommendations will be developed regarding how to best achieve the vision and plan articulated in Task 2. Examples will include: mechanisms for funding new development, redevelopment and supporting infrastructure; regulatory mechanisms including a Form-Based Code; non-regulatory tools such as capital improvement planning, city operations and maintenance, development assistance/support, special events and marketing; and a monitoring process and performances measures to allow the City to closely evaluate the progress and impacts of the Master Plan. ($10,000)

Task 4: Final Plan Preparation - This task will include bringing together all of the information and recommendations into a single document for final presentation. Developing a document format that will be reader-friendly, accessible, and include visualization of the information conveyed will be essential. ($5,000)

Timetable:

Existing Conditions Analysis	3 months
Plan Preparation	4 months
Implementation Plan	3 months
Final Plan Preparation	2 months

5.4 Zoning Ordinance Revisions – Design Standards - $50,000

Once the Master Plan is complete, zoning ordinance revisions will be required. The Margate Planning Board and its professionals have identified a number of planning issues that will be addressed in the zoning ordinance revisions. It is recommended that a NJDCA Post Sandy Planning Grant be secured to fund these needed zoning ordinance revisions.

Additional revisions may be needed to assist the City in achieving a higher CRS flood insurance discount. For example, the Planning Board supports in concept the inclusion of additional freeboard to protect properties and to enhance the City's insurance discounts through the Community Rating System. Design standards will be considered to ensure that the higher structures are aesthetically pleasing and are harmonious with the existing neighborhood. Other options to be considered are a higher standard for substantial improvements/damage that is less than 50 percent and/or a longer time period under which substantial improvements/damage is measured.

Tasks:

Task 1: Design Code Development - This task is the development of a revised zoning to implement the new Master Plan. The code will include: a regulating plan, public space standards and building form standards. Additional elements that the City may consider are: architectural, landscaping, signage and environmental resource standards. ($40,000)

Task 2: Public Meetings – A series of public meetings will be held with the Planning Board and the governing body to review and discuss recommended changes. ($10,000)

Green infrastructure strategies may be incorporated into the zoning ordinance to the greatest extent possible to encourage renewable energy, green roofs, permeable pavement and rain gardens, among other strategies.

Timetable:

Design Code Development	12 months
Public Outreach	Ongoing

5.5 Environmental Design of Beachfront Area - $50,000

The City's beach front was severely impacted by Superstorm Sandy. To make this area more resilient it is recommended that a NJDCA Post Sandy Planning Grant be secured to fund a planning initiative to determine infrastructure needs, bulkhead heights and environmental design to protect and enhance this area. The scope of work will include:

Task 1: Inspecting the bulkheads along the beach front to identify where bulkheads do not exist and to determine where bulkhead replacement and elevation is needed. A complete inventory of private and public bulkheads will be completed. ($15,000)

Task 2: Determining the ideal height of the bulkheads to enhance the resiliency of the community. The new bulkhead requirement will be strictly adhered to for all new development, substantially improved properties and public projects. Surveys, an engineering evaluation and a surrounding land-use analysis are needed to determine the ideal height. Providing revised land use guidance taking into account the new bulkheads heights. With higher bulkheads comes the need to evaluate setbacks and heights of decks, landscaping requirements, building height requirements, and other land use guidelines. ($35,000)

Timetable:

Task 1	2 months
Task 2	10 months

5.6 Economic Development Element/Community Development Plan for Business Districts - $50,000

Superstorm Sandy has had a continued economic impact on the City of Margate. The region continues to struggle with the elimination of over 17,500 jobs in the casino industry alone which has resulted in an outmigration of the population looking for employment opportunities. Given these dynamics the competition among service, retail and food and beverage businesses has increased. To help make the existing commercial districts in Margate more competitive and to promote sustainability it is recommended that a NJDCA

Post Sandy Planning Grant be secured to fund an Economic Development Element/Community Development Plan for the City's commercial business districts.

Margate's Central Business District (CBD) is located in two core areas on Ventnor Avenue. One zone is generally located between Granville Avenue and Clermont Avenue and the other zone is located along Ventnor Avenue in the southeast section of the City and includes Washington Avenue.

The CBD is distinguished from other commercial areas of Margate by a requirement to develop retail sales and related uses at ground level. Upper stories may be residential work/live, commercial or loft space. The Margate Master Plan recommends that, "The CBD area along Washington Avenue and Ventnor Avenue needs to be reviewed and a detailed plan should be prepared. The Plan should include streetscape standards, parking strategies and business and wayfinding signage standards. Connections of the bayfront to oceanfront in the Washington Avenue corridor should be established to reinforce the CBD design."

An additional commercial/business district is located along Ventnor Avenue. The principal uses anticipated are business, professional and medical offices.

The tasks for this Plan include:

Task 1: CBD Development Plan – develop a design concept for each of the two business district. The theme should be able to survive the test of time and be built of materials that can survive in a shore environment. The City has a template in place that will be used as a foundation for this design effort. ($20,000)

Task 2: Planning and Economic Incentives - The Plan will also explore and develop ideas such as the expansion of commercial business districts, economic incentives for new businesses, joint marketing, implementation of wayfinding signage, design standards to brand the economic districts, and the use of many other tools to jump-start economic growth. This study would be designed to leverage additional public improvements (streetscapes, sidewalks, pedestrian safety, etc.) and to determine an incentive package to attract new businesses to the area. ($20,000)

Task 3: Plan Preparation –This task will include bringing together all the information and recommendations into a single document for final presentation. Developing a document format that will be reader-friendly, accessible and include visualization of the information conveyed will be essential. ($10,000)

Timetable:

CBD Development Plan	6 months
Planning and Economic Incentives	4 months
Plan Preparation	2 months

5.7 Sustainable Community Plan - $50,000

According to Sustainable Jersey, "a 'Sustainable Community Plan' sets goals for the future that helps communities realize a Sustainable Community vision, use indicators to track progress towards these goals, and includes action plans that have roles for government, citizens, businesses, schools and civic organizations. Each plan it created through a dialogue that incorporates local residents' desires for the future and an understanding of the impact every community has on regional and global sustainability issues."

It is recommended that a NJDCA Post Sandy Planning Grant be secured to fund a Sustainable Community Plan for the City of Margate. This plan will be developed in cooperation with the Margate Green Team and the governing body. Topics to be incorporated include:

- Green Building and Environmental Sustainability Element of the Master Plan
- Renewable Energy
- Green Building & Design
- Land Use & Mobility
- Water

Tasks:

Task 1: Existing Conditions Analysis – Provide updated data designed to provide a benchmark for analysis and monitoring. ($10,000)

Task 2: Plan Preparation – This task will entail a significant public involvement process to develop, articulate and visualize future scenarios and develop a consensus around priorities and objectives. Information and analysis collected under Task 1 will be used to inform participants about needs, limitations and opportunities to be considered in order to ground the planning process in a real-world, present-day context. ($25,000)

Task 3: Implementation Plan - Building upon each of the previous tasks, specific actions and recommendations will be developed regarding how to best achieve the vision and plan articulated in Task 2. Examples will include: purchasing guidelines; building standards; tools such as capital improvement planning, city operations and maintenance, development assistance/support, special events and marketing; and a monitoring process and performances measures to allow the City to closely evaluate the progress and impacts of the Plan. ($10,000)

Task 4: Final Plan Preparation - This task will include bringing together all of the information and recommendations into a single document for final presentation. Developing a document format that will be reader-friendly, accessible, and include visualization of the information conveyed. ($5,000)

Timetable:

Existing Conditions Analysis	3 months
Plan Preparation	4 months
Implementation Plan	3 months
Final Plan Preparation	2 months

5.8 Capital Improvement Plan - $30,000

This Strategic Recovery Planning Report has identified capital improvements needed to make the City of Margate more resilient. It will not be possible for the City to fund all of these improvements immediately. The improvements will have to be paid for over a period of time in a planned fashion so to avoid a significant impact on municipal government and the local tax rate. It is recommended that a NJDCA Post Sandy Planning Grant be secured to fund this long term Capital Improvement Plan.

The development of this plan will involve the City's Administration, Engineer, Chief Financial Officer, Financial Advisor, Bond Counsel and governing body.

Tasks:

Task 1: Facility Inspections - inspection of stormwater, water and sanitary sewer systems, public buildings, local roads and sidewalks, complete a municipal fleet assessment and developing a priority ranking for needed improvements. ($15,000)

Task 2: Design and Cost Estimates – Designing and surveying will be included for various priority projects. Projects will be identified along with the associated costs and alternative sources of funding (i.e. grants, low-interest loans, private/public partnerships, etc.). A portion of the Plan will be dedicated to capital improvements that enhance the safety of children walking to school and the preparation of a School Travel Plan. ($5,000)

Task 3: Plan Completion ($10,000)

Timetable:

Facility Inspections	6 months
Engineering and Cost Estimates	4 months
Plan Completion	2 months

5.9 Capital Improvement Plan for Regionalization and Shared Services - $30,000

Margate shares Absecon Island with Longport, Ventnor and Atlantic City. The City does participate in shared dispatch services and regional trash and recycling collection services. Other services are shared with the Borough of Longport. In order to maintain a stable tax rate during a time when additional capital investment is needed to address the impacts of Superstorm Sandy, the City will explore ways to reduce the costs of service delivery while

maintaining high service quality. A NJDCA Post Sandy Planning Grant is requested to fund an in-depth capital plan for Regionalization and Shared Services.

Task 1: Identify service candidates for shared and regional services – evaluate City services and determine which provide the best opportunity for cost reduction. ($10,000)

Task 2: In-depth analysis of defined services – evaluate operating costs, capital costs and secondary costs associated with specific services that have the most likelihood to be regionalized or shared. This Plan will identify capital and operating costs associated with implementing regionalization and shared services. ($20,000)

Timetable:

Identify service candidates for shared and regional services	6 months
In-depth analysis of defined services	6 months

5.10 Energy Audit/Energy Savings Improvement Plan

The State plans to invest $210 million to create the New Jersey Energy Resilience Bank to continue to pursue innovation and build energy resilience. The bank should help to leverage the development of distributed power generation projects, microgrids and other resilient technology designs at critical facilities.

The public schools and the municipal building supports solar arrays that could be made more resilient with a dynamic inverter that would allow these buildings to receive electric directly from this alternative energy infrastructure.

As noted earlier, the City and School District have completed a Local Government Energy Audit of all their buildings, which is a prerequisite to pursuing a joint Energy Savings Improvement Program (ESIP). ESIP's were recently created by the State Legislature as a means for public agencies to make energy-savings and resiliency improvements without expending public funds. The ESIP requires that the cost of the improvements be totally offset by energy savings over a 15- or 20-year period. It is recommended that the City and School District jointly consider pursing an ESIP.

Another option would be to consider a regional ESIP with surrounding communities to create a larger project that is more attractive to the pre-certified vendors. Such a regional option could be managed by the Atlantic County Improvement Authority.

5.11 Bicycle and Pedestrian Plan

The New Jersey Department of Transportation (NJDOT) provides for Bicycle and Pedestrian Plans for communities to help to identify the needs of the community and prepare for the submission of grant applications to implement this Plan. Margate has various bicycle and pedestrian needs to enhance accessibility in the community.

Pedestrian signals and sidewalks as well as handicapped access is needed at some locations. To identify these and other needs and to create an implementation strategy it is recommended that the City request that the NJDOT authorize consultants to develop the Margate Bicycle and Pedestrian Plan.

5.12 Community Rating System

Potential opportunities for increasing the City CRS points are provided in Attachment E.

6.0 Infrastructure Recommendations

A study conducted a Loyola Marymount University finds that a $1 increase in preparedness spending is associated with a reduction of about $15 in future damage in new present-value terms.

The City is pursuing funding for various projects identified below. These projects have been developed in conjunction with City officials and governing body. Full engineering of each project has been completed and permitting is underway. Detailed cost estimates for each of these capital improvements are provided in Appendix A.

6.1 Amherst Avenue Bulkheads - $3,249,930

Figure 24: Amherst Avenue Waterfront District

The Amherst Avenue Bulkhead Improvements will address a deteriorated bulkhead, sea level rise, and the naturally low elevation of the area. The Amherst Avenue area is the

lowest area in the City with current elevations between five and six feet NAVD88. The FEMA Preliminary Flood Maps recommend that this area be in the AE Zone and that the elevation by nine feet NJVD88. Given this recommendation and the fragile aspects of this area, the City plans to build the new bulkhead at an elevation of nine feet NAVD88.

An inspection of this bulkhead was completed on January 31, 2013 which documents this evaluation is attached for your review. The memorandum concludes that:

- The bulkhead south of the municipal pier to approximately Coolidge Avenue is beyond repair and complete replacement is required.
- Sister piles should be installed immediately to help stabilize the bulkhead.
- Failure will occur in the near future if left unattended. No time frame can be estimated on the remaining life of the structure.
- Failure of the bulkhead will cause failure of the parking areas, possibly as far back as the curbline.

This area sustained significant damage during Superstorm Sandy. Businesses and homes in the area were damaged, with some businesses being closed over a year for repairs. The solution consists of the installation of new bulkheads. By installing these improvements the flooding of this area will be reduced; thereby, reducing damage to the City's infrastructure and the businesses and homes in the area. Hence, this project will promote disaster resistant development and reduce the possibility of damage and losses due to flooding.

The proposed project extends from the Borough of Longport boundary and Decatur Avenue, a distance of approximately 1,250 linear feet of new bulkhead. The new bulkhead will be installed directly in front of the existing bulkhead. Since the property line for the bulkhead runs along the existing improvements, easement will be required for the new bulkhead. The City is in the process of obtaining easements from five private property owners who own property along this bulkhead. These easements will be completed and recorded in accordance with the NJDEP requirements. The City will assume the responsibility for the maintenance of a new bulkhead in perpetuity.

Figure 25: Amherst Avenue Bulkhead Decay

The City is also considering the installation of an elevated boardwalk along the water side

of Amherst Avenue to provide enhanced access to the water for the public. When this boardwalk is built, improved ADA access will also be constructed. The boardwalk concept will be studied future as a result of the Post Sandy Planning Grant for Amherst Avenue.

This project is eligible for the NJDEP Shore Protection Program since it will result in the protection and stabilization of the bayfront area of Margate. Application for funding was made in 2013. The proposed improvement is located on the Intracoastal Waterway.

6.2 Beachfront Bulkheads - $4,477,640

The City has plans to replace thirty street end bulkheads. In addition the City intends to provide ADA access at the street ends where handicapped access does not exist. The existing timber bulkheads are at least 50 years old and are deteriorating. The top of the new street end bulkheads will be built to a high elevation of 10 to 12.5 NGVD29. The new bulkheads will be designed to help prevent overtopping during storm events to protect adjacent streets and infrastructure.

6.3 Open Space Acquisition

The Margate Master Plan identified a 20 acre area site between Burk Street, Clermont Street, Fremont Avenue and Fredericksburg Street as a future open space/recreation parcel. By including this site on the Open Space and Recreation Plan map, the City is given the option of purchasing or leasing these parcels in accordance with the Municipal Land Use Law. Designation of these properties on the map provides the City with the option of purchasing the property at fair market value for up to 12 months after any development approval. The City should consider the use of County open space funds, Stewart Trust, Community Development Block Grant – Disaster Recovery and/or Green Acres funds for the future acquisition of this site.

The project site is located close to the Ventnor border. Approximately 13 acres of the area is wetlands. The entire area is vacant and 16 acres is publicly owned. Approximately seven parcels are privately owned and unconstrained by wetlands. There are a number of paper streets in the area that should be vacated. The area is adjacent to several residential neighborhoods, Margate Terrace and an area in Ventnor that is identified as a sensitive habitat area.

The Master Plan recommends that the majority of the area be maintained as a nature preserve with the potential establishment of a "boardwalk" network. The preservation of this area enhances the adjacent habitat area in Ventnor. It is further recommended that a community design charrette occur that provides the opportunity for the public to have input into the concept plan for the area including the type and location of recreation facilities and the extent of passive recreation. Additional information is provided in Attachment XX.

6.4 Living Shoreline Improvements to Protect Back Bay Areas

The City would like to explore the cost and impacts of living shoreline improvements to protect the bay areas. A funding request from the U.S. Department of the Interior and the National Fish and Wildlife Foundation's 2013 Hurricane Sandy Coastal Resiliency

Competitive Grant Program has been submitted on the City's behalf by the New Jersey Department of Environmental Protection.

6.5 Elevate Repetitively Damaged Structures

Over 1,100 homeowners in the City of Margate have submitted letters of interest to elevate their homes. A number of the City's repetitively damaged structures (those with repeated losses or flood-insurance claims) are in the areas hit by Superstorm Sandy. Now is the time to mitigate those structures. Many property owners will have problems finding the resources to rebuild, let alone mitigate their structures. The 2004 and 2012 NFIP Reform Act provides authority for added funding in the flood insurance policy to help property owners mitigate repetitive-loss structures through a variety of generally non-structural means, including voluntary buyouts and relocations, elevation of buildings and floodproofing. Appropriately implementing these provisions will help reduce this drain on the Flood Insurance Fund over time. While repetitive-loss properties constitute only 1.3 percent of the policies in the NFIP, they represent about 25 percent of the claims. This matter should be of concern to everyone in or near a flood zone. Repetitive claims and large numbers of claims will drive up the cost of flood insurance for everyone.

The FEMA Homeowner's Guide to Retrofitting discuss six ways to protect homes from flooding:

1. Elevation – the most common means to avoid flood damage.
2. Wet Floodproofing – makes uninhabited parts of the structure resistant to flood damage when water is allowed to enter during flooding.
3. Relocation – moving the structure to higher ground where the exposure to flooding is eliminated.
4. Dry Floodproofing – sealing the structure to prevent flood waters from entering the structure.
5. Floodwall Protection – constructing barriers to prevent flood waters from entering the structure.
6. Demolition – razing the structure.

6.6 Stormwater Pump Stations for Adams, Monroe and Haverford/ Winchester Avenues

Remington, Venick & Walberg Engineers has prepared cost estimates for pump stations at Adams, Monroe and Haverford/Winchester Avenue. The estimate for Adams Avenue is $435,000 and the estimate for Haverford/Winchester Avenue is $475,000.

6.7 Emergency Generators for City Hall, Pump Station and Firehouse #2

Emergency generator are needed for the City Hall Building on Washington Avenue, the Stormwater Pump Station located at near the Tighe School and Firehouse #2. FEMA has provided funding through the Hazard Mitigation Grant Program (HMGP) to provide $397,000 towards two diesel generators for the City Hall Building. The cost estimate for

the Gladstone Avenue storm sewer public station emergency generator is $105,000. The cost estimate for the emergency generator for Fire Station No. 2 is $75,000.

6.8 Back Bay Dredging

Coastal dredging is vital to maintaining New Jersey's marine transportation system, which provides access for recreational boaters, commercial vessels as well as the transportation of people and goods. To support the estimated $50 billion maritime industry and maintain safe and navigable waterways, the State conducts maintenance dredging projects throughout the State, with the exception of federal channels including the Intracoastal Waterway, which is maintained by the U.S. Army Corps of Engineers.

Back-bay dredging is necessary, since without it silt and mud can choke the inlets and harbors and render once navigable waters useless. The back-bay inlets and marina in the City of Margate has been slowly filling in for years due to lack of dredging. The US Army Corps of Engineers dredged the Intracoastal Waterway, but it is up to the City and the private sector to dredge the lagoons and marinas on the back-bay.

There are many different methods utilized in the dredging process, however, the basic principle consists of removing sediment and accumulated debris from the bottom of navigation channels and waterways and placing the material in an approved location. Traditional methods include:

1. Suction-type dredging - One method of dredging involves a suction-type dredge to suction silt from the waterways and pump the spoils into a disposal area.

2. Mechanical excavating - Another method involves mechanically excavating the area with a barge-mounted excavator and transporting the material to another area where it would be suctioned and removed to a spoils site.

Finding a place to dump the dredging spoils is vital and this is one of the major reasons why dredging has not occurred in Margate. The state's Department of Environmental Protection has strict restrictions on where dredge material can be used. Finding a way to clear the impasse those regulations create, and open more sites for dumping spoils, has been an ongoing crusade for leaders throughout the state, but little progress has been made.

Figure 26: Thin Film Spraying of Wetlands Areas

Beneficial Reuse Marsh Restoration in a new technology being considered by the NJDOT and NJDEP. Thin-layer spraying of dredge material has been successfully deployed along the Gulf Coast for tidal marsh restoration to treat deteriorating areas. This technology was used for the first time in Delaware in 2013 to reinvigorate a faltering marsh on Pepper Creek in Dagboro, Delaware. The project was spearheaded by the Delaware Department of Natural Resources, Division of Watershed Stewardship and involved extensive planning, environmental permitting and customization of equipment for the innovative dredging and thin-layer application.

At Pepper Creek, thin-layer dredge disposal applied sediment in the form of silt slurry to the marsh surface by pumping dredge material through a specially-constructed pipeline and spray-nozzle system. Specialized equipment for the project, to transport the dredged material from the main barge in the navigation channel to the shoreline, included flexible piping and a pivoting nozzle mounted on a mini-barge that can be moved along the marsh edge and up channels to extend the reach of sprayed material.

The silt slurry was sprayed on the marsh at approximately 3,000 gallons per minute. The slurry was composed of approximately 85-90 percent water with sediment particles suspended in the water. Part of the planning effort involved anticipating potential runoff and reduced water clarity. As a precaution, the State installed sediment traps in the major wetland ditches using hay bales and straw logs secured with wooden stakes. The traps allowed water to flow past during the tide cycles and did not cutoff fish passage, but caught and held sediment particles until they could settle out of the water column. Work on the project also adhered to state and federal permit conditions that called for avoiding negative impacts to fisheries and marsh dwelling species.

DNREC applied up to 6 inches of sediment to the large emergent wetland. With each tide cycle, the applied material dispersed across the marsh surface, leaving an even layer that will settle over the next few months. The areas of marsh where the work was conducted were monitored daily and found to be accreting uniformly at acceptable levels.

Small areas where grasses were knocked down by force of the sprayer will be replanted in time for the summer growing season. Site monitoring for detailed indicators such as plant cover, surface elevation and below-ground root volume will continue for two years. Results gathered from the Pepper Creek project will be used to support similar projects in the future.

6.9 City Hall Renovations - $1,570,250

As noted earlier in this report, Margate City Hall was severely damaged by Superstorm Sandy and the municipal operations have been relocated to 9001 Winchester Avenue. The City plans to make all the necessary repairs to City Hall and to return the municipal courts and other offices to this facility. The plans included flood mitigation by replacing the crawl space with solid block. The City Hall will also be brought up to federal, state, and local codes and standards.

The City recently started to process to issue bonds for this project. FEMA funding of approximately $1,000,000 is anticipated for this project and FEMA also provided funding for relocation expenses.

6.10 Downtown Enhancements

The continued enhancement of the Downtown Central Business District is critical to the recovery of the City's economic base. To this end, the City has applied for and has been initially selected to receive assistance from the New Jersey Economic Development Authority to complete four blocks of streetscape improvements in the Downtown.

7.0 Funding Options

7.1 U.S. Department of Interior

The U.S. Department of Interior is investing $100 million in grant funding under the Superstorm Sandy Coastal Resiliency Competitive Grant Program. The grants are provided to better protect Atlantic Coast communities from future powerful storms by restoring marshes, wetlands and beaches, rebuilding shorelines, and researching the impacts and modeling mitigation of storm surge impacts.

7.2 Alternative Funding Sources for Elevating Structures

Given the fact that more than 1,000 homeowners have provided the City with letters of intent to elevate their homes, it is important to summarize the various funding sources for elevating structures.

7.2.1 National Flood Insurance Program – Increased Cost of Compliance (ICC) Coverage

ICC funding is not a loan and does not have to be repaid. It is managed by the National Flood Insurance Program and is available to property owners who carry new and renewed standard flood insurance policies. It helps homeowners meet the costs of repairing or rebuilding their property in order to comply with building requirements of their community and reduce future flood damage. The maximum amount a homeowner can receive is $30,000 and is based on a proof of loss, a detailed repair estimate and a substantial damage declaration from the community. ICC funding can be used to pay for:

- The elevation of a home above the flood elevation level adopted by the community
- The relocation of a home out of harm's way
- The demolition and removal of a damaged home

Eligibility requirements include:

- Location in a flood plain
- Property has suffered substantial damage from a flood

- Property has had repeated damage by floods

A single-family dwelling is available for a maximum combined amount of $250,000 from both the ICC and flood insurance.

7.2.2 Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program

The RREM program was offered through the State of New Jersey and provided up to $150,000 for eligible homeowners to repair, elevate or rebuild their primary residences in the affected communities.

7.2.3 Hazard Mitigation Grant Program (HMGP)

HMGP is only offered during a presidentially declared disaster. This reimbursement program provides up to $30,000 to assist homeowners with the elevation of their primary single-family residences in line with the Flood Insurance Risk Maps in affected communities. The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

7.2.4 Additional FEMA Programs

In addition to the Hazard Mitigation Grant Program, FEMA provided four additional programs that can be used to elevate structures, including: the Pre-Disaster Mitigation (PDM) Program; Flood Mitigation Assistance (FMA) Program; Severe Repetitive Loss (SRL) Program and Repetitive Flood Claims (RFC) Program. In 2013, the annual grants were trimmed down to just the PDM and FMA Programs. Any municipal applicant must submit to the NJOEM during the application period, and they are put into one state-wide application and submitted to FEMA. The PDM and FMA grants are offered each year, and each applicant competes nationally.

7.2.4.1 Flood Mitigation Assistance (FMA) Program - The Flood Mitigation Assistance (FMA) program was created as part of the National Flood Insurance Reform Act (NFIRA) of

1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to help states and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insured under NFIP. Eligible properties must maintain flood insurance for the life of the structure. In order to receive an increased federal cost share, properties must be a severe repetitive-loss property or a repetitive-loss property.

Cost-share availability under the FMA program depends on the type of properties included in the grant. For example, severe repetitive-loss properties may receive up to 100 percent federal funding and repetitive-loss properties may receive up to 90 percent.

- In the case of mitigation activities to severe repetitive-loss structures:
  - FEMA may contribute up to 100 percent federal funding of all eligible costs, if the activities are technically feasible and cost-effective; or
  - FEMA may contribute an amount equaling the expected savings to the NFIP from expected avoided damages through acquisition or relocation activities, if the activities will eliminate future payments from the NFIP for severe repetitive-loss structures through an acquisition or relocation activity.
- In the case of mitigation activities to repetitive-loss structures, FEMA may contribute up to 90 percent federal funding of all eligible costs.

- In the case of all other mitigation activities, FEMA may contribute up to 75 percent federal funding of all eligible costs.

Structures with varying cost-share requirements can be submitted in one application. Applicants must provide documentation in the project application showing how the final cost share was derived.

FEMA will identify applications for further review based on a number of criteria, including but not limited to: savings to the NFIP, applicant rank and property status (e.g., repetitive-loss property, severe repetitive-loss property). FEMA also may identify an application for further review out of rank order based on considerations such as program priorities, available

funds, and other factors.

7.2.4.2 Severe Repetitive Loss (SRL) Grants - The SRL grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive-loss structures insured under the National Flood Insurance Program. Proposed projects must be cost effective with a benefit-cost ratio greater than 1.0. The homeowner's application must include an elevation certificate and signed, detailed contractor's estimate.

7.2.4.3 Pre-Disaster Mitigation (PDM) Grants - The PDM program used to provide funds to states, territories, Indian tribal governments, communities and universities for hazard-mitigation planning and the implementation of mitigation projects prior to a disaster event. This program should be restored. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas or other formula-based allocation of funds.

7.2.4.4 Repetitive Flood Claims (RFC) Grants - The RFC grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968. RFC provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payments for flood damages.

7.3 Historic Preservation Funding

Municipalities that have RREM recipients who have homes that are considered historic will be receiving funding from the state for historic presentation. The state is putting aside $3,000 to $6,000 per property to mitigate any adverse impacts of the RREM Program on potential historic structures. These mitigation funds will be used to complete projects in the communities that document the historic significance of these properties or provide for public interpretation. The specific scope of these mitigation treatments will be developed through additional consultation between the DCA, DEP and Historic Preservation Office (HPO).

It appears that the Programmatic Agreement covers how to complete Section 106 (SHPO review) for Sandy-impacted properties. It is suggested that this funding be used for:

- updated historic property inventories
- documentation of any structures if slated for demolition
- public interpretation plans of historic structures and their fragility
- mapping of historic areas, both current and historical.

7.4 US Army Corps of Engineers

The Corps provides engineering and funding for beach replenishment projects built in accordance with the 50 year coastal plan. Under the Continuing Assistance Program the Corps can also provide engineering and funding for coastal protection projects including bulkheads, stormwater management systems, and other mitigation projects.

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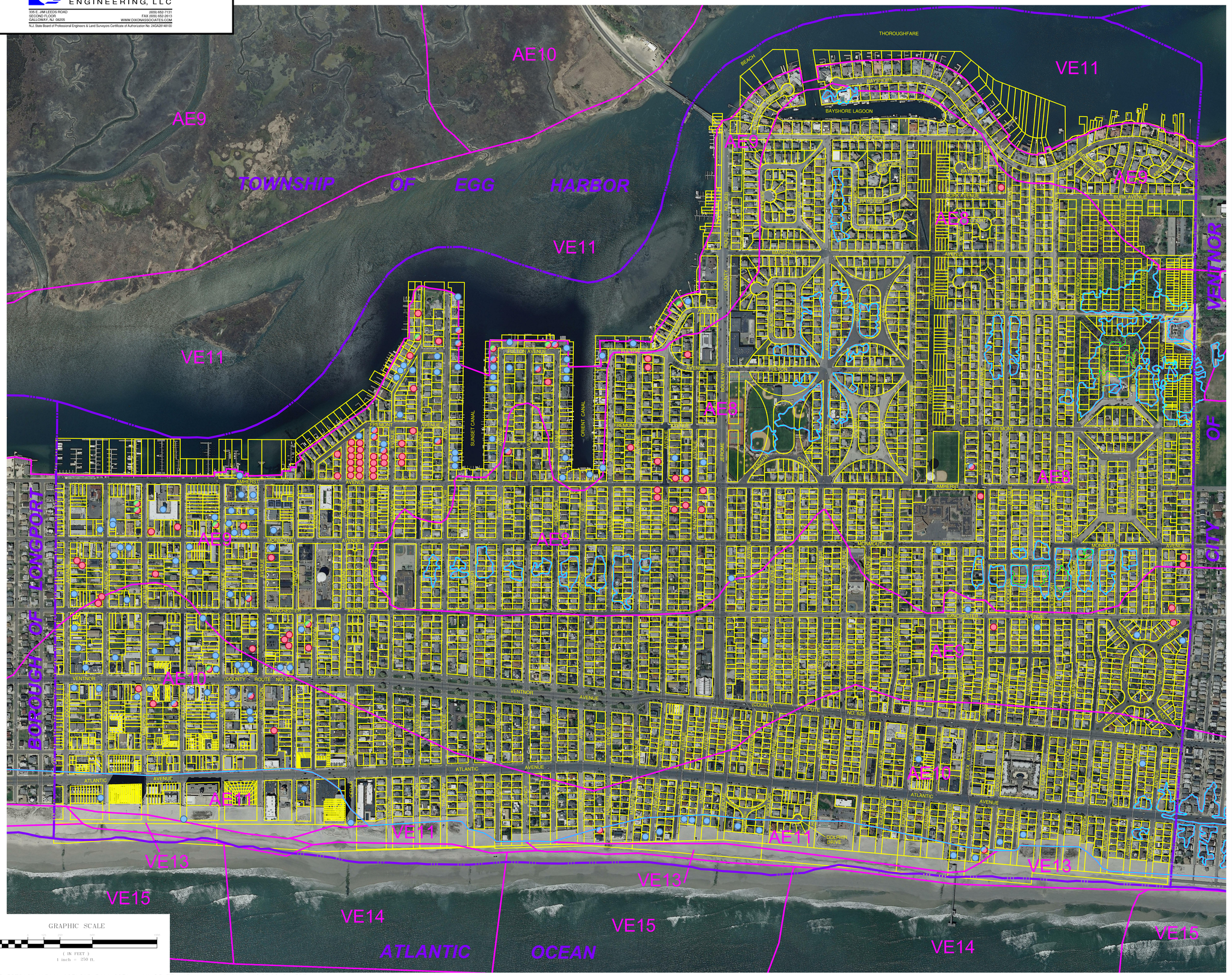
SUBSTANTIALLY DAMAGED & REPETITIVE LOSS PROPERTY MAP

CITY OF MARGATE, ATLANTIC COUNTY, NEW JERSEY



GRAPHIC SCALE
(IN FEET)
1 inch = 250 ft.

LEGEND

- MUNICIPAL BOUNDARY
- PARCEL BOUNDARY
- VE & AE FLOOD ZONE BOUNDARY*
- SHADED X FLOOD ZONE OUTER BOUNDARY**
- UNSHADED X FLOOD ZONE OUTER BOUNDARY***
- SUBSTANTIALLY DAMAGED PROPERTY
- REPETITIVE LOSS PROPERTY
- SUBSTANTIALLY DAMAGED & REPETITIVE LOSS
- DAMAGE CLAIM PRE 2006 GREATER THAN $10,000****
- SUBSTANTIALLY DAMAGED & PRE 2006 CLAIM

* An area of high flood risk subject to inundation by the 1% annual-chance flood event with additional hazards due to storm-induced velocity wave action (a 3-foot or higher breaking wave). Zone A/AE: An area of high flood risk subject to inundation by the 1% annual-chance flood event. Elevation information provided in feet NAVD88.

** Area within a Shaded X Flood Zone Boundary are areas of moderate flood risk within the 0.2% annual chance floodplain; or areas of 1% annual chance flooding where average depths are less than 1 foot, where the drainage area is less than 1 square mile, or areas protected from this flood level by a levee.

*** Areas within the Unshaded X Flood Zone Boundary are areas of low flood risk outside the regulatory 1%- and 0.2%-annual chance floodplains.

**** Propery may have had more than one claim prior to 2006 in excess of $10,000

PROPERTY LIST

BLOCK	LOT	ADDRESS
126	109	17 S WASHINGTON AVE
129	217	15 MADISON AVE
130	43	9600 VENTNOR AVE
201.01	81	22 EAST DR
205.01	5	39 N ESSEX AVE
225	76	12 N BENSON AVE
226	26	18 N DECATUR AVE
226	27	16 N DECATUR AVE
226	28	12 N DECATUR AVE
227	104	9301-03 VENTNOR AVE
301	3	7403 WINCHESTER AVE
301	21	114 N FREDERICKSBURG AVE
301	23	112 N FREDERICSBURG AVE
326	31	125 N WASHINGTON AVE
329	409 & 411	113 & 115 N MADISON
331	22	9703 WINCHESTER AVE
331	24	100 N MONROE AVE
331	415	119 N COOLIDGE AVE
331	417	121 N COOLIDE AVE
405.02	9	220 N ESSEX AVE
412.02	15	211 N KENYON AVE
412.02	35	8402 AMHERST AVE
413.01	12	8504 AMHERST AVE
413.01	14	216 N LANCASTER AVE
413.02	5.01	211 N LANCASTER AVE
413.02	16	212 N KENYON AVE
427.02	96	9309 MONMOUTH AVE
429	46	201 N MADISON AVE
429	62.02	202 N JEFFERSON AVE
513.01	22	304 N LANCASTER AVE
513.02	13	9503 AMHERST AVE
513.02	26	9501 AMHERST AVE
514	16	310 N MANSFIELD AVE
520	12	441 N THURLOW AVE
520	16	437 N THURLOW AVE
522	3	309 N VENDOME AVE
522	5	305 N VENDOME AVE
522	6	303 N VENDOME AVE
522	14	9000 FREMONT AVE
523	5	307 N WILSON AVE
523	6	305 N WILSON AVE
523	7	303 N WILSON AVE
523	8	301 N WILSON AVE
523	14	308 N VENDOME AVE
523	15	306 N VENDOME AVE
524.01	1	306 N HARDING AVE
524.01	4	300 N HARDING AVE
524.02	2	310 N WILSON AVE
524.02	3	308 N WILSON AVE
524.02	4	306 N WILSON AVE
524.02	5	304 N WILSON AVE
524.02	6	302 N WILSON AVE
524.02	7	300 N WILSON AVE
524.02	8	311 N HARDING AVE
524.02	9	309 N HARDING AVE
524.02	10	307 N HARDING AVE
524.02	11	305 N HARDING AVE
524.02	12	303 N HARDING AVE
524.02	13	301 N HARDING AVE
613.01	1	8510 FULTON AVE
613.01	4	8515 N MANSFIELD AVE
617	30	436 N PEMBROKE AVE
622	16	414 N UNION AVE
623	9	502 N KENYON AVE
623	18	438 N VENDOME AVE
713	15	502 N KENYON AVE
721	25	500 N THURLOW AVE
1005	7	616 N DOUGLASS AVE

BLOCK	LOT	ADDRESS
225	92.01	29 N BENSON AVE
228	80	9403 VENTNOR AVE
428	82.01	204 N ADAMS AVE
430	508	208 N MADISON AVE
430	510	210 N MADISON AVE
619	8	364 N RUMSON AVE
623	14	500 N UNION AVE
714	22	8503 WELLINGTON AVE
718	12	8703 FULTON AVE

BLOCK	LOT	ADDRESS
5.01	15	112 S DOUGLAS AVE
15	18	118 S NASSUA AVE
127	99	9300 VENTNOR AVE
129	218	10 S JEFFERSON AVE
327	100	9305 WINCHESTER AVE
505.02	3	304 N ESSEX AVE
518	1	315 N RUMSON AVE
521	15	316 N HURLOW AVE
523	1	315 N WILSON AVE
523	2	313 N WILSON AVE
523	13	310 N VENDOME AVE
617	5	431 N QUincy AVE
619	5	362 N RUMSON AVE
718	13	8701 FULTON AVE

BLOCK	LOT	ADDRESS
4.01	4	107 S DELAVAN AV
4.02	5	109 S DOUGLAS AVE
5.01	8	115 S ESSEX AVE
5.02	7	119 S EXETER AVE
10.03	20	112 S IROQUOIS AV
10.04	26	110 S PLYMOUTH RD
11.01	6	111 S KNIGHT ST
11.02	6	111 S KENYON
11.02	14	112 S KNIGHT AVE
12	8	115 S LANCASTER AVE
13	17	7403 WINCHESTER AVE
25	14	106 S BENSON AVE
31.01	10	9701 BEACH ST
101.02	5	7 S ARGEN AVE
107	21	1 S FRONTENAC AVE # 11
127	85	9314 VENTNOR AVE
127	210	6 S WASHINGTON AVE
127	214	12 S WASHINGTON AVENUE
128	65	9416 VENTNOR AVE
128	77	9404 VENTNOR AVE
128	212	14 S ADAMS
129	45	9510 VENTNOR AVE
130	222	2 S MADISON AVE
131	5	9712 VENTNOR AVE
131	21	9700 VENTNOR AVE
172	217	5 7TH S AV ADAMS
201.01	74	15 WEST DR
201.02	18	37 EAST DR
204.04	5	33 N DELAVAN AVE
211	19	22 N IROQUOIS AVE
224.01	3	12 N HARDING AVENUE
224.01	4	10 N HARDING AVE
225	86	15 N DECATUR AVE
226	1	9205 VENTNOR AVENUE
226	3	9213 VENTNOR AVE
226	14	25 N WASHINGTON AVE
227	92	9111 VENTNOR AVE
227	94	9309-11 VENTNOR AVE
227	95.03	24A N WASHINGTON AVE
227	98	9107 VENTNOR AV
227	100	9305 VENTNOR AVE
228	73	9410 WINCHESTER AVE
228	304	10 N ADAMS AVENUE
229	307	11 N MADISON
229	312	14 N JEFFERSON AVE
229	314	16 N JEFFERSON AVE
230	303	5 N MONROE AVE
231	14	9709 VENTNOR AVE
231	307	11 N COOLIDGE AVE REAR
231	321	25 N COOLIDGE AVE
305.02	26	101 EXETER AVE
307.01	40	117 N FRONTENAC AV
312.01	40	113 S JEROME AVE
323	7	10 N VENDOME AVENUE
326	28	127 N WASHINGTON AVE APT A
327	90	103 N ADAMS AVE
328	67	9120 MONMOUTH AVENUE
328	413	114 N JEFFERSON AVE
329	420	124 N JEFFERSON AVE
330	27	125 N MONROE AVE
330	31	9614 MONMOUTH
330	34.02	9609 WINCHESTER AVE
330	35	9610 MONMOUTH
331	8	103 N COOLIDGE AVENUE
426	21	9211 MONMOUTH AVENUE
427.01	95	9106 08 AMHERST AVE
427.01	103	9200 AMHERST AVENUE
427.02	86	203 N ADAMS AVENUE
427.02	90	9315 MONMOUTH AVE
427.02	98	9309 MONMOUTH AVE REAR APT
427.02	505	211 N ADAMS AVE
427.02	506	212 N WASHINGTON AVE
428	53.101	9510 AMHERST AVE
430	28.04	205 A N MONROE AV
430	28.05	205 B N MONROE AV
431	22.02	220 N MONROE AVE
512.02	11	305 N KENYON AVE
513.02	8	307 N LANCASTER AVE
513.02	24	302 N KENYON AVE
515	5	410 N NASSAU AVE
520	4	447 N THURLOW AVE
520	12	441 N THURLOW AVE
520	16	437 N THURLOW AVE
520	21	433 N THURLOW AVE
520	44	307 N THURLOW ST
520	45	305 N THURLOW AVE
520	47	303 N THURLOW AVE
523	12	312 N VENDOME AVE
524.02	1	312 N WILSON AVE
527	3.01	9315 AMHERST AVE
616	1	505 N PEMBROKE AVE
616	5	439 N PEMBROKE AVE
616	8	437 N PEMBROKE AVENUE
616	9	435 N PEMBROKE AVE
616	26	305 N PEMBROKE AVE
616	29	8707 AMHERST AVE
616	33	8609 AMHERST AVE
616	36	302 N NASSAU AVE
618	3	437 N RUMSON AVE
619	7	354 N RUMSON AVE
619	9	352 RUMSON AVENUE
619	12	348 RUMSON AVE
619	25	338 N RUMSON AVE
621	1	433 N UNION AVE
621	22	430 N THURLOW AVE
622	1	419 VENDOME
622	13	403 N VENDONE
623	21	412 VENDOME AVE
623	23	410 N VENDOME AVE
623	25	424 N VENDOME AVE
714	4	8601 FULTON AVE
714	24	8501 WELLINGTON AVENUE
718	1.01	8802 FULTON AVE
805	19	7 ESSEX CT
1004.02	5	7901 BAYSHORE DR
---	---	CEDAR GROVE & BEACH
---	---	JEFFERSON AVE & BEACH

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Data Sources: New Jersey Geographic Information Network (NJGIN) Information Warehouse, Risk Assessment Mapping Planning Partners (RAMPP) Preliminary Work Maps Data.

REVISIONS

DATE:	4/25/2014
SCALE:	1" = 250'
DRAWN BY:	S.M.M.
CHK'D BY:	K.J.D.
PROJECT No.	DA14-025

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