

Coastal Vulnerability Assessment and Getting to Resilience: West Cape May, NJ March 2017

Prepared by the Environmental Analysis and Communications Group, Rutgers University,
for the Borough of West Cape May

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I. Introduction

This project was funded by the National Fish and Wildlife Foundation in support of the New Jersey Department of Environmental Protection, Coastal Zone Management Program.

As stated in the 2011 NJDEP document *New Jersey's Coastal Vulnerability Assessment and Mapping Protocol*, vulnerability is defined as the degree of exposure and inability of a human or natural system to cope with the effects of a natural hazard, including changing variability and extremes in weather and climate. By assessing vulnerabilities, communities can plan for future exposures and develop strategies for mitigating long-term risk; making communities more resilient.

This report assesses community vulnerability to sea level rise projected for the year 2050 along with a category 1 coastal storm surge.

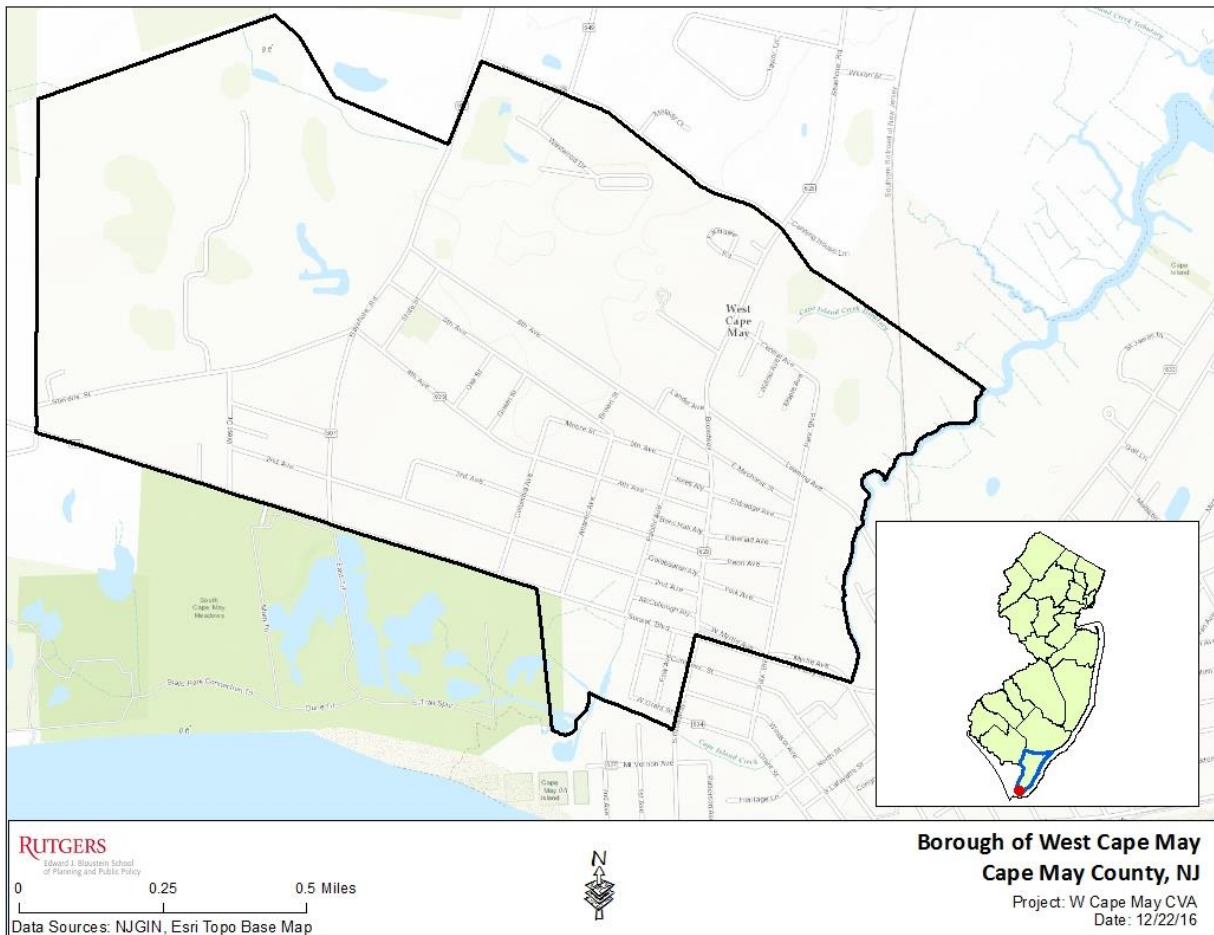
The sea level rise projection data used is taken from the publication *A geological perspective on sea-level rise and its impacts along the U.S. mid-Atlantic coast* (Miller et al, 2013). This publication calls for a central projection of 1.5 feet of sea level rise along the shore in 2050.

Category 1 storm surge data was mapped using the Sea, Lake, and Overland Surge from Hurricanes (SLOSH) data developed by the National Weather Service/NOAA to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes, taking into account the atmospheric pressure, size, forward speed, and track data of storms. According to the National Hurricane Center, Category 1 storm characteristics include:

- Sustained winds of 74-95 mph
- Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters.
- Large branches of trees will snap and shallow rooted trees may be toppled.
- Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.

II. Community Profile

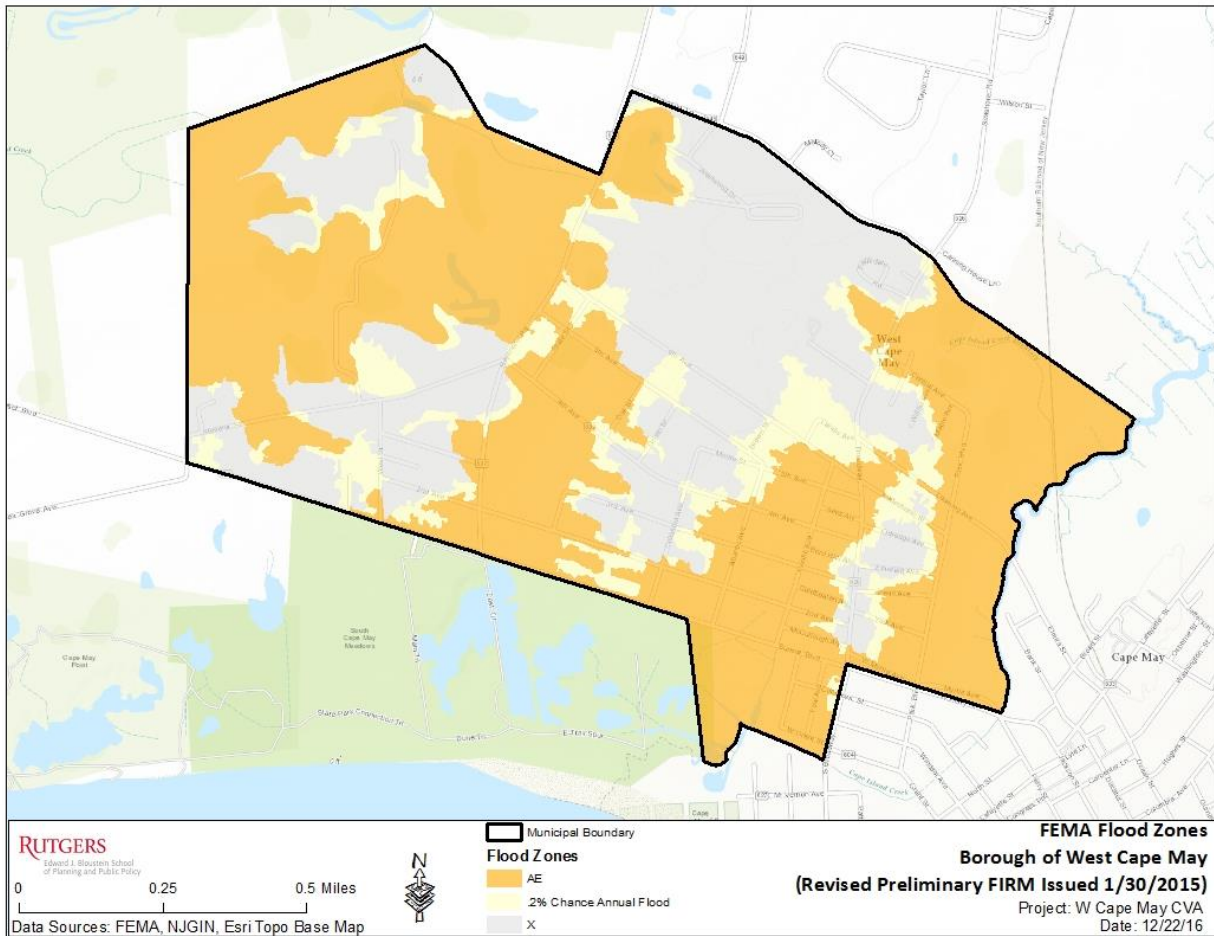
Map 1: Borough West Cape May, Cape May County – NJ



West Cape May is a Cape May County community with its southern border meeting the Cape May Wetlands.

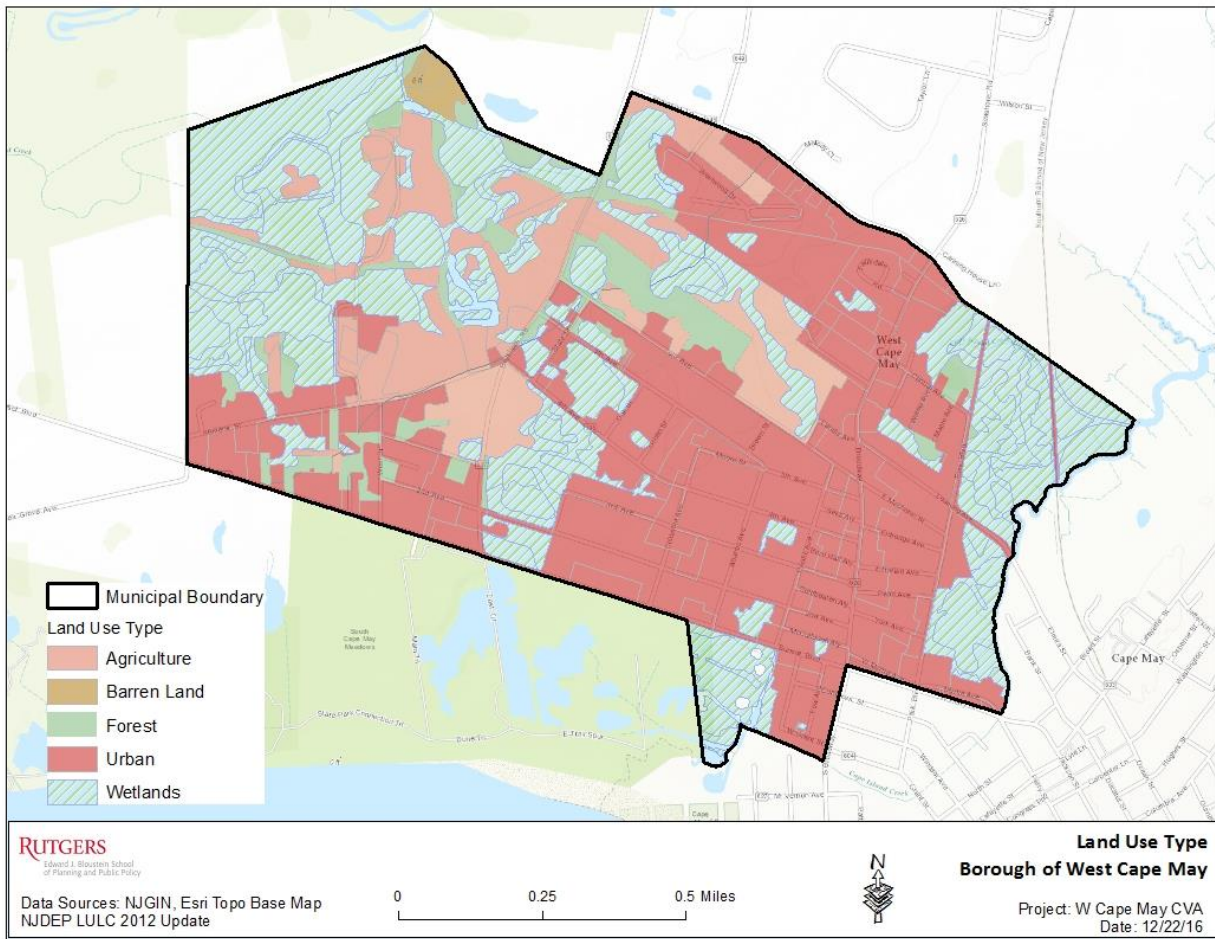
According to the 2015 American Community Survey 5-Year population Estimates, the population of West Cape May was 1,016, making it the 13th most populated of 16 municipalities in Cape May County. The Borough is a total of 1.2 square miles of land with a median household income of \$48,281 and median age of 55 years. The largest racial group in the Borough is White at 85.84%.

Map 2: FEMA Flood Zones



FEMA has designated a large portion of land in West Cape May as Zone AE. These areas are subject to inundation by the 1% annual-chance flood event, Base Flood Elevations (BFEs) are shown, and mandatory flood insurance purchase requirements and floodplain management standards apply. A smaller amount of the Borough is designated as being in the 2% chance annual flood zone. These are areas outside the 1-percent annual chance floodplain, there are no Base Flood Elevations or depths are shown within this zone and insurance purchase is not required.

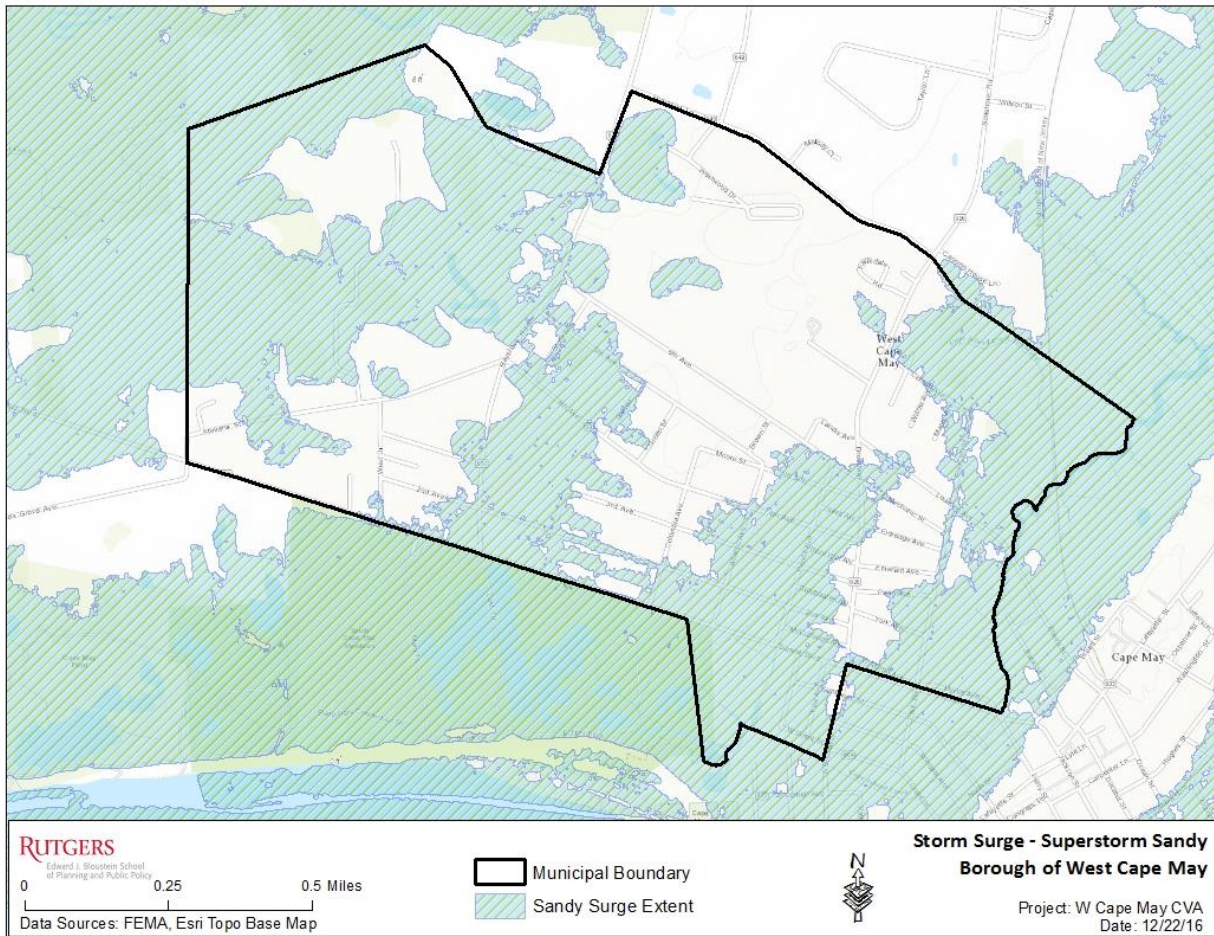
Map 3: Land Use



As seen in the map above, land use type in West Cape May varies from more developed, urban development, to areas of agriculture and wetlands.

According to the NJ Farmland Preservation Program, as of February 2017, there were four preserved farms in West Cape May, totaling nearly 133 acres.

Map 4: Storm Surge: Superstorm Sandy



FEMA modeling shows storm surge from Superstorm Sandy to have inundated not only the wetland and agricultural areas in town, but also some of the developed areas, particularly, the south east portion of the Borough that consists of the Business District.

III. CVA Methodology

Prior to the first meeting, staff at Rutgers University mapped initial assets to create draft mapping in preparation of the CVA meeting with municipal officials. The CVA/GTR meeting was held on January 23rd at town hall. Municipal personnel in attendance to assist in identifying critical assets and finalizing mapping included:

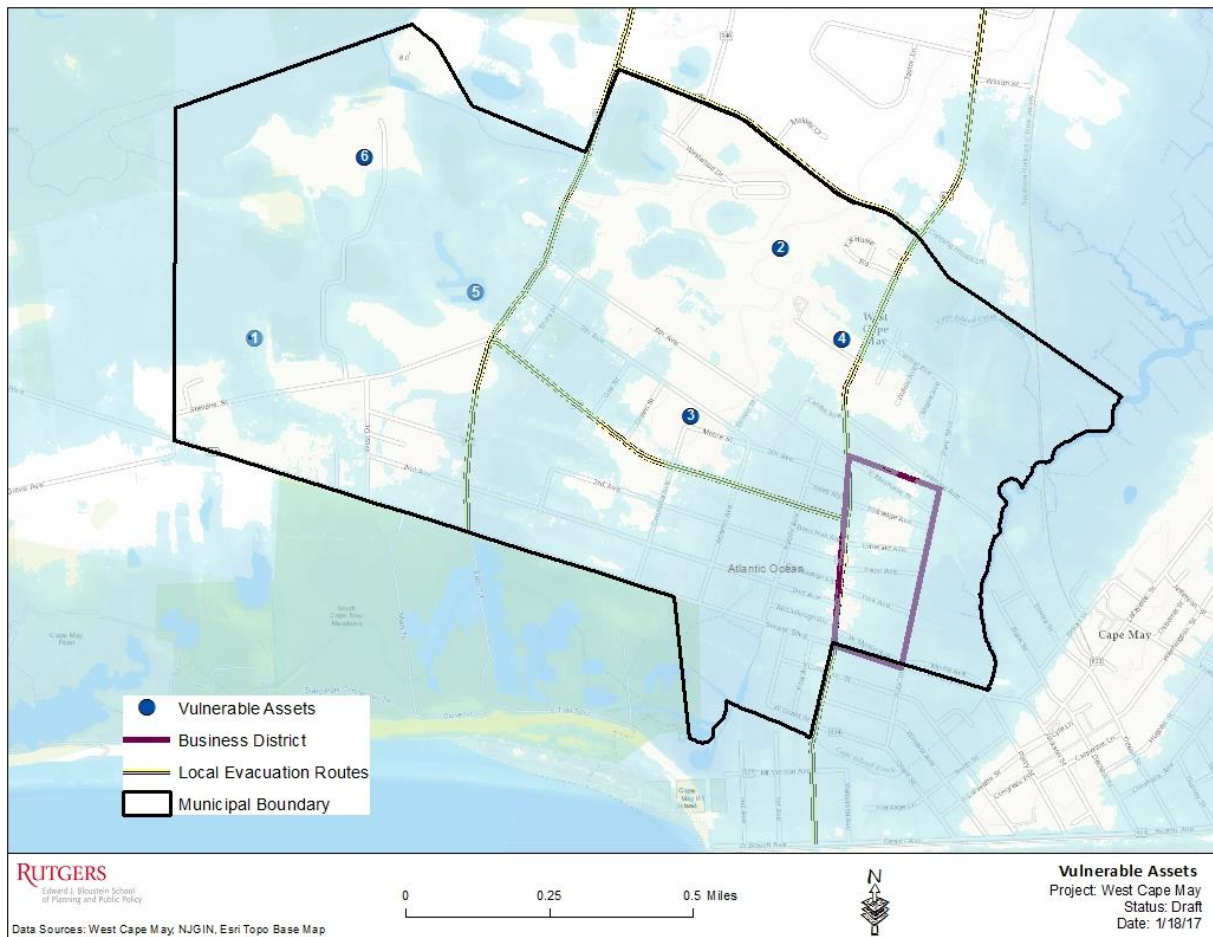
- David Carrick, Water/Sewer Supervisor
- Pam Kaithern, Mayor
- Paul Mulligan, Planning and Zoning
- Ray Roberts, Borough Engineer

When a CVA is completed, community assets from four general areas are indexed in a matrix and then used to support the development of the mapping, these areas include:

- Community Resources
- Critical Infrastructure and Facilities
- Natural Resources
- Vulnerable Sites and Populations.

After deliberation, West Cape May’s final list of assets consisted of 6 asset locations, the business district, and 4 local evacuation routes.

Map 5: Vulnerable Assets with Sea Level Rise for 2050 and Category 1 Storm Surge



After identifying the assets, depth projections were mapped and listed using combined data provided by the New Jersey Department of Protection for the storm surge from a category 1 storm coupled with sea level rise projected for the year 2050.

Table 1. *Vulnerable Assets and Depth Projections*

Asset #	Name	Projected Depth (Ft.)
1	Beach Plum Farm	0-4
2	Depot Campground	0-3
3	Elementary School	0-1 at entrance
4	Fire Headquarter	0-2 at entrance and NE side
5	Rea Farms	0-3 on farm land, bldg. is dry
6	Willow Creek Winery	0-4 on farm land, bldg. is dry
7	County Route 607	0-5 throughout, with greatest depths closer to CR606
8	County Route 626	0-1 to Central Ave, 0-4 Landis Ave to Beach Ave
9	County Route 635	0-4 to Green St., 0-5 Columbia Ave to Broadway
10	County Route 645	>1 at intersection with CR262
11	Business District	0-6 throughout

IV. Findings and Recommendations

The Business District

Throughout discussions with municipal officials, the Business District stood out as the most critical asset to the Borough due to its year-round economic and employment value to residents and importance to summer time visitors.

Map 6: Business District



The Business District, as defined by the Borough, consists of just over 130 parcels.

The area consists of various commercial uses, including bed and breakfasts, a CVS, and two strip malls with multiple businesses located at the sites.

Borough officials stated that there is flooding happening in the business district that hasn't happened in the past and this may be occurring as a result from flow coming from neighboring Cape May.

Natural Areas

Borough Officials would like to see more collaboration between

Cape May County communities and the State as to who is managing the water levels at the nature preserve located along the Borough's southern border; specifically, a more collaborative protocol for lowering the weirs in preparation for storm drainage.

Map 7: Natural Areas



Another issue raised by the Borough was the opening of the Bay into the Pond Creek with a berm network and how this may alleviate future storm surge into the western half of the community.

Recommendations from the Cape May County Hazard Mitigation Plan that are in line with the CVA:

According to the Cape May County Hazard Mitigation Plan Update, West Cape May should consider the following action:

- *Where appropriate, support retrofitting or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Identify facilities that are viable candidates for retrofitting based on cost-effectiveness versus relocation. Where retrofitting is determined to be a viable option, consider implementation of that action based on available funding. (Ongoing)*
 - While the municipality does not have any severe repetitive loss properties, there are 4 repetitive loss properties that could be targeted for buy-out/relocation.

- *Elevate ~1.5 miles of CR-606 (Sunset Boulevard) through the South Cape May Meadows (Lower and WCM). (No progress, County-led)*
 - Sunset Blvd runs parallel to the Business District and any elevation of this road should be done in a way so as to not worsen the flooding occurring on and around the commercial sites and Broadway/CR 626.

National Flood Insurance Program (NFIP) and the Community Rating System (CRS)

West Cape May does not currently participate the CRS. The Borough does, however, participate in NFIP, with 324 policies in force. There are 4 Repetitive Loss Properties and 0 Severe Repetitive Loss Properties located in the Borough.

There are CRS points available for preserving natural floodplain open space and planning for comprehensive floodplain management. It is noted as a goal of the 2009 Sustainability Element to the Municipal Master Plan to conserve environmentally sensitive land and encourage naturally functioning ecosystems by planting native vegetation and pursuing sustainable landscaping, as well as become more involved in local coastal and Bayshore management. Work in these areas would likely be included under the CRS umbrella of resilience planning.

Getting to Resilience (GTR)

The Borough completed the GTR online assessment at Borough Hall on January 23rd. The complete list of linkages and recommendations is available upon request. Chosen relevant recommendations are listed below.

- *Adopt a Municipal Floodplain Management Plan and Incorporate the Plan into the Municipal Master Plan, Municipal Stormwater Plan, and Hazard Mitigation Plan*
 - To support the need for flood management, particularly for the Business District, a Floodplain Management Plan could lay out local detail on the businesses impacted, flooding history, and possible activities to alleviate flooding. For reference, neighboring Cape May City's plan could be used as a template.
- *Adopt an Economic Development Plan or Strategy*
 - The Borough currently wishes to attract more businesses and commercial opportunities. In accordance with Open Space and Preservation goals, the Borough also wishes to keep commercial sites out of areas not specifically zoned for them. This will likely mean that should new business opportunities come to the Borough, they would likely be located in or around the current unofficial business district. Since this area experiences nuisance flooding, it would benefit the town to include this objective not only in the Floodplain Management Plan, but also in a cohesive, Economic Plan or strategy. The Plan could identify the barriers to the expansion of commercial opportunities, along with strategies to overcome them, such as flood mitigation projects or better suited parcels of land for future commercial sites.