Borough of Avalon

2013

FLOOD MITIGATION PLAN

PROGRESS REPORT

September 2013

In September 2006, the Borough of Avalon completed the five-year update of its Flood Mitigation Plan (FMP). The FMP describes the flood mitigation planning efforts of the Borough, following FEMA's Community Rating System (CRS) 10-step planning process. Progress reports have been completed on an annual basis since 2007 in accordance with the Plan Maintenance process described in Section V of the FMP. The 2012 Progress Report was completed in September 2012 with input from the Flood Mitigation Planning Committee. The report was provided to the media and made available to the public on Avalon's website.

This progress report is prepared in accordance with the requirements for annual recertification described in the 2007 CRS Coordinator's Manual. The purpose of this report is to evaluate progress toward implementing the action plan contained in the 2012 Progress Report. Recommendations for new projects are also included in the report. This report will be submitted to Avalon Borough Council, will be released to the media, and will be made available to the public via posting of the report on the Borough's website.

The following list of activities indicates the Borough's progress toward implementing the Action Plan, and includes both ongoing activities, completed activities listed in the Action Plan, and new or proposed activities. The activities have been updated to include actions and planning efforts conducted in 2013. The activities are listed in order of the general outline of the Action Plan:

Preventative

1.   The Borough continues to conduct the following preventative programs and activities:
   a.   Monitoring and surveying of the beaches;
   b.   Enforcement of the Stormwater Management Ordinances;
   c.   Pursuit of opportunities to preserve open space, including 2013 application to the Cape May County Open Space Review Board for 39th Street Park and dune paths at 44th Street and 48th Street;
   d.   Enforcement of building codes and continual re-evaluation of ordinances for potential positive amendments;
   e.   Regular beach and dune maintenance activities;
   f.   Implementation of a Dune Vegetation Management Plan;
   g.   Monitoring and inspection of the 8th Street Jetty and North End Seawall; and
   h.   Conduct of flood mitigation training for Department of Public Works staff.

Property Protection

1.	The Avalon Construction Office continues to provide informational materials to homeowners, builders, and realtors regarding floodplain management.
2.	The Borough continues to implement the Repetitive Loss Reduction Plan.
3.	The Borough continues to pursue available funding opportunities to address repetitive loss properties and/or mitigate the impact of flooding.
4.	In 2013, the Borough adopted a new ordinance requiring a two-foot freeboard for new construction, i.e. top-of-block elevation of all new construction is required to be two (2) feet above base flood elevation. This requirement exceeds the requirements of the 2009 International Building Code.
5.	In 2013, the Borough adopted a new flood protection ordinance adopting the Advisory Base Flood Elevations established by FEMA under their Flood Map Revision process. The ordinance is in the process of being further revised to include the best available information provided by FEMA, including the Preliminary Work Maps. Under the proposed ordinance revision, the Borough intends to establish a Borough-wide base flood elevation of 11 (NAVD88 datum) with a two-foot minimum and three-foot maximum freeboard.
6.	The Borough is in the process of installing fifteen (15) tide reference gauges at multiple locations within the Borough for the purpose of providing residents with a means of more accurately interpreting public announcements and forecasts related to flooding levels and surges.

Natural Resources Protection

The Borough continues to conduct the following Natural Resources Protection programs and activities:
1.	Annual dune grass planting, utilizing volunteers from local civic groups and schools.
2.	Protection of the high dunes, including the implementation of a Dune Vegetation Management Plan to preserve the integrity of the Borough's dune system.
3.	Stream scouring program to monitor erosion of stream banks from stormwater outfalls.
4.	Illicit connection program to detect potential illicit interconnection of stormwater collection system with other systems.

5.   As a result of an extensive Irrigation System Test Program to determine the optimum lawn irrigation method, the Borough adopted a new lawn irrigation ordinance requiring the use of "Smart" irrigation systems for all new development, and is continuing a rebate program for homeowners who upgrade their existing irrigation systems.

6.   In 2012 the Borough agreed to participate in a U.S. Army Corps of Engineers (USACE) pilot study being conducted by the USACE Institute for Water Resources, the purpose of which is to evaluate a typical community's perceived risk from sea level rise associated with climate change. The Borough continues to participate in this program in 2013.

7.   The Borough proactively implements its Beach-Nesting Bird Management Plan, which manages beach maintenance activities to protect endangered species, including the piping plover, least tern, and seabeach amaranth.

8.   The Borough continues a successful education program for its grade school students geared towards emphasizing the importance of dunes and dune maintenance.

9.   The Borough continues to implement a dune grass fertilization program.

Emergency Services

The Borough has implemented the following activities related to Emergency Services:

1.   Flood Warning System

   a.   The Reverse 911 system was utilized on multiple occasions in 2013 and continues to be a highly effective tool in alerting the public to weather-related notices. The Reverse 911 system has become a critical component of the flood warning system, with many new people signing on in 2013.

   b.   In 2009 Avalon established a public information program on the local cable channel, which provides residents with flood warnings as well as general information regarding how to prepare and respond to flood emergencies. This program continues to be a standard component of the Borough's Public Information Program. In 2013, the Borough produced videos to air on the local cable channel advising the public of emergency evacuation procedures and promoting an awareness of the overall flood warning system.

   c.   Avalon continues to improve the usability and content of its website and uses it to communicate various public notices. The increasing popularity of the website has enhanced the Borough's ability to communicate important information to the public in the

event of an emergency. In 2012 the Borough created a new website specifically related to emergency response and management (www.avalonemergency.org). The regular Borough website (www.avalonboro.org) includes a link to the emergency website.

d. The Borough continues to expand its use of social media to keep the public informed and connected. The effectiveness of this service was demonstrated following Hurricane Sandy in 2012 when more than 2.1 million impressions were recorded on the Borough's Facebook site, and 2.4 million impressions were recorded on the Boruogh's emergency website (including 60,000 "unique" impressions).

e. In 2009 and 2010 Avalon purchased two electronic Variable Message Signs for use in communicating important information to motorists in the event of an emergency.

f. The Borough operates a local AM radio station (1630AM) which broadcasts emergency news and instructions in advance of, and during, emergencies. The Borough is currently (2013) working on establishing a link to the radio station on their website.

g. In 2013 the Avalon Office of Emergency Management conducted a webinar with the assistance of the Avalon Free Public Library to educate residents and property owners about the various ways they can get information about future storm events and preventive measures they can take on their properties. The webinar was delivered live and archived by the Library for any members of the public who wish to view it at a later date.

2. Flood Response System

a. In 2009 Avalon entered into a contract with disaster-recovery contractor BMS CAT, Inc. for post-disaster recovery of public buildings and facilities. This contract was renewed in 2013.

b. In 2011 Avalon entered into a contract with disaster-recovery contractor Phillips and Jordan, Inc. for post-disaster recovery (debris removal) of public streets, parks, and beaches. The contract was utilized during Hurricane Sandy and continues to be maintained in 2013.

c. In 2011 Avalon entered a contract with the Cumberland County Board of Vocational Education to provide emergency evacuation sheltering services. In 2012 the Borough upgraded the electrical system at this facility to allow for the connection of the Borough's on-call generator when the facility is being used as an evacuation shelter. The shelter was utilized during Hurricane Sandy.

d.   In 2013 the Borough completed electrical modifications at the Avalon Elementary School to allow for the connection of the Borough's on-call generator at this facility.

e.   In 2011 Avalon entered into a contract with Ransome CAT for portable generator services to provide standby electrical power to the evacuation shelter. The contract was utilized during Hurricane Sandy.

f.   In 2012 the Borough entered a contract with a local bus company (Senior Travel Services) to provide evacuation services for shut-ins and others needing evacuation assistance during a disaster. The Borough intends to renew this contract in October 2013.

g.   In 2010 Avalon Borough Council authorized the adoption of the Cape May County Multi-Jurisdictional All Hazards Mitigation Plan in accordance with FEMA requirements.

h.   Avalon maintains property records at a remote location off the island, which can increase the Borough's effectiveness in responding to the needs of the public in the event that these records are otherwise inaccessible during an emergency.

i.   In 2012 the Borough refurbished a trailer into a mobile pet shelter which is to be used during evacuations. The 54-foot long trailer is equipped with 70 pet cages, electric, heat, air conditioning, and plumbing. Avalon obtained both public and private funding for the project. The pet trailer was utilized successfully during Hurricane Sandy.

j.   The Borough continues to maintain and upgrade its flood response vehicle fleet, and has acquired seven (7) additional five-ton Army trucks.

k.   In 2012 the Borough entered an agreement with the American National Red Cross for use of a Borough facility on a temporary basis as an emergency public shelter.

l.   In 2011 the Borough adopted a Continuity of Operations / Continuity of Government Plan, which established policies and guidance to ensure that essential operations can be performed during emergencies.

m.   In June 2013, Borough officials participated in the U.S. Army Corps of Engineers Working Meeting in support of the "North Atlantic Coast Comprehensive Study - Reducing Risk and Building Resilience", held on June 26-27 at Stevens Institute of Technology in Hoboken, New Jersey.

n.   In July 2013, the Borough conducted a meeting with the Consulate General of the Netherlands to exchange ideas on flood control and shore protection. The meeting was attended by community leaders, professionals, and members of the general public. Following the meeting, the Borough and representatives of the Dutch Consulate conducted

a press conference, which provided the public and media with the opportunity to learn more about how shore protection and disaster planning is conducted in the Netherlands. The event contributed to public awareness of the importance of disaster planning and preparedness.

Structural Projects

1. In 2013 the U.S. Army Corps of Engineers completed a beach renourishment project that restored the beach to the full federal design template for shore protection. Completed with funding under the Flood Control and Coastal Emergencies (FCCE) program, the project restored 290,000 cubic yards of sand eroded from the Borough's northerly beaches during Hurricanes Irene and Sandy.

2. In 2013 the Borough completed the installation of tide check valves and various stormwater system improvements in the 21st Street and 25th Street island areas.

3. Avalon conducted a major evaluation of the existing stormwater outfall system, bulkheads, and public piers. The study included: evaluating the condition of these structures; prioritizing deficiencies according to condition, importance, and threat to public safety; and recommendations for systematic upgrades.

4. Avalon has authorized the replacement of the public bulkhead at 5th Avenue and 20th Street. The bulkhead and public dock will be raised to an elevation of 8.0' NAVD88. This project is scheduled to be completed in early 2014.

5. In 2013 the Borough authorized the design, permitting, and construction of replacement bulkheads at two (2) public street ends (32nd Street at Ocean Drive and 5th Avenue at 24th Street). The project is anticipated to be completed in 2014.

6. The Borough is in the process of developing a new bulkhead ordinance, which will increase the height requirement for private bulkheads throughout the Borough from elevation 7.5' (NGVD29) to 8.0' (NAVD88). Consistent with previous years, in 2012 the Avalon Construction Office issued multiple bulkhead construction permits.

7. The U.S. Army Corps of Engineers completed a feasibility study of the excavation of sand that accretes at the south end of the Borough and transporting the sand "updrift" to the north end. The study evaluated both mechanical and hydraulic methods. The report, which was provided to the Borough in August 2010, concluded that up to 200,000 cubic yards of sand could be "backpassed" from the Borough's southerly beaches and transported mechanically or hydraulically to the highly

erosive northerly beaches. In 2012 Avalon officials participated in a planning meeting to discuss the feasibility and logistics of the project at USACE headquarters in Philadelphia. The Borough agreed to participate in this pilot program, which was scheduled to occur in the fall of 2013.

8.   The Borough entered a shared-services agreement with the County to repair a damaged stormwater outfall pipe discharging into the back bay at 66th Street. The County agreed to reimburse the Borough for design and permitting costs and will include the repairs on an upcoming County-wide drainage improvement project. The project was completed in 2013.

9.   In 2011 the Borough Engineer obtained proposals from coastal engineering firms to evaluate the feasibility of a groin field to prevent beach erosion at the north end beaches. The study will include groins as well as other alternatives that would serve to reduce the frequency of large-scale beach renourishment projects. In 2012 the Borough Engineer selected a coastal engineering firm to conduct the study, and met with the USACE to discuss how the scope of work can be modified in order to allow for future funding and implementation by the USACE. In 2013 the Borough authorized the $190,000 study, which is scheduled to be completed by the end of 2013.

10. In 2013 the Borough awarded a $3.8 million contract for the emptying of dredged materials from the Borough's Confined Disposal Facility (CDF), which has been filled to capacity since 2009. The removal of the dredged material will allow the Borough to proceed with planned dredging projects in late 2014 and early 2015. Maintaining navigable waterways in the vicinity of Avalon's backbays and harbors enhances the Borough's ability to respond to disasters.

11. In 2013 the Borough installed generator hookups at two primary stormwater pump stations located along Ocean Drive at 8th Street and 23rd Street. The hookups will allow the Borough to connect generators to these critical stations in the event of a power failure occurring during a period of flooding.

12. The Borough has solicited quotes for the replacement of 150 linear feet of damaged ductile iron outfall pipe at the 30th Street ocean outfall.

13. The Borough installed a tide check valve at the 56th Street outfall along Ocean Drive, which will reduce the flooding in this area.

14. Following Hurricane Sandy, the Borough applied for funding under FEMA's Hazard Mitigation Grant Program for several projects, including the purchase of a new generator at the Public Works Facility, upgrades to the 11th Street and 22nd Street stormwater pump stations, and improvements to the Ocean Drive stormwater pump stations.

15. In 2013 the Borough conducted major repairs to the Ocean Drive pump stations consisting of

rebuilding of six pumps (one spare, two pumps at the 23rd Street pump station, two pumps and the 26th Street pump station, and one pump at the 33rd Street pump station).

16.   In 2013 the Borough established funds for the design of an additional stormwater pump station and associated stormwater collection system upgrades in the vicinity of 76th Street and Ocean Drive.

17.   Following major damage to the County roadway connecting Avalon with Sea Isle City to the north, Cape May County completed the design of the rebuilding of this section of roadway. The roadway along the inlet separating Avalon from Sea Isle City is subject to significant impact and erosive forces from waves breaking over the seawall. The proposed improvements include subgrade reinforcement with steel sheet pile support to protect the undermining of the roadway, and regrading of the roadway to direct water away from the Borough's residential area.

Plan Maintenance

The Flood Mitigation Plan will be updated in accordance with the Plan Maintenance schedule contained in Section V of the FMP. Changes will consist of updating the Action Plan to include the above referenced activities.