Borough of Avalon

2017

FLOODPLAIN MANAGEMENT PLAN

EVALUATION REPORT

2017 Floodplain Management Plan Evaluation Report

In 2015, the Borough of Avalon increased its efforts in Floodplain Management Planning by establishing a community-wide Floodplain Management Committee (the Committee) and developing a new Floodplain Management Plan (FMP) to meet FEMA Community Rating System requirements. The FMP was finalized and submitted to FEMA in December 2015 following a comprehensive floodplain management planning process consisting of multiple meetings of the Committee, two (2) public meetings, and coordination with other agencies and organizations. The planning process emphasized broad public participation, consideration of fresh approaches to existing practices, consideration of new initiatives, and collaboration with other agencies.

This Evaluation Report is prepared in accordance with requirements for annual recertification described in the 2013 CRS Coordinator's Manual and Chapter 9 of the FMP. The purpose of this report is to evaluate progress toward implementing the Action Plan contained in Chapter 7 of the FMP. Action Items contained in the FMP were discussed and re-evaluated through two (2) separate Plan Review Meetings of the Committee conducted on August 17th, September 29th and a Plan Revision Meeting conducted on October 17th. The Committee discussed the Borough's progress in the implementation of the Action Items and considered the need and opportunity for additional Action Items. The Evaluation Report was presented to the public at a Borough Council Meeting conducted on November 8, 2017. Although no comments were received from the public, the Evaluation Report was revised to include comments received from Council.

The attached table corresponds to Table 7-1 of the FMP. For convenience of presentation, the table includes only the Action Items and an update on their implementation. Information regarding the goals and responsible party for each Action Item is contained in Table 7-1 of the FMP. Updates or corrections to the FMP Section Reference, Priority, or Deadline are indicated in bold text.

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Action Item	Section Reference	Priority	Deadline	Implementation Status
Preventive				
1. Continued participation in CRS program.	7.1.1 - 1	High	Ongoing	**Avalon continues to participate in the CRS Program. In 2016 and 2017, Avalon utilized the services of Mr. Frank Bruton of the Borough's Engineering firm, Mott MacDonald, to oversee this process. Currently in compliance. Submitted annual recertification documents on October 11, 2017.**
2. Implement, evaluate, and revise FMP annually.	7.1.1 - 2	High	Ongoing	Avalon continues to implement, evaluate, and revise the FMP annually, as documented in this Action Plan.
3. Continue to enforce stormwater management ordinances.	7.1.1 - 3	High	Ongoing	Avalon continues to enforce its stormwater management ordinances.
4. Continue to enforce building codes.	7.1.1 - 4	High	Ongoing	Avalon continues to enforce its building codes.
5. Re-evaluate ordinances for potential positive amendments.	7.1.1 - 5	High	Ongoing	Avalon re-evaluates its ordinances for potential positive amendments. In 2017 Avalon adopted Ordinance No. 757-2017, amending and supplementing their existing flood damage prevention ordinance, as well as other ordinances pertaining to flood damage prevention.
6. Monitor and inspect 8th Street jetty and North End Seawall for settlement or damage.	7.1.1 - 6	High	Ongoing	**Monitoring of the jetty continued in 2017 in association with the survey and design of the repairs to the jetty from damage caused by Winter Storm Jonas. Avalon will continue to conduct periodic monitoring of the jetty for additional settlement or damage.**
7. Conduct flood mitigation training of Borough staff.	7.1.1 - 7	Medium	**May 31, 2017**	Avalon conducted flood mitigation training of select Borough staff in 2017.
8. Establish SOPs for the Evaluation of Critical Dune Erosion and Restoration of Severely Eroded Dunes	7.1.1 - 8	Medium	May 2018	Options for stockpiling sand for transfer to the beach and dune in advance of storms were reviewed. This and other procedures and methods of protective dune restoration will be evaluated and formalized in a set of Standard Operating Procedures.
9. Adopt Flood Insurance Rate Maps		**High**	**September 27, 2017**	**In 2017, the Borough accepted the Preliminary FIRMs, adopting them via Ordinance No. 757-2017. The FIRMs became effective October 5, 2017.**

Property Protection				
1. Comply with NFIP policies.	7.1.2 - 3	High	Ongoing	Avalon complies with NFIP policies.
2. Continue to monitor and survey the beaches.	7.1.2 - 4	High	Quarterly	Monitoring of the Borough's beaches continued to be conducted by the Stockton University Coastal Research Center. The program proved effective in communicating to the USACE and NJDEP the critical vulnerability of the Borough's beaches in preparation for a federal beach renourishment project in late 2016.
3. Continue to implement the Repetitive Loss Reduction Plan.	7.1.2 - 5	Medium	Ongoing	Avalon continues to implement the Repetitive Loss Reduction Plan.
4. Continue to pursue funding opportunities to address repetitive loss properties.	7.1.2 - 6	Medium	Ongoing	Avalon continues to pursue funding opportunities to address repetitive loss properties.
5. Continue to require three-foot freeboard.	7.1.2 - 7	High	Ongoing	**Avalon continues to require three-foot freeboard. This requirement is maintained in recently revised Chapter 19 - Flood Damage Prevention (Ordinance 757-2017).**
6. Support homeowners who desire to remediate their repetitive loss properties.	7.1.2 - 8	High	Ongoing	Avalon will support homeowners who desire to remediate their repetitive loss properties.
7. Maintain verified benchmarks per CRS requirements.	7.1.2 - 9	High	**October 31, 2017**	Verified benchmarks were inspected by a Professional Land Surveyor and found to be undisturbed.
8. Enforce Coastal A Zone Standards for V-Zone Construction.	7.1.2 - 10	High	Ongoing	The Avalon construction office enforces the Coastal A Zone Standards for V-Zone Construction
9. Flood Sensor Program		**High**	**May 2018**	**In partnership with the Atlantic-Cape Coalition, Stockton University implemented a flood depth sensor program. Fifteen (15) sensor devices were placed at strategic locations within the Borough to record the timing and depth of flooding at these locations. The data will be used for planning and design of future flood mitigation projects.**
10. Watershed Master Plan		**High**	**December 2017**	**Avalon is exploring the practicability of conducting a Watershed Master Plan in accordance with the CRS guidelines. A decision as to whether to proceed with this initiative is expected by the end of 2017.**

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Natural Resources Protection				
1. Continue to pursue opportunities to preserve open space.	7.1.3 - 1	Medium	Ongoing	Avalon continues to pursue opportunities to preserve open space.
2. Continue volunteer dune grass planting program.	7.1.3 - 2	High	Ongoing	Avalon continues to implement its dune grass planting program.
3. Continue to protect the high dunes.	7.1.3 - 3	High	Ongoing	Avalon continues to protect the high dunes, most recently through its forestry management program and the removal of diseased and non-native Japanese Pines, while still retaining the root structure to maintain soil stability.
4. Continue stream scouring and illicit connection programs.	7.1.3 - 4	Low	**May 31, 2017**	The Borough Engineer inspected the Borough's outfalls and did not observe any significant stream scouring. At two locations, sanitary sewer pipes were found to extend through drainage structures. Alternative utility alignments are being evaluated to correct these conditions.
5. Explore opportunities to restore degraded tidal marsh in back bay utilizing thin-layer placement of dredged material.	7.1.3 - 5	Medium	**Ongoing**	Avalon continues to evaluate the feasibility of thin-layer disposal of dredged material, as well as other alternative methods.
6. Continue to implement dune grass fertilization program.	7.1.3 - 6	High	Per Schedule	Avalon continued their dune grass fertilization program in 2017.
7. Maintain and enforce recently adopted sediment control ordinance for swimming pool dewatering.	7.1.3 - 7	High	Ongoing	Avalon continues to enforce the sediment control ordinance for swimming pool construction dewatering.
8. Continue to implement invasive species management and mitigation.	7.1.3 - 8	Medium	Ongoing	Avalon continues to implement its invasive species management and mitigation.

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Emergency Services				
1. Develop, enhance, and implement existing emergency plans.	7.1.4 - 1	High	Ongoing	The Floodplain Management Committee met on multiple occasions in 2017 to discuss the enhancement and implementation of the Borough's emergency plans, resulting in the development of this Action Plan.
2a. Maintain mutual aid agreements with neighboring communities.	7.1.4 - 2	High	Ongoing	Avalon maintained its mutual aid agreement with its neighboring communities, including Stone Harbor, Middle Township, Sea Isle City, and Cape May County.
2b. Maintain pre-disaster contracts with disaster recovery contractor for debris removal.	7.1.4 - 2	High	Ongoing	Avalon continues to contract for disaster recovery. **In 2017, the Borough engaged with the Houston-Galveston Area Council for these services.**
2c. Pursue pre-disaster contracts for providing home and family services for emergency personnel during disasters.	7.1.4 - 2	High	Ongoing	Avalon provides for sheltering services for family members of first-responders during storm events.
2d. Continue to maintain pre-disaster contract for disaster-recovery services of public buildings and facilities.	7.1.4 - 2	High	Ongoing	Avalon continues to contract for disaster-recovery services of public buildings and facilities. **In 2017, the Borough engaged with the Houston-Galveston Area Council for these services.**
2e. Maintain Contract with Cumberland County Board of Vocational Education to provide evacuation sheltering services.	7.1.4 - 2	High	Ongoing	Avalon maintained its contract with the Cumberland County Board of Vocational Education to provide evacuation sheltering at their facility in Cumberland County.
2f. Maintain contract for portable generator services for evacuation shelter.	7.1.4 - 2	High	Ongoing	Avalon maintained its contract with Ransome-CAT for this program.
2g. Maintain contract with local bus company for evacuation services for shut-ins.	7.1.4 - 2	High	Ongoing	Avalon maintained its contract with Senior Travel Service for the evacuation services for shut-ins.
3. Develop and institute ID card program to control re-entry into Borough after major disasters requiring evacuation.	7.1.4 – 3	High	Ongoing	The Borough participates in this ongoing County program.
4. Implement program to keep motorists off Ocean Drive during flooding events.	7.1.4 – 4	Medium	**December 31, 2017**	Currently being implemented through the use of alerts to public through various media. Borough website updated to include information on potential damage to vehicles and dangers of driving through flooded streets.

5. Research app for mobile devices to use for flood hazard notifications and emergencies.	7.1.4 – 5	High	Ongoing	The Borough is continuing to explore the possibility of downloading free web applications, including "Code Red", for use on mobile devices.
6. Expand "Code Red" system to include tourists and visitors.	7.1.4 – 6	High	**December 31, 2017**	The Borough is continuing to explore the possibility of downloading free web application for use on mobile devices.
7. Consider signage and/or reverse lane system for 30th Street.	7.1.4 – 7	Medium	**December 31, 2017**	Preliminary research indicates that there are logistical challenges with implementation of reverse lane system on 30th Street. Feasibility of this Action Item will be explored further in 2017.
8. Maintain tide reference gauges to provide residents with a means to more accurately interpret public announcements related to flooding levels and surges.	7.1.4 - 8	High	Ongoing	Avalon has maintained its reference tide gauges in 2017.
9a. Continue to provide flood warnings on local cable channel.	7.1.4 – 9	High	Ongoing	Avalon provides flood warning on its local cable channel.
9b. Continue to provide flood warnings and information on web site.	7.1.4 – 9	High	Ongoing	Avalon provides flood warnings and information on its web site.
9c. Continue to provide flood warnings and information on AM 1630 radio station.	7.1.4 - 9	High	Ongoing	Avalon provides flood warning and information on its AM radio station.
9d. Continue to provide flood warnings and information on social media.	7.1.4 – 9	High	Ongoing	Avalon provides flood warnings and information on social media.
9e. Continue to provide flood warnings over community-wide public address system.	7.1.4 – 9	High	Ongoing	Avalon provides flood warnings over its community wide public address system when warranted.
9f. Continue to use Variable Message Signs along roadways to alert public of emergencies.	7.1.4 - 9	High	Ongoing	Avalon utilizes Variable Message Signs, where warranted, to alert the public of emergencies.
10. Maintain public records at remote location.	7.1.4 – 10	High	Ongoing	Avalon continues to maintain public records at a remote location.
11. Maintain operation of mobile pet shelter.	7.1.4 – 11	High	Ongoing	Avalon maintains its mobile pet shelter for use during evacuations.
12. Maintain flood response vehicle fleet.	7.1.4 – 12	High	Ongoing	Avalon maintains its flood response vehicle fleet.
13. Maintain Continuity of Operations / Continuity of Government Plan.	7.1.4 - 13	High	Ongoing	Avalon maintains its COOP/COG plan.

Structural Projects				
1. Construct additional pump stations along County Road 619 (Ocean Drive).	7.1.5 - 1	High	December 31, 2018	**The 78th Street stormwater pump station design is underway. The pump station will alleviate flooding between 75th Street and 80th Street. Construction expected to proceed in 2018.**
2. Elevate Borough-owned back-bay bulkheads.	7.1.5 - 3	High	June 30, 2017	**Avalon completed the replacement of the Fifth Avenue Bulkhead at 20th Street. Replacement of two (2) additional bulkheads scheduled for Spring 2018. The design of these additional bulkheads is complete, and permit applications have been submitted to the regulatory agencies.**
3. Encourage back-bay fronting residents to elevate bulkheads.	7.1.5 - 4	High	Ongoing	When opportunities arise, Avalon encourages its residents to elevate their bulkheads to alleviate flooding.
4. Install SCADA systems for oceanfront pump stations.	7.1.5 - 5	High	December 31, 2017	**The Borough established funding and authorized work to proceed on the installation of SCADA capability on their oceanfront pump stations through their Water and Sewer System operator, Middlesex Water Company. Work is currently underway, and anticipated to be complete by December 2017.**
5. Provide emergency connections for portable generator at oceanfront pump stations.	7.1.5 - 6	High	November 30, 2017	**The Borough established funding and authorized work to proceed on the installation of emergency connections for a portable generator through their Water and Sewer System operator, Middlesex Water Company. Work is currently underway, and anticipated to be complete by November 2017.**
6. Increase the capacity of the stormwater system where deficiencies are revealed.	7.1.5 - 7	Medium	Ongoing	Avalon continues to address deficiencies in the capacity of their stormwater system where warranted. Road reconstruction projects currently planned call for improvements to the drainage system on these roads.
7. Replace worn "Drains to Bay" stickers on stormwater inlets.	7.1.5 - 9	Low	May 31, 2017	Avalon continues to implement this program through its Public Works Department.
8. Evaluate north end shore protection and beach stabilization alternatives from pending municipal engineer's report.	7.1.5 - 10	High	December 31, 2017	**Borough Engineer accepted final report by Moffatt & Nichol and presented to Mayor. Public meeting to present plan pending.**
9. Continue to conduct regular beach and dune maintenance activities.	7.1.5 - 11	High	Ongoing	Avalon continues to conduct regular beach and dune maintenance activities. In 2016, the Borough completed a backpassing project with its own forces. The project consisted of scraping and hauling 55,000 CY of sand from the borrow area in the vicinity of 35th Street to the eroded north end beaches.

10. Ocean Drive Sanitary Sewer System Improvements		**High**	**December 2017**	**In 2017, Avalon awarded a contract to replace the existing sanitary sewer system in Ocean Drive from 29ᵗʰ Street to 62ⁿᵈ Street. The project will increase resiliency by replacing old asbestos-cement pipe sewer system with PVC, and by constructing a bypass of the 58ᵗʰ Street sanitary sewer pump station to allow for continued operation of 74ᵗʰ Street pump station in the event of the failure of the 58ᵗʰ Street pump station. The project is underway, and on schedule to be completed by December 2017.**
11. Ocean Drive Resurfacing Project (Cape May County)		**High**	**June 2018**	**Cape May County awarded a contract for the resurfacing and raising of Ocean Drive. The raising of the roadway will reduce nuisance flooding in flood-prone areas of Ocean Drive between 29ᵗʰ Street and 62ⁿᵈ Street. The improvements include the addition of drainage structures within the right-of-way where the road is raised, and the installation of tidal check valves within existing and proposed drainage structures. The project is currently underway and scheduled for completion in June 2018.**
12. Repair of 8ᵗʰ Street Jetty		**High**	**December 2018**	**FEMA approved approximately $1.4 million in funding for engineering and construction costs to repair damage to the 8ᵗʰ Street jetty caused by Winter Storm Jonas in January 2016. The repairs will improve the stability and integrity of the jetty. Additional damage was discovered during the design phase of the project. As of September 2017, preliminary design of the jetty repairs is complete, and applications to the regulatory agencies are being prepared.**
13. US Army Corps of Engineers Back Bay Flooding Feasibility Study.		**Medium**	**December 2018**	**The USACE has initiated a 3-year feasibility study of a project to mitigate flooding from the back bays of coastal communities throughout the State. The USACE has requested that communities provide descriptions of areas subject to flooding from the back bay that the USACE will consider to be implemented under the project. Avalon will submit the Dune Drive Business District flooding for the USACE's consideration.**
14. **2017 Beach Renourishment Project**		**High**	**May 2017**	**In 2017 the U.S. Army Corps of Engineers (USACE) completed a major beach renourishment project. Borough officials worked closely the USACE during the project, which added approximately 944,000 cubic yards of sand to the Borough's beaches between 8ᵗʰ Street and 28ᵗʰ Street.**
15. **North End Drainage Study**		**High**	**November 2017**	**Following two extreme rain events, which caused significant flooding in the north end of the Borough, Avalon authorized a drainage study of this area to determine whether the stormwater collection and conveyance system is adequately sized.**

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Public Information				
1. Continue public outreach to encourage installation of FEMA-compliant flood vents.	7.1.6 - 1	High	Ongoing	Avalon continues to encourage the installation of FEMA-compliant flood vents.
2. Continue to provide information materials to homeowners, builders, and realtors regarding floodplain management.	7.1.6 - 2	High	Ongoing	Avalon continues to provide information materials to homeowners, builders, and realtors regarding floodplain management.
3. Develop and implement system to provide public with understanding of relationship to forecasted storm surge to actual flooding conditions.	7.1.6 - 3	High	**May 2018**	Borough Engineer researched feasibility of utilizing GIS-based computer applications and flood modeling to implement an interactive website to allow users to visualize the extent and depth of proposed inundation associated with forecasted storm events within the Borough. Based on a demonstration by the Borough Engineer of a sample application, it was determined that improvements to the resolution of the graphics and ease of use of the application would need to be addressed prior to moving forward with implementation. **At September 2017 Plan Review Meeting, the Floodplain Management Committee recommended exploring more cost-effective means of communicating potential flood depths to Borough residents and visitors, such as representing historical water depths on signs or markers placed at strategic locations within the Borough.**
4. Establish and publicize designated locations for parking cars during high tidal conditions.	7.1.6 – 4	Medium	**May 2018**	**The Floodplain Management Committee discussed the feasibility of implementing designated locations for the parking of cars during high tidal conditions. The plan will be pursued further in 2018.**
5. Provide flood hazard educational programs for public at library.	7.1.6 – 5	High	Ongoing	Avalon continues to provide flood hazard education programs for the public at the Avalon Library. **Speakers for 2017 included Dr. Stewart Farrell from Stockton University Coastal Research Center, and Tom Thornton, of Mott MacDonald.**
6. Develop Borough-wide elevation map for brochures.	7.1.6 – 6	High	Ongoing	**In 2017, Avalon updated their flood inundation map, improving the detail and formatting of the map, and adding areas subject to non-tidal flooding. The map was distributed to the public through various means and has proven a valuable resource for the public to obtain a general overview of where flooding is likely to occur in the Borough. Per recommendation of Borough Council, the map may be further improved by providing recommended driving routes to avoid flooded areas.**

7. Continue to inform public about flood hazards through Mayor's presentations to various community groups.	7.1.6 – 7	High	Ongoing	The Mayor continues to emphasize the importance of flood hazard awareness and preparedness through presentations to various community groups.
8. Provide information to applicable property owners regarding the Repetitive Loss Reduction Plan.	7.1.6 – 8	High	Ongoing	Avalon continues to provide information to property owners regarding the Repetitive Loss Reduction Program.
9. Expand public education of flood hazards through all available media channels	7.1.6 - 9	High	**December 31, 2017**	Avalon will expand its public education of flood hazards in 2017 through an increased emphasis on flood hazards through presentations to the Avalon Home and Landowners Association.
10. Program for Public Information			**May 2018**	**In 2017, Avalon joined with other communities to develop a Multi-Jurisdictional Program for Public Information. The program will further enhance the Borough's current activities related to public information related to flood prevention and preparedness.**