



Borough of Avalon

2020

FLOODPLAIN MANAGEMENT PLAN
EVALUATION REPORT

2020 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 2017 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 October 29th and November 5th and a Plan Revision Meeting conducted on November 12th. 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 16, 2020. In advance of the meeting, the report was posted on the Borough's website, providing the public with the opportunity to submit comments prior to the scheduled date of adoption of the final report at the December 16, 2020 Council Meeting. The Evaluation Report was revised to include comments received from both the public and Borough Council. In 2021, Avalon will conduct its five-year update of the existing Floodplain Management Plan.

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, utilizing the services of Mr. Frank Bruton of the Borough's Engineering firm, Mott MacDonald, to oversee this process. In 2020, Avalon obtained CRS Class 3 Rating, resulting in a 35% discount on flood insurance for properties that carry flood insurance. Avalon will continue to pursue a higher CRS classification in 2021.
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. In 2021, Avalon will prepare an updated Flood Mitigation Plan in accordance with CRS requirements.
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. As the need arises, Avalon will consider additional measures such as building size and impervious coverage.
6. Monitor and inspect 8 th Street jetty and North End Seawall for settlement or damage.	7.1.1 - 6	Medium	Ongoing	In 2020, the Borough completed major repairs and improvements to the 8 th Street Jetty, which had been damaged by Winter Storm Jonas. Avalon will continue to conduct periodic monitoring of the jetty for settlement or damage.
7. Conduct flood mitigation training of Borough staff.	7.1.1 - 7	Medium	Ongoing	Avalon conducted flood mitigation training of select Borough staff in 2020.
8. Establish SOPs for the Evaluation of Critical Dune Erosion and Restoration of Severely Eroded Dunes	7.1.1 - 8	Medium	May 2021	In 2021, Avalon will review the feasibility of various emergency contract alternatives for providing materials and/or labor to stockpile/transfer sand to vulnerable portions of dunes in advance of storms that threaten to breach vulnerable areas of the dunes. A formalized set of Standard Operating Procedures (SOPs) will be developed following this review.
9. Establish SOPs for pre-storm activities carried out by the Public Works Department.		Medium	Feb 2021	In 2021, the Borough will establish Standard Operating Procedures for various pre-storm activities that are carried out by the Public Works Department.

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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.
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 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	December 2021	Inspection of benchmarks by a Professional Land Surveyor are part of the Borough's annual CRS activities.
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		Medium	Ongoing	In partnership with the Atlantic-Cape Coalition, Stockton University implemented a flood depth sensor program. Sensor devices were placed at thirteen strategic locations within the Borough to record the timing and depth of flooding at these locations. Stockton University submitted the final report on the findings in late 2019. Data provided in the report will be useful in planning and design of future flood mitigation efforts.
10. Watershed Master Plan		High	Ongoing	In 2018, Avalon authorized the development of a Watershed Master Plan in accordance with the CRS guidelines. The final plan was submitted to FEMA in 2019. Avalon continues to comply with the plan.

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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 through a Public/Private Dune Vegetation Management Plan, which results in the removal of diseased and non-native plants and replacing them with native species.
4. Continue stream scouring and illicit connection programs.	7.1.3 - 4	Low	Ongoing	Avalon continues to conduct annual stream scouring and illicit connection investigations in accordance with the requirements of its Municipal Stormwater System permit requirements.
5. Tidal marsh restoration research	7.1.3 - 5	Medium	Ongoing	Avalon has partnered with the Wetlands Institute and the U.S. Army Corps of Engineers (USACE) to support an initiative, known as the Seven Mile Island Living Laboratory, which is "designed to advance and improve dredging and marsh restoration techniques...through innovative research, collaboration, knowledge sharing and practical application". Through this program, now known as the Seven Mile Island Innovation Lab (SMILL), elevation enhancements were achieved on Sturgeon Island and fish habitat enhancements are currently in the design phase for Gull Island. Avalon will continue to support this initiative.
6. Continue to implement dune grass fertilization program.	7.1.3 - 6	High	Per Schedule	Avalon continued their dune grass fertilization program in 2020.
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.
9. Implement Clean Water Initiative		Medium	Ongoing	Avalon adopted a Clean Water Initiative program that will eliminate the use of single-use plastic bags and straws, and Styrofoam products offered by merchants, beginning June 1, 2019. Avalon also will conduct an education campaign for boaters to bring in any trash generated while boating or fishing, and will install additional monofilament disposal stations at key locations, in cooperation with the Wetlands Institute.
10. Pollinator Habitat		Medium	Ongoing	In 2019, Avalon improved a vacant tract of land at the northwest corner of Armacost Park, converting it into a pollinator habitat. The project provides a location for migratory pollinators and birds to stop during migration and serves as an example for property owners to implement similar improvements on their properties. Avalon will continue to maintain this habitat.

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11. Turtle Habitat		Medium	Ongoing	<p>In 2019, Avalon created a turtle habitat at the Bay Park Marina at 56th Street, to protect diamondback terrapins by providing an area for nesting between the tidal marsh and the County Road. The project has been effective in reducing terrapin deaths from vehicles at this location. The project builds on the success of previously implemented measures along Avalon Boulevard. Planned enhancements to the Bay Park Marina at this location will provide additional protection. Avalon will also implement appropriate measures (e.g. barriers, seasonal signage) at this and other locations.</p>
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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 2019 and 2020 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.
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.
2e. 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.
2f. 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 low-lying streets during flooding events.	7.1.4 - 4	High	May 2021	Avalon currently installs barriers and temporary signage in flooded areas and alerts the public to flooded streets through various media. In 2021, Avalon will evaluate the feasibility of installing LED-enhanced signage activated by flood sensors in flood-prone locations within the Borough and will follow up with Cape May County to participate in this effort on County Roads within the Borough.
5. Research app for mobile devices to use for flood hazard notifications and emergencies.	7.1.4 - 5	High	Ongoing	The Borough utilizes free web applications for use on mobile devices.
6. Develop a method of providing flooding information to tourists, visitors, and new property owners.	7.1.4 - 6	May 2021	Ongoing	The Borough continues to explore effective means of communicating flooding information to tourists, visitors, and new property owners. In 2021, Avalon will evaluate whether the information packets provided by realtors to buyers and renters can be enhanced.

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7a. Continue to provide flood warnings on local cable channel.	7.1.4 – 9	High	Ongoing	Avalon provides flood warning on its local cable channel.
7b. 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.
7c. 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.
7d. 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.
7e. 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.
7f. 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.
8. Maintain public records at remote location.	7.1.4 – 10	High	Ongoing	Avalon continues to maintain public records at a remote location.
9. Maintain operation of mobile pet shelter.	7.1.4 – 11	High	Ongoing	Avalon maintains its mobile pet shelter for use during evacuations.
10. Maintain flood response vehicle fleet.	7.1.4 – 12	High	Ongoing	Avalon maintains its flood response vehicle fleet.
11. Maintain Continuity of Operations / Continuity of Government Plan.	7.1.4 - 13	High	Ongoing	Avalon maintains its COOP/COG plan.
12. Establish local tide gauge.		High	December 2021	In 2020, Avalon Administrator Scott Wahl initiated contact with National Weather Service representatives regarding the feasibility of installing an official tide gauge in the back bay. The project would greatly increase the Borough's ability to accurately predict tidal flooding. Avalon will further investigate the feasibility and cost of this effort in 2021.
13. High water mark signage.		High	May 2021	Avalon will advance an initiative to erect signage at one or more locations within the Borough indicating the height of high water reached by major historic tidal floods. The mark will provide a frame of reference to the public to inform them of the potential extent of flooding from future events. In 2020, Avalon Administrator Scott Wahl researched various styles of signage. In 2021, Avalon will select a sign style, identify the optimal locations for the selected signs, and install the signs at the selected locations.

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Structural Projects				
1. Construct additional pump stations along County Road 619 (Ocean Drive).	7.1.5 - 1	High	October 2021	The 78 th Street stormwater pump station design is complete. Upon receipt of funding commitment from Cape May County, the project will be advertised for bids and a construction contract awarded. The pump station will alleviate flooding between 75 th Street and 80 th Street.
2. Elevate Borough-owned back-bay bulkheads.	7.1.5 - 3	High	Ongoing	In 2020, Avalon completed the replacement of the 21 st Street bulkhead and awarded a contract for the replacement of bulkheads at 22 nd Street/Sixth Avenue, 26 th Street at Ocean Drive, and 80 th Street. The 72 nd Street bulkhead at Ocean Drive will also be replaced in 2021. In 2021, Avalon will consider replacing one or more bulkheads, including the 23 rd Street, 29 th Street, 33 rd Street, and 34 th Street bulkheads along Ocean Drive. The replacement of these bulkheads to a higher elevation will result in reduction in flooding from major tidal events.
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. 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.
5. Replace worn "Drains to Bay" stickers on stormwater inlets.	7.1.5 - 9	Low	Ongoing	Avalon continues to implement this program through its Public Works Department.
6. 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. Should Avalon's beaches undergo significant erosion, in 2021 Avalon may prepare for a backpassing project to haul sand from the southerly beaches to the eroded north end beaches.
7. North End Drainage Improvements		High	2022	In 2020, the Borough Engineer completed conceptual design and recommendations for various drainage improvements at the north end. Due to budgetary concerns and consideration of other necessary flood mitigation projects, Avalon decided to scale back the proposed drainage improvements to include pump upgrades at the 11 th Street Pump Station and upgrades to the collection and conveyance system in Avalon Avenue. In 2021, Avalon will complete the pump station upgrades and consider a proposal from the Borough Engineer for the design of the Avalon Avenue improvements.
8. Dune Drive Business District Flooding Investigation		High	December 2021	In 2021, Avalon will initiate an investigation of the causes of flooding in the Dune Drive Business District and consider long-term solutions for mitigation and/or prevention. The study will include an evaluation of Borough-owned properties within the Business District for potential siting of a pump station building.

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9. Bay Park Marina Improvements		High	December 2022	In 2020, Avalon developed a conceptual plan for a multi-phase flood mitigation project at the Bay Park Marina west of Ocean Drive between 53 rd Street and 57 th Street. The plan consists of: replacement of the bulkhead along the Borough-owned marina; construction of an additional kayak storage area and ADA-compliant launch at 53 rd Street; a new concrete boat ramp; living shoreline improvements between 55 th Street and 57 th Street; elevation of the easterly boundary of the park to prevent flooding within the developed areas; and replacement of bulkheads at 53 rd Street and 57 th Street. The plan was submitted to the Cape May County Open Space Board for funding. In 2021, Avalon will proceed with planning and design of the improvements, the phasing of which will be contingent on receipt of County Open Space funding.
10. Avalon Firehouse Renovations		High	December 2021	In 2020, Avalon awarded a contract for the design of an addition and renovations to the Borough's firehouse. The proposed renovations, which are expected to be constructed in 2021, include elevating the ground floor of portions of the firehouse, which will allow equipment to be stored above the flood elevation.
11. Installation of Closed-Circuit Television Cameras in Flood-prone Areas		Medium	December 2021	In 2021, Avalon will investigate the feasibility and cost of installing CCTV cameras at various flood-prone areas of the Borough for remote viewing by residents and visitors.

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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 2021	<p>In 2018, Avalon developed a program to represent storm surge and flood depths on markers to be installed throughout the Borough. The markers, which are color-coded to represent various levels of flooding from storm surge, were deployed at selected locations in 2019. Public education efforts, such as internet videos depicting the relative depth of flooding corresponding to the markers, which would illustrate the purpose and benefits of the markers, were also considered.</p> <p>In 2021, Avalon will further evaluate the costs and benefits of the program and select the set of actions that will most effectively achieve the goal of improving the public's understanding of the relationship between forecasted surges and actual flooding conditions.</p>
4. Establish and publicize designated locations for parking cars during high tidal conditions.	7.1.6 - 4	Medium	Ongoing	The Floodplain Management Committee discussed the feasibility of implementing designated locations for the parking of cars during high tidal conditions.
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.
6. Develop Borough-wide elevation map for brochures.	7.1.6 - 6	High	December 2021	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. In 2021, Avalon will consider further improvements to the map.
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 available media.	7.1.6 - 9	High	Ongoing	Avalon continues to inform the public of the importance of flood awareness through an increased emphasis on flood hazards, e.g. via presentations to the Avalon Home and Landowners Association.

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10. Program for Public Information		High	Ongoing	In 2017, Avalon joined with other communities to develop a Multi-Jurisdictional Program for Public Information. The program expands the Borough's current activities related to public information related to flood prevention and preparedness. In 2018, the MJPPI continued to implement its outreach with various stakeholders throughout the County. Avalon will continue to participate in this program in compliance with CRS requirements.
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