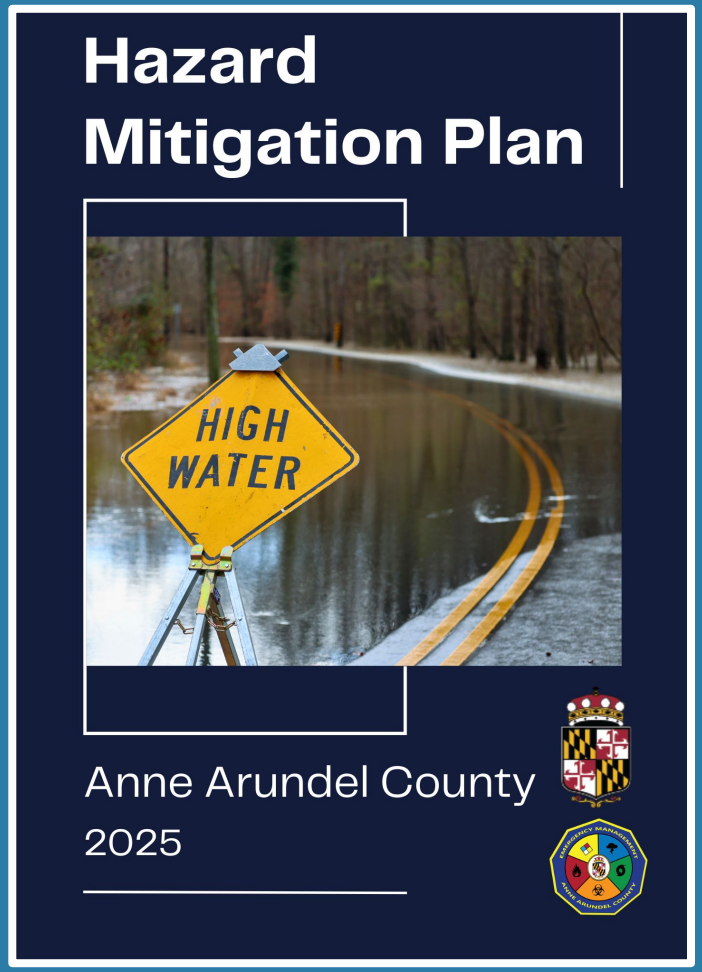


Anne Arundel County Office of Emergency Management Hazard Mitigation Plan 2025 Update

Planning Advisory Board (PAB) Meeting
June 25, 2025

Presentation overview

- What is Hazard Mitigation and why is it important
- Project Overview
- Hazard Profiles Identified
- New Mitigation Strategies
- Public Presentations and Input
- Next Steps
- Questions

FEMA's definition of Hazard Mitigation

- Hazard mitigation is the effort to reduce the loss of life and property by lessening the impact of disasters. It aims to minimize or eliminate the long-term risk to human life and property from natural hazards such as floods, earthquakes, wildfires, hurricanes, and tornadoes, as well as human-caused hazards like industrial accidents and terrorist attacks.

Why is Hazard Mitigation important ?

1. Hazard mitigation plans identify and prioritize risks, allowing communities to take proactive measures to reduce vulnerabilities.
2. Investing in mitigation measures before a disaster can save lives and reduce recovery costs.
3. By implementing mitigation strategies, communities become more resilient to disasters, ensuring quicker recovery and less disruption to daily life.

Project Overview

- The Disaster Mitigation Act of 2000 (Public Law 106-390)
- Counties must have a plan in place to access FEMA mitigation grants.
- Plans must be updated every 5 years.
- May 30 2025: An Approval Pending Adoption (APA) was issued by FEMA.
- June 14, 2025: Current Hazard Mitigation Plan expired.
- June 16, 2025: OEM requested a 6 month extension based on the extraordinary circumstances experienced with the 2022 BRIC grant application and award.
- Next Steps: The County must formally adopt the HMP to complete the last step of the planning process.

Overview of the 2025 update

- Identify the Planning Areas:
  - ANNE ARUNDEL COUNTY
  - TOWN OF HIGHLAND BEACH
- Review of 2018 mitigation goals and objectives
- Update of natural hazards
- Addition of human-made hazards to plan
- Working with County department, agencies and public input to develop new mitigation actions

Who was involved in the 2025 update

- Planning Consultant
  - Michael Baker International, Inc.
    - Smith Planning and Design
- Maryland Department of Emergency Management (MDEM)
- Federal Emergency Management Agency (FEMA)
- Hazard Mitigation Planning Committee (HMPC)

Hazard Mitigation Planning Committee (HMPC)

Office of Emergency Management
Mayor of Highland Beach

Office of the County Executive
Office of Law
Office of Central Services
Office of Information Technology

Office of Planning and Zoning
Department of Public Works
Inspections & Permits
Recreation & Parks

City of Annapolis Office of Emergency Management

Fire Department
Police Department

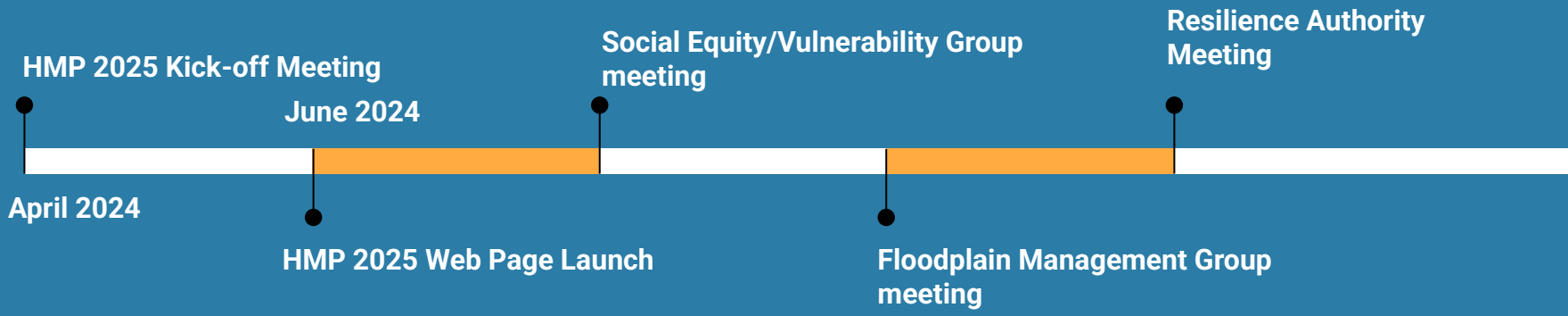
Department of Health
Department of Aging & Disabilities
Department of Social Services
Partnership for Children, Youth and Families

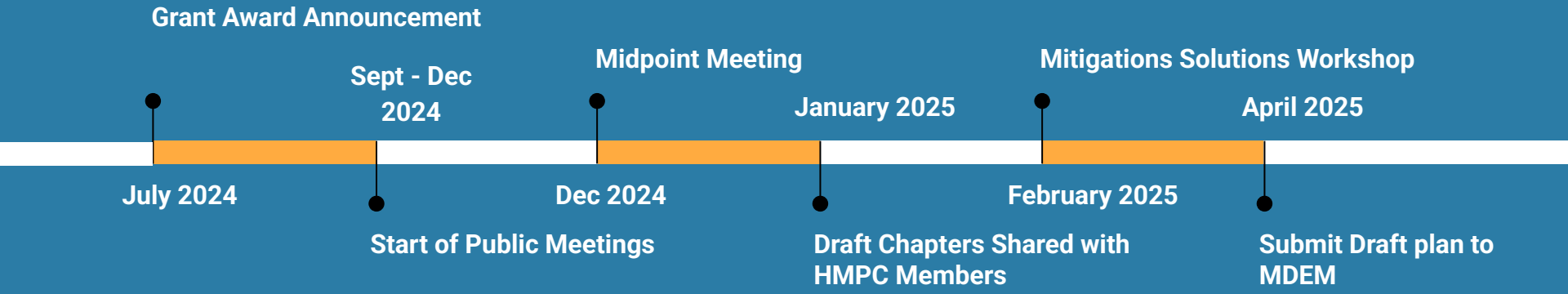
City of Annapolis and Anne Arundel County Resilience Authority

Economic Development

Department of Transportation

HMP 2025 Update Timeline




Grant Award Announcement
July 2024
Sept - Dec 2024
Start of Public Meetings
Midpoint Meeting
Dec 2024
January 2025
Draft Chapters Shared with HMPC Members
Mitigations Solutions Workshop
February 2025
April 2025
Submit Draft plan to MDEM


Receive Comments from MDEM
Planning Advisory Board Meeting
FEMA issues final approval
May 2025
June 2025
October 2025
Approval Pending Adoption (APA) was issued by FEMA.
Incorporate any updates and comments from PAB / Public

Natural Hazards Identified in 2025 update

- Flood
- Dam Failure
- Tropical Systems
- Drought
- Earthquake
- Extreme Temperatures
- Thunderstorm
- Severe Winter Weather
- Tornado
- Wildfire
- Coastal Erosion

Table 3.1-1 History of Natural Hazard Events Affecting the County

Natural Hazard/Date Range	Previous Occurrence	Deaths	Injuries	Future Probability (2018 Plan)
Flooding 2003 – 2024	71	1	0	Highly Likely
Coastal Hazards 1998 – 2024	75	0	0	Highly Likely
Dam Failure 1929 – 2024	1	0	00	Unlikely
Hurricane 1998 – 2024	4	0	10	Likely
Drought 1950 – 2024	13	0	0	Likely
Earthquake (Maryland) 2000 – 2024	17	0	0	Likely
Extreme Temperatures 2000 – 2024	41	0	0	Likely
Thunderstorms 1950 - 2025	278	2	33	Highly Likely
Winter Storm 1996 – 2024	4	1	1	Highly Likely
Tornado 1950 – 2024	24	0	0	Highly Likely
Wildfire 2000 – 2023	48	0	0	Unlikely
Erosion 1990 - 2023	5	0	0	Highly Likely
Soil Movement (Maryland) 1950 - 2024	4	0	0	Unlikely

Source: NOAA National Center for Environmental Information database.

Human-made Hazards Identified in 2025 update

- Emerging Infectious Disease
- Civil Disturbance & Active Assailant
- Transportation Accidents
- Cyber Attack

How each Hazards was identified in the plan

1. Description of Hazard
2. Location, Extent, Magnitude
3. Past Occurrences
4. Probability of Future Events
5. Hazard Risk Assessment
6. Hazard in Highland Beach
7. Impacts to People, Structures, Systems, and Resources
8. Future Land Use and Development Trends
9. Future Conditions
10. Considerations for the Next Planning Cycle

Hazard Description: Flooding

- Defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. A floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding.

Location, Extent, Magnitude: Flooding

- Location
  - The County's 533 miles of shoreline constitutes more coastline than any County in Maryland.
- Extent
  - Anne Arundel County has the second highest amount of repetitive loss properties in the State of Maryland
  - 4.1 flood events annually
- Magnitude
  - From 2003-2024 Anne Arundel County has seen 1 death and 121K dollars in property damage due to flooding.

Past Occurrences: Flooding / Coastal Flood Events

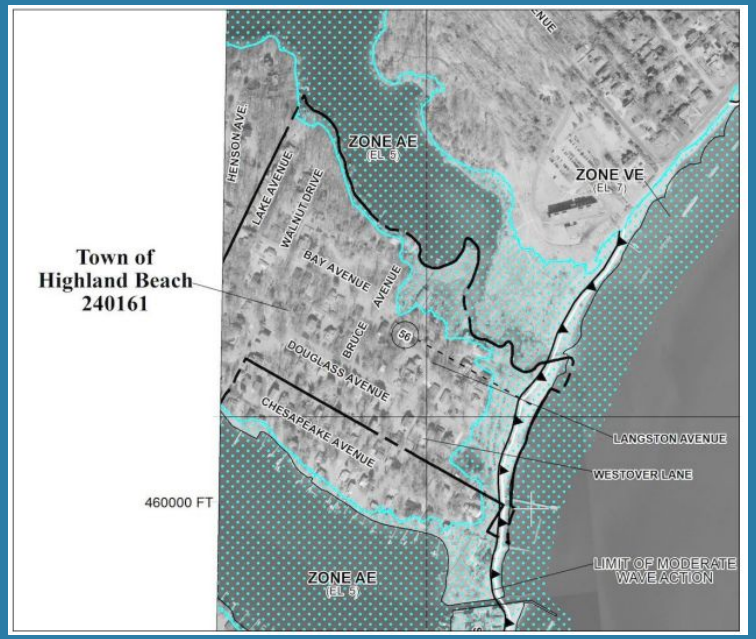
- The 2018 County HMP indicated that the National Centers for Environmental Information (NCEI) database listed 71 flood events between 2003 and 2018, with four resulting in property damage.
  - Additional 15 flood events since 2018.
  - 4.1 flood events annually.
- From 1998 to 2024 the county experienced 75 coastal flooding events
  - 2.88 Events per year

Hazard Risk Assessment: Dams

- No High Hazard Potential Dams (HHPD) in Anne Arundel County
- HHPD's that could affect the county
  - Duckett Dam
  - Liberty Dam

Hazard in Highland Beach: Flooding

- There are 79 housing units in the area, and according to the 2020 Census, 55 are presently occupied and used for residences.
- There are a few structures in the 1 percent annual chance floodplain in the northeast quadrant of the Town, north of Bay Street and east of Walnut Street.
- Only a small residual exposure to flooding for structures in the jurisdiction.



Impacts to People: Flooding / Coastal storms

- Property damage
- Life safety
- Health risks
- Transportation issues
- Disruption of services
- Stress on infrastructure
- Increased risk of future flooding

Impacts to Structures: Flooding / Coastal Storms

- Anne Arundel County has a total of 109 repetitive loss properties
- Top Three Communities vulnerable to Flooding
  - Pasadena - 33 RLP
  - Edgewater - 19 RLP
  - Shadyside - 11 RLP
- A total of 2,642 flood insurance policies are active within Anne Arundel County as of July 30,2024. A total of ten flood insurance policies are active within the Town of Highland Beach as of July 30, 2024.
- The County has an extensive critical facility and community lifeline database, of which little is within the special flood hazard area. The facilities that are within the floodplain include fixed hazardous materials storage sites and sewer pump stations (SPS).

** FEMA defines repetitive loss property as properties for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978.*

Impacts to Systems: Flooding / Coastal Storms

- Roadways and bridges within the special flood hazard area are more vulnerable to flooding than elsewhere. Specifically, the communities of Linthicum, Maryland City, Glen Burnie, and Odenton have stretches of roadway that frequently flood during storms.
- Flooding can also disrupt daily activities, such as closing roads.
- Infrastructure systems such as roads, stormwater systems, and drainage systems can all be impaired or rendered temporarily ineffective due to flooding.

Impacts to Natural, Historic and Cultural Resources

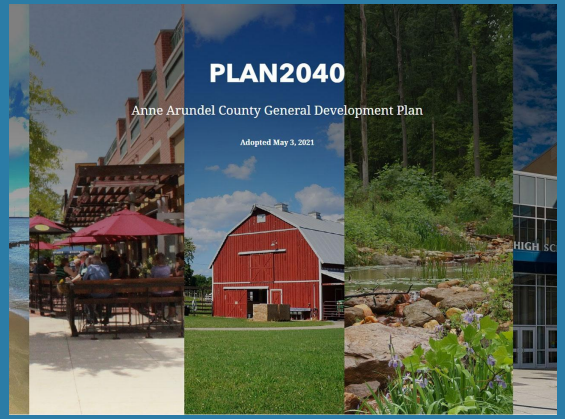
- Floodwaters can disrupt the natural balance of landscapes and their natural ability to mitigate flood risks.
- There are a total of 161 historic and cultural resources located within the 1% annual chance floodplain; this includes structures, sites, and districts.

Table 3.3.1-9 Historic and Cultural Resources Within 1 Percent Annual Chance Floodplain – Highland Beach

Historic & Cultural Resource Name	Address
Anne Marie and Edwin M. Henderson House	3200 Bruce Avenue
Cary and Maxie Freeman House	3202 Bruce Avenue
William Wyatt House	1336 Bay Avenue
Dr. John R. Francis House	1340 Bay Avenue
Frederick Douglass Summer House	3200 Wayman Avenue
Judge and Mary Church Terrell House	3202 Wayman Avenue
Jean M. Green House	3206 Wayman Avenue
Murray House	1340 Douglass Avenue
Leslie S. and Ruth Perry House, site	1345 Douglass Avenue

Future Land Use and Development Trends: Flooding

- Future development is guided by the County's General Development Plan-Plan2040 and the Planned Land Use Map.
- The County conducts an analysis of development trends in the Annual Development Measures and Indicators Report.



Additional Plans integrated into 2025 Update

- Sea Level Rise Strategic Plan
- Climate Resilience Action Strategy
- Land Preservation, Parks and Recreation Plan
- Green Infrastructure Master Plan
- Chesapeake Bay TMDL Phase II Watershed Implementation Plan
- Deale-Shady Side Peninsula Climate Adaptation Study
- All Up-To-Date FEMA Guidelines
- Roadway Vulnerability Study
- Emergency Operations Plan

Future Conditions: Flooding

- The frequency of flooding and events that cause flooding such as storms and heavy rain events are likely to increase due to climate change and associated projected sea level rise.
- Some areas will become permanently inundated, making them uninhabitable in the long term.
- Areas that currently experience regular flooding are likely to see conditions change or worsen due to sea level rise. And some new land areas that historically flood little or not at all are likely to experience flooding.

Considerations for the Next Planning Cycle: Flooding

- Have any flood hazard events occurred since this Plan was adopted?
- Has any new scientific research or methodology changed the ability to predict flood hazards or assess risk and vulnerability?
- Has a new local analysis of flooding been conducted for planning regions in the County?
- Has there been any notable change in the population, built environment, natural environment, or economy that could affect the risk or vulnerability to flood hazard events?
- Is there any new evidence related to the impacts of climate change that could affect the level of risk or vulnerability to these events?

Continuous Public Outreach

- Two public surveys have been circulated during the plan update.
- SurveyMonkey:
  - Gather the public's perspective on hazards identified in the plan, as well as additional information such as mitigation strategy preferences.
  - Paper copies and drop box for in-person outreach events
  - **English and Spanish** versions available
- ArcGIS Survey123:
  - For use at public meetings to identify **specific hazard locations** virtually on a map.

Public Outreach

- Community Events

Location or Event	Date
River Days Outreach Event – Annapolis Museum	June 29
Kinder Farm Park Community Fair	June 30
Deale Community Library (Shadyside Deale Climate Adaptation Study)	July 17
National Night Out	August 6
Baysox Fireworks Touch a Truck	August 10
River Days Outreach Event – West River Center	August 11
Captain Avery Museum (Shadyside Deale Climate Adaptation Study)	August 13
LEPC Meeting Presentation #1	September 9
River Days Outreach Event – Ft. Smallwood Park	September 14
Meeting with Highland Beach, Mayor	September 20
Hispanic Heritage Festival	September 28

Public Meetings

Meeting & Location	Date
Meeting #1: Linthicum Library	September 30
Meeting #2: Crofton Library	October 14
Meeting #3: Highland Beach and Surrounding Communities	October 21
Meeting #4: Edgewater Library	October 30
Meeting #5: Deale Library	November 12
Meeting #6: Maryland City, Russett Library	November 14
Meeting #7: Broadneck Library	December 3
Meeting #8: Office of Emergency Management Auditorium	December 11

Why public outreach is important

- Engages the Whole Community in a process to:
  - Assess vulnerabilities and risk
  - Identify policies and actions to reduce risk
- Strengthen community Resiliency
  - Builds partnerships
  - Increase awareness of hazards and risks
  - Communicates priorities
  - Aligns with other community objectives

Mitigation Actions Workshop

- Participants
  - HMPC
  - Planning Consultant
- 2025 HMP Goals and Objectives Session
  - Mitigation Action Development Session
  - Group Reports & Action Prioritization Session

2025 Mitigation Actions identified

- Enhance the mass notification and alerting system
- Hydronet Gauges and Mesonet
- Pre- and post-disaster public information campaigns
- Partner with County agencies and departments to provide emergency preparedness outreach to vulnerable groups and populations
- Placement of signage and activation of flood warning devices

Next 5-years

- Continue to monitor mitigation actions proposed in 2025 update.
- Collect data for next 5-year Update.

What are next steps?

- Public Advisory Board Meeting
- Incorporate Additional public / Advisory Board comments from draft
- County adoption of plan
- FEMA approval of plan

Questions?