



Town of Chesapeake Beach

Nuisance Flood Plan



October, 2020

I. Background

Maryland Senate Bill (SB) 1006 states that, a local jurisdiction that experiences nuisance flooding shall develop a plan to address it. The legislation specifies that the plan must be submitted to the Maryland Department of Planning, published on the local jurisdiction’s website, and updated at least every five years.

This is the Town’s first plan, covering the period 2020 to 2025. In identifying and characterizing the occurrences of nuisance flooding it establishes a baseline for ongoing monitoring and planning. It also establishes an approach to quantitatively and qualitatively documenting and monitoring nuisance flooding using real observable data cross-referenced with official tidal and weather tracking data. We anticipate the information will allow the Town to better predict the occurrence and severity of nuisance flooding which will in turn inform our actions to both mitigate the impacts of such flooding and over the longer term, protect the Town, its residents, businesses and visitors.

II. Introduction

The National Oceanic and Atmospheric Administration (NOAA) defines nuisance flooding, or high tide flooding, as “flooding that leads to public inconveniences such as road closures. It is increasingly common as coastal sea levels rise.” The language of SB 1006 refers to nuisance flooding as “high-tide flooding that causes public inconvenience.” Nuisance flooding is typically unrelated to particular storm events, though it may be exacerbated by long-duration wind events or passing storms. As such, it is frequently referred to as “sunny day flooding.”

Nuisance flooding is capable of disrupting daily activities through a variety of mechanisms, such as the closure of roads due to high water, the inundation of yards and parks, and the impairment of engineered and natural drainage systems. Currently, these disruptions typically occur for a period of several hours and then abate. However, as a changing climate drives sea levels higher and precipitation events to greater severity, these repeated “nuisance” impacts could in future decades become significant stressors on the infrastructure, emergency response, public health.

In the Town of Chesapeake Beach, nuisance flooding occurs mostly in locations adjacent to major bodies of water and Fishing Creek’s tidal wetlands. The Town has made investments in flood mitigation at the Kellam’s Complex and will be required to invest significant funds in this area to maintain its recreational use. Elsewhere in the Town, nuisance flooding is experienced as debris washes into ditches and eventually settles on roadways as the ditches overflow. Culverts in low-lying areas may have difficulty conveying water adequately, causing ponding on low-lying roadways in certain locations.

II. Preparing for Nuisance Flooding

Working Partnerships

Because nuisance flooding is a complex problem, strong partnerships between planning, public works, emergency management, and geographic information systems (GIS) are necessary for the Town to properly

prepare for the impacts of nuisance flooding. In particular, it is important that departments collaborate to inventory and map chronically inundated areas.

As part of the nuisance flood planning process a team of staff created a thorough inventory of known nuisance flood areas, which can be found as Appendix I to this document and are described below. Departments involved in the nuisance flood planning and inventory process can be found in Appendix II.

Primary Locations

There are multiple specific locations of nuisance flooding that the Town's nuisance flooding team has documented. These are listed in Appendix I by street address. The Town will geo-reference each one and integrate them into our GIS mapping of the Town. It is critical to note that each specific location occurs within a larger cultural, land use and environment context, or "primary location". These are mapped, in the Appendix and described below.

Each location is directly related to tidal action and the experience in each location reveals concerning long term trends including the emergence (or reemergence) of higher water tables, saturation of soils and the growth (or regrowth) of the Town's tidal wetlands.

- A. **Location "A": This area includes the Kellam's Complex and the Fishing Creek Marina.** Nuisance flooding regularly occurs in the southeastern part of the marina and at the Town's public boat launch characterized by standing and pooling water and an increasing encroachment of water at the boat ramp. As shown in Appendix I, it also occurs in the southwestern corner of Kellam's park. There is routinely standing water on the parking lot and very poor drainage at the Town's tot lot and ball field. These location are especially susceptible to sea level rise and tidal flooding because they sit atop what was once part of the large wetland complex that still is the major natural landform in Town. With the water table not far below the surface, sea level rise has meant the land not only stays saturated for long period of time and it is impacted by tidal actions and hydrostatic pressure moving water under the surface of the parkland.
- B. **Location "B": The second major area of nuisance flooding is in the northern section of Town.** This area is a major priority for the Town as it impacts emergency response activities cutting off access to the North Beach Volunteer Fire Department (NBVDF) and impacts the Chesapeake Beach Water Reclamation Plant that services the Town of Chesapeake Beach, Town of North Beach, Calvert County and Anne Arundel County. It includes the section of Bayside Road (MD 261) that spans the wetland complex there. This area is highly sensitive to tidal action and is characterized by standing water and the encroachment of the wetland into the highway's right-of-way. Also, in this area is the ongoing migration of the wetland northward into the D Street and David Street neighborhood as shown in Appendix I. The ends of each public street and the residential properties that front those sections of the streets are experiencing standing and pooling water, very slow drainage following rain events, long duration saturation of the ground and the emergence of wetland vegetation in yards. The wetland is encroaching into the neighborhood.
- C. **Location "C": The third area of nuisance flooding extends along a Town road right-of-way from Harbor Road south adjacent to the eastern edge of the Fishing Creek wetland complex as shown in Appendix I.** Here, as in the area described above, lower lying lands are increasingly experiencing the encroachment of wetlands and the land is being saturated for longer durations.

Forecasting, Notification, and Warning

In addition to mapping the locations of nuisance flooding, accurate flood forecasting and warning is critical to the safety and preparedness of the Town. The areas of nuisance flooding are by their very nature areas with high potential impact during major tidal flooding events. Flooding events mean for example that along MD 261 (Area B, above), flood waters can and do overtake the road and impede traffic.

Weather forecast data is received from the National Weather Service (NWS) forecasting office at Mt. Holly, New Jersey. Critical tide information is received from the NOAA tide gauge throughout the Chesapeake Bay. These gauges allow the Town to be aware of and to prepare for possible flooding impacts at the major nuisance sites and in low-lying areas throughout Town. As noted later in this report they also provide essential data that will allow the Town to predict when the Town's nuisance flooding will occur and the degree of its severity.

The Calvert County Office of Emergency Management (OEM) provides notifications of special hazards and watches or warnings of severe weather before the community is impacted. The Town also disseminates information directly to residents via electronic notices. The timeliness of these severe weather alerts is critical when the potential for public safety impacts exists, such as in flood situations. Calvert County OEM disseminates public safety information via NIXEL, the County's mass notification system, and social media outlets. When nuisance flooding is anticipated, it may be necessary for Calvert County OEM to initiate a message to flood hazard areas via NIXEL and social media outlets with details about flood severity, duration, or impacts such as road closures.

III. The Plan for Responding to Nuisance Flooding

The Town expects the areas impacted by nuisance flooding will increase gradually in the coming years as changing climate elevates water levels and drives precipitation patterns to new extremes. This shift, however, is likely to accelerate gradually over time. New areas will also become impacted, leading to an increased number of businesses, residents, and critical infrastructure at risk. Public services will also be more frequently impaired as flooding increases.

The Town will maintain a level of awareness of data made available by NOAA, Calvert County, the State of Maryland, the University of Maryland Center for Environmental Science, and other scientific institutions as it pertains to the community and local flood risks. Long term risks of increased nuisance flooding will be communicated appropriately to residents and decision makers and direction will be provided to take appropriate action in the areas of emergency response and hazard mitigation. Elected officials and Town staff will utilize venues such as Town Council meetings and Planning & Zoning Commission meetings to communicate information on long-term flood risks.

Projections of sea level change and flooding have been incorporated into the Town's comprehensive planning process and the updated Comprehensive Plan will include detailed mapping and policy responses to guide long term planning. The Town is well on its way already to integrating land use planning, floodplain management, comprehensive planning, and capital investment planning.

The Plan provided here to address nuisance flooding is a short term, five year plan. It will be updated in 2025 and if the Town finds it to be beneficial to the public it may amend and refine the Plan before then. The components of this Plan include Documentation, Mitigation, and Preparation for Emergency Response as needed:

A. Documentation

Documenting the extent and impacts of nuisance flooding is critical to public safety and the long-term resilience of the Town. The following factors will be recorded by the Town in coordination with the County OEM and DPW for tracking and archive by Town staff. This includes instances of nuisance flooding addressed by SHA and communicated over the radio. The documentation worksheet for this effort is set forth in Appendix III in this report.

- Date, time, and location of nuisance flooding
- Impacts (e.g. “x amount of water on the roadway,” “ditch overflow,” “docks underwater,” etc.)
- Agency notified and action taken

As the Town tracks and monitors these data sets it will also develop a refined set of thresholds and qualitative information that will allow us to forecast nuisance event and perhaps even the severity of them. For this, the first iteration of this Plan, the Town aims to record the location and extent of standing or pooling water on weekly basis in each of the aforementioned major areas and correlate that information with the daily NOAA tidal gauge data. The Town will also conduct a series of four multiple-day surveys each year. These will consist of daily visual site inspections during which detailed information will be assembled using areal measurements of pooling/standing water, photography, and a test of soil saturation. This information will then be cross-reference with the official tidal data and weather conditions reporting. We fully expect patterns to be evident, which will allow the Town to reasonably predict and prepare for its future local nuisance events.

B. Mitigating Nuisance Flooding Impacts

Both the Town's Comprehensive Plan and the County Hazard Mitigation Plan (HMP) for Calvert County address measures by which the impacts of flooding can be mitigated, or lessened, by structural and nonstructural means. The purpose of the Nuisance Flooding Plan is to augment and support the information and recommended actions found in other planning documents.

The principles of floodplain management are fundamental to the proper mitigation of nuisance flooding in the Town. Higher standards – such as development restrictions in the floodplain – can be effective in mitigating the effects of both nuisance flooding and other major flooding events.

The Town has four (4) priorities:

- Ensure that existing structures are resistant to flood-related damage where possible,
- Create awareness of floodplain hazards and protective measures,
- Protect critical facilities, and
- Prepare/update stormwater management plans for various areas in the Town.

The Town of Chesapeake Beach will implement or consider implementing to mitigate the impacts of nuisance flooding. These activities support the four priority areas.

1. Structural

- a. Consider adopting a floodplain ordinance or codes which mandate the use of freeboard beyond current requirements.
- b. Improve stormwater management infrastructure to more effectively convey water from flood-prone areas.

- c. Conduct regular maintenance of drainage and stormwater control systems.
- d. Consider green infrastructure options rather than conventional stormwater solutions.

2. Nonstructural

- a. Public Information
- b. Communicate the risk of nuisance flooding in non-emergency times to residents and businesses via mass mailings, social media, press releases, or automated phone calls.
- c. Disseminate flood preparedness information to enable a safer and more aware public in the face of flooding.
- d. Integrate nuisance flooding-related public messaging in the Town's public information plan and materials.

3. Planning

- a. Ensure the Town's NFP is kept up to date and referenced in all pertinent documents.
- b. Schedule meetings of the nuisance flooding planning committee on an as-needed basis to address flood-related issues and review plans.
- c. Improve stormwater management planning and strengthen policies to reduce runoff.

4. Implementation

- a. Educate and train Town staff and public bodies on responsibilities under the NFP.
- b. Preserve floodplains as open spaces through the use of legal protection status.
- c. Protect and restore natural coastal features (forests, marshes, underwater grasses)

C. Emergency Response

The Town understands that when flooding reaches such a severity that life safety, critical infrastructure, and key resources are threatened, “nuisance” flooding levels have been exceeded. Emergency response is managed by Calvert County Office of Emergency Management (OEM) and the Town will continue to coordinate with OEM to ensure safety concerns within the Town are addressed.

Below are response concepts consistent with the Calvert County Emergency Management which may become necessary as flood waters rise beyond nuisance levels.

- I. Response
 - Lifesaving activities
 - Incident containment
 - Public health concerns
 - Maintenance of transportation routes
 - Maintenance of critical facilities
 - Public warning mechanisms
 - Responder health & safety
 - Media & Public Relations management
 - Control & Coordination of operations
 - Provision of transport, shelter and documentation of displaced persons

- Restoration of normality
- II. Recovery
 - Handover from life saving
 - Facilitate the restoration of systems to normality
 - Assess damage and return systems to minimum operating standards
 - Collate financial cost of the event
 - Legal implications, claim investigation
 - Debrief & compilation of final report
 - Community & restoration of services

Appendix I – Nuisance Flooding Location Inventory

A. Locations Identified by Department of Public Works (DPW) Staff

Location	Notes from DPW Staff
a. 3855 Gordon Stinnett	subject to flooding in moderate to heavy rains
a. 3915 Gordon Stinnett	subject to flooding in moderate to heavy rains
a. 3800 Gordon Stinnett	subject to flooding in moderate to heavy rains
a. 4045 Gordon Stinnett	subject to flooding in moderate to heavy rains
a. 3820 Gordon Stinnett	subject to being underwater on an above average high tide, east wind can cause finger piers to be underwater and portions of parking lot
b. Rt. 261/ 8550 Bayside Rd.	subject to sea level rise road raised 6 inches still underwater
c. 3500 HARBOR RD	subject to flooding with high tide event, wind coming from East

Location	Route Number	Owner
b. Crossway at NBVFD and 8550 Bayside Rd.	RT.261	State Highway
a. 4045 Gordon Stinnett	n/a	ROD & REEL INC
c. 3500 HARBOR RD	n/a	Board of County Commissioners

Nuisance Flooding Location Map

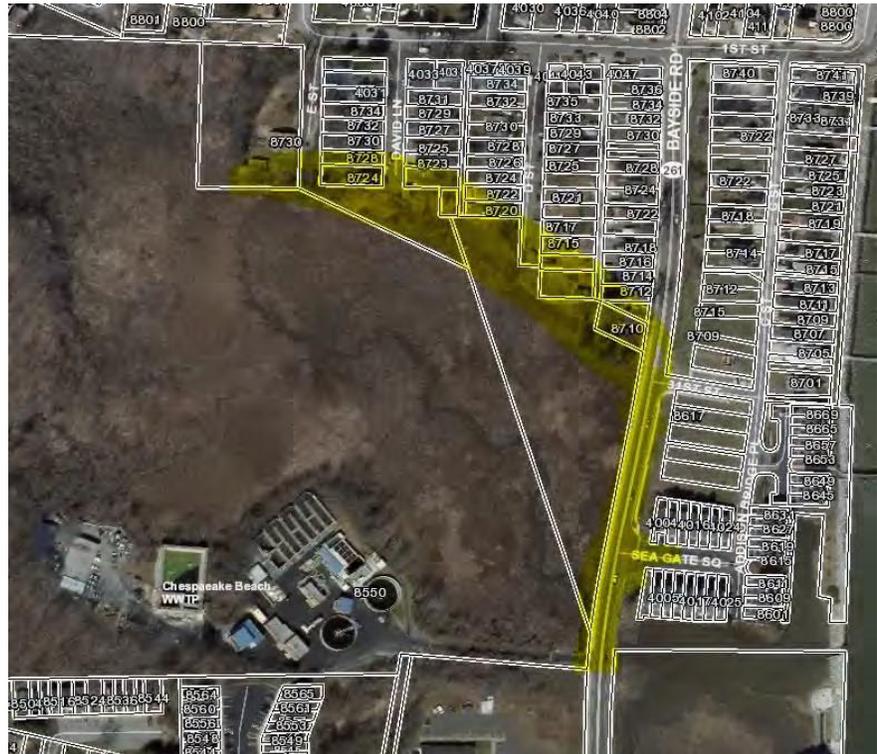
Location A:





Flooding at the Public ramp located in Location "A"

Location B:



Location C:



Appendix II – Nuisance Flooding Committee Members

Name	Title
Holly Wahl	Town Administrator
James Berry	Town Public Works Director
Chris Jakubiak	Town Planning & Zoning Administrator
Wayne Newton	Town Engineer

