Harford County Nuisance Flooding Plan

March 2025

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I. Background

Maryland Senate Bill (SB) 1006 states that "on or before July 1, 2019, a local jurisdiction that experiences nuisance flooding shall develop a plan to address nuisance flooding." The legislation further 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 document reflects the 2024, five year revision to this Plan. Completed in July 2024, the next update will be completed by July 2029.

II. Introduction

Flooding from severe weather is one of the most common natural hazards experienced in Harford County. Depending on the circumstances, flooding may be widespread or isolated, developing slowly or quickly. It may take the form of coastal, overland, or flash flooding. Floods may originate from ice jams or from the failure of dams or levees. Nuisance flooding is a more specific and commonplace phenomenon which dictates a slighter response and threatens the community in less intrusive ways.

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 storm systems. 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 will become significant stressors on the infrastructure, emergency response, public health, and fabric of the community.

In Harford County, nuisance flooding occurs most predominately in locations near or adjacent to major bodies of water. Along the Susquehanna River, nuisance flooding is common on residential and commercial properties. The City of Havre de Grace has made investments in flood mitigation at the municipal marina, park, the Promenade, and walkways along the shoreline. Elsewhere in the County, nuisance flooding is experienced as heavy rainfall triggers flash flooding across roadways, and flooding ditches, causing overflow. Culverts in low-lying areas may have difficulty conveying water adequately, causing ponding on low-lying roadways throughout the County. Harford County, while complying with SB 1006, determined that identification of all roadways within the County that are subject to flooding, due to heavy rainfall/storm events, etc., should be included in this Plan, therefore, the roadways listed include all potentially impacted roads.

III. Preparing for Nuisance Flooding

Because nuisance flooding is a complex problem, strong partnerships between planning, public works, emergency management, and geographic information systems (GIS) are necessary for Harford County 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 for Harford County, a team of staff created a thorough inventory of known flood hazard areas, which can be found as Appendix I to this document. Departments involved in the nuisance flood planning and inventory process can be found in Appendix II.

In addition to mapping, accurate flood forecasting and warning is critical to the safety and preparedness of a community. Weather forecast data is received from the National Weather Service (NWS) forecasting office at Sterling, Virginia. Critical tide information is received from the NOAA tide gauge stationed at Havre de Grace, as well as additional gauges elsewhere throughout the Chesapeake Bay. These gauges allow Harford County to be aware of and prepare for possible nuisance flooding impacts.

The Harford County Department of Emergency Services (DES) maintains a close relationship with NWS Sterling, receiving notifications of special hazards and watches or warnings of severe weather before the community is impacted. The timeliness of these severe weather alerts is critical when the potential for public safety impacts exists, such as in flood situations. Additionally, it is the responsibility of the Harford County DES to disseminate public safety information via Blackboard Connect, the County's mass notification system, and social media outlets. When nuisance flooding is anticipated, it may be necessary for Harford County DES to initiate a message to flood hazard areas via Blackboard and social media outlets with details about flood severity, duration, or impacts such as road closures.

IV. Responding to Nuisance Flooding

A. Emergency Response

Thresholds are maintained for Harford County which direct a set of actions based on a particular inundation level or frequency of flooding. These thresholds are meant to supplement actions directed by the Harford County Emergency Operations Plan.

Threshold	Response Level	Required Action
Forecast data from the NWS or NOAA tide gauge indicates	Level I – Public Warning	Make the public aware of nuisance flooding threat via mass notification emails, social media,
Flood waters are present below nuisance levels and	Level II – Monitor Inundation	Deploy DPW and SHA personnel to monitor flood levels as needed and place high water signs at impacted

Flood waters are high enough to warrant temporary road closures	Level III – Flood Response	Place additional DPW and SHA personnel on standby; close roads and reroute traffic as flooding reaches

When flooding reaches such a severity that life safety, critical infrastructure, and key resources are threatened, "nuisance" flooding levels have been exceeded. Below are response concepts consistent with the Harford County Emergency Operations Plan which may become necessary as flood waters rise beyond nuisance levels.

- Response
  - Lifesaving activities
  - Incident containment
  - Public health concerns
  - Maintenance of transportation routes
  - Maintenance of critical facilities
  - Public warning mechanisms
  - Responder health & safety
  - Media & VIP management
  - Control & Coordination of operations
  - Provision of transport, shelter and documentation of displaced persons
  - Restoration of normality
- Recovery
  - Handover from life saving
    Facilitate the restoration of systems to normality
    - Assess damage and return vital life support systems to minimum operating standards
    - Collate financial cost of the event
    - Legal implications, claim investigation
    - Debrief & compilation of final report
    - Community & restoration of services

B. Documentation

Documenting the extent and impacts of nuisance flooding is critical to public safety and the long-term resilience of Harford County. This information will be documented and updated on a regular basis for emergency planning purposes. A review of flood documentation should provide Harford County a comprehensive view of trends in flooding over time. The following factors will be recorded by Harford County DES and DPW for tracking and will be archived by County GIS staff. This includes instances of nuisance flooding addressed by SHA and communicated over the radio.

- 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

See Appendix 3 for a copy of the Harford County nuisance flooding documentation tool.

V. Mitigating Nuisance Flooding Impacts

Both the Comprehensive Plan and the Hazard Mitigation Plan (HMP) for Harford 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 Harford County. Higher standards – such as freeboard, development restrictions in the floodplain, etc. – can be effective in mitigating the effects of both nuisance flooding and other major flooding events.

Harford County's HMP identifies four areas in which focus is directed regarding mitigation activity. These four areas include:

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

In addition to actions specified in the HMP, the NFP includes activities which Harford County will implement or consider implementing to mitigate the impacts of nuisance flooding. These activities support the four areas of focus found in the Hazard Mitigation Plan. They also support recommendations and actions from Harford County's 2016 Climate Change and Sea Level Rise Adaptation Report and goals and strategies of the Harford County Comprehensive Plan HarfordNEXT.

- Structural
- Enact floodplain ordinance or codes which mandate the use of freeboard beyond current requirements.
- Improve stormwater management infrastructure to more effectively convey water from flood-prone areas.
- Conduct regular maintenance of drainage and stormwater control systems.
- Consider green infrastructure options rather than conventional stormwater solutions.
- Nonstructural
- Public Information
  - 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.
  - Disseminate flood preparedness information to enable a safer and more aware public in the face of flooding.
  - Integrate nuisance flooding-related public messaging in Harford County's existing public information plan and materials.
- Planning
  - Ensure Harford County's NFP is kept up to date and referenced in the Hazard Mitigation Plan and other pertinent locations.
  - Schedule meetings of the nuisance flooding planning committee on an as-needed basis to address

flood-related issues and review plans.
    - Improve stormwater management planning and strengthen policies to reduce runoff.
- Implementation
    - Educate and train County staff on responsibilities under the NFP.
    - Preserve floodplains as open spaces through the use of legal protection status.
    - Protect and restore natural coastal features (forests, marshes, dunes, underwater grasses, and oysters) that can reduce the impacts of flooding.

VI. Projections for Future Impacts

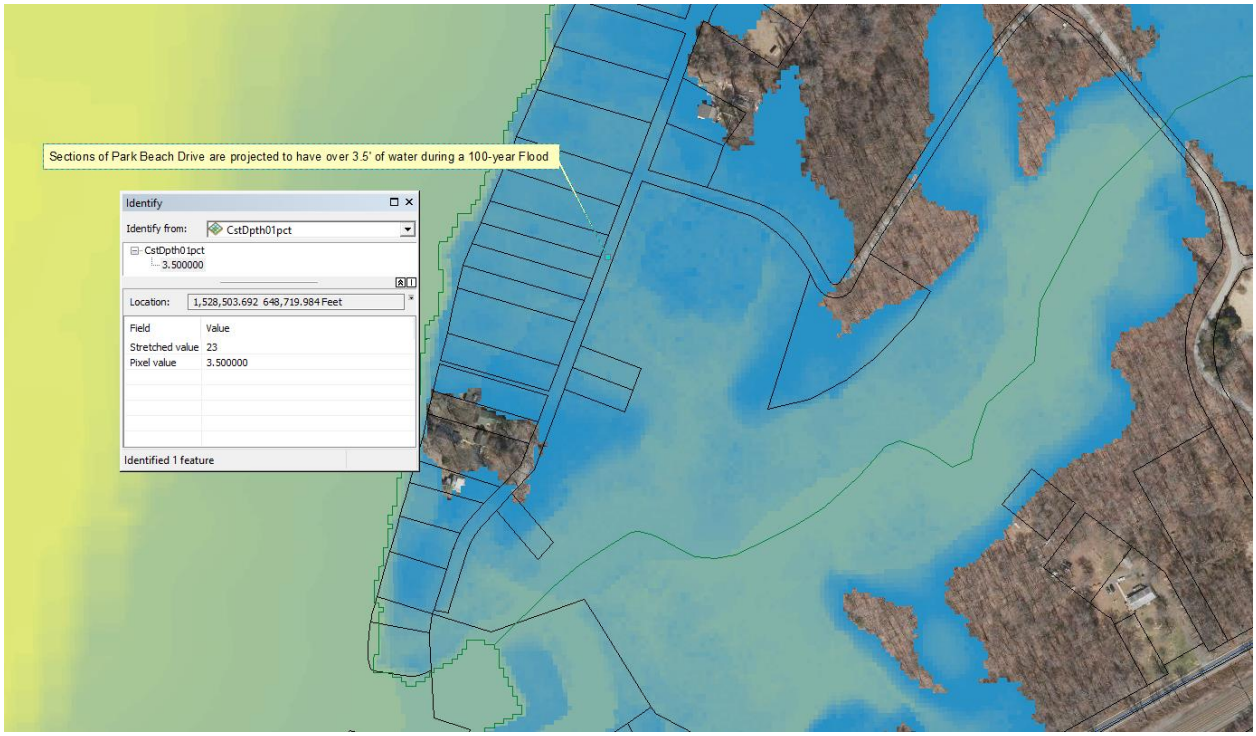
The areas impacted by nuisance flooding will increase gradually in the coming years as changing climate elevates water levels and drives precipitation patterns to new extremes. This shift, however, is likely to accelerate gradually over time. New areas will also become impacted, leading to an increased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

Harford County will maintain a level of awareness of data made available by NOAA, FEMA, 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. These risks of increased nuisance flooding will be communicated appropriately to residents and decision makers and direct them to take appropriate action in the areas of emergency response and hazard mitigation. Elected officials and County staff will utilize venues such as County Council's meetings, Planning Advisory Board meetings, and Environmental Advisory Board meetings to communicate information on long-term flood risks. Future projections of sea level change and nuisance flooding should also be integrated into land use planning, floodplain management, comprehensive planning, and capital investment planning.

Harford County will continue to use developing technologies and new data to assist in identifying areas of County concern due to flooding. One example is data from FEMA's RiskMAP, which gives depth of flooding for different flooding scenerios (10-year, 25-year, 50-year, 100-year, and 500-year events).

Harford County Department of Planning and Zoning will work with Department of Emergency Service staff to identify and ground-truth certain low-lying areas found with Emergency responders. If these areas are agreed upon, the County can help enhance its emergency notification system to notify the public of potential flood risks at specific locations based on weather forecasts.

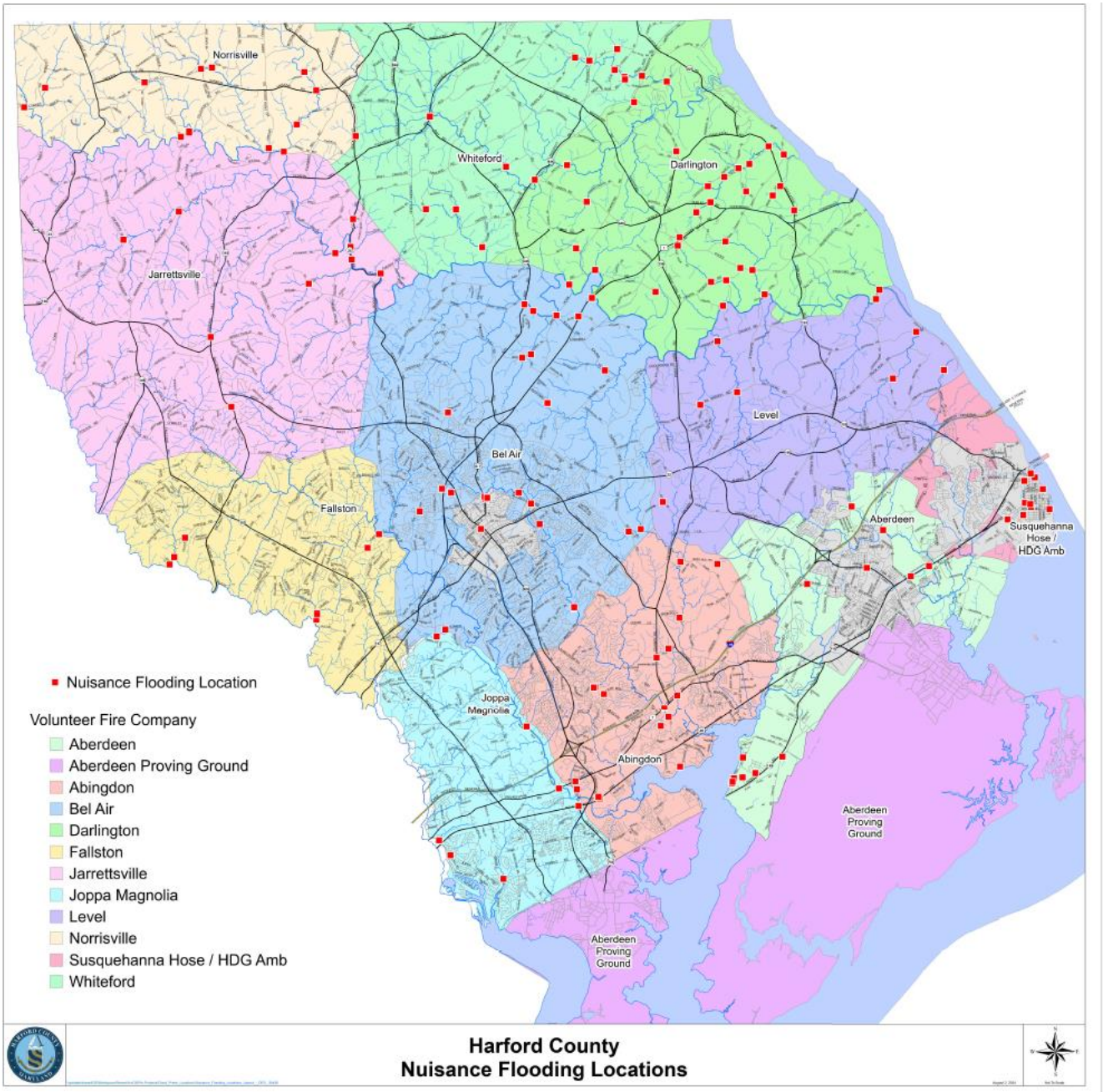
The image below shows a section of Park Beach Drive with over 3.5' of flooding from the 100-year event.



The County will continue to utilize latest technologies to identify County infrastructure and life / safety risks due to nuisance flooding and other flooding events.

Appendix I – Nuisance Flooding Location Inventory by VFC Area:

Volunteer Fire Company Area Map



See end of document for Hi-Resolution Map and detailed list by Road Names.

Appendix II – Nuisance Flooding Committee Members

A. 2019 Steering Committee

NAME	AGENCY
Linda Ploener	Harford County Department of Emergency Services
Matt Kropp	Harford County Department of Planning and Zoning
Joel Gallihue	Harford County Department of Planning and Zoning
Frank Krick	Harford County Department of Emergency Services
Bill Snyder	Harford County Department of Emergency Services
Jeff Stratmeyer	Harford County Department of Public Works

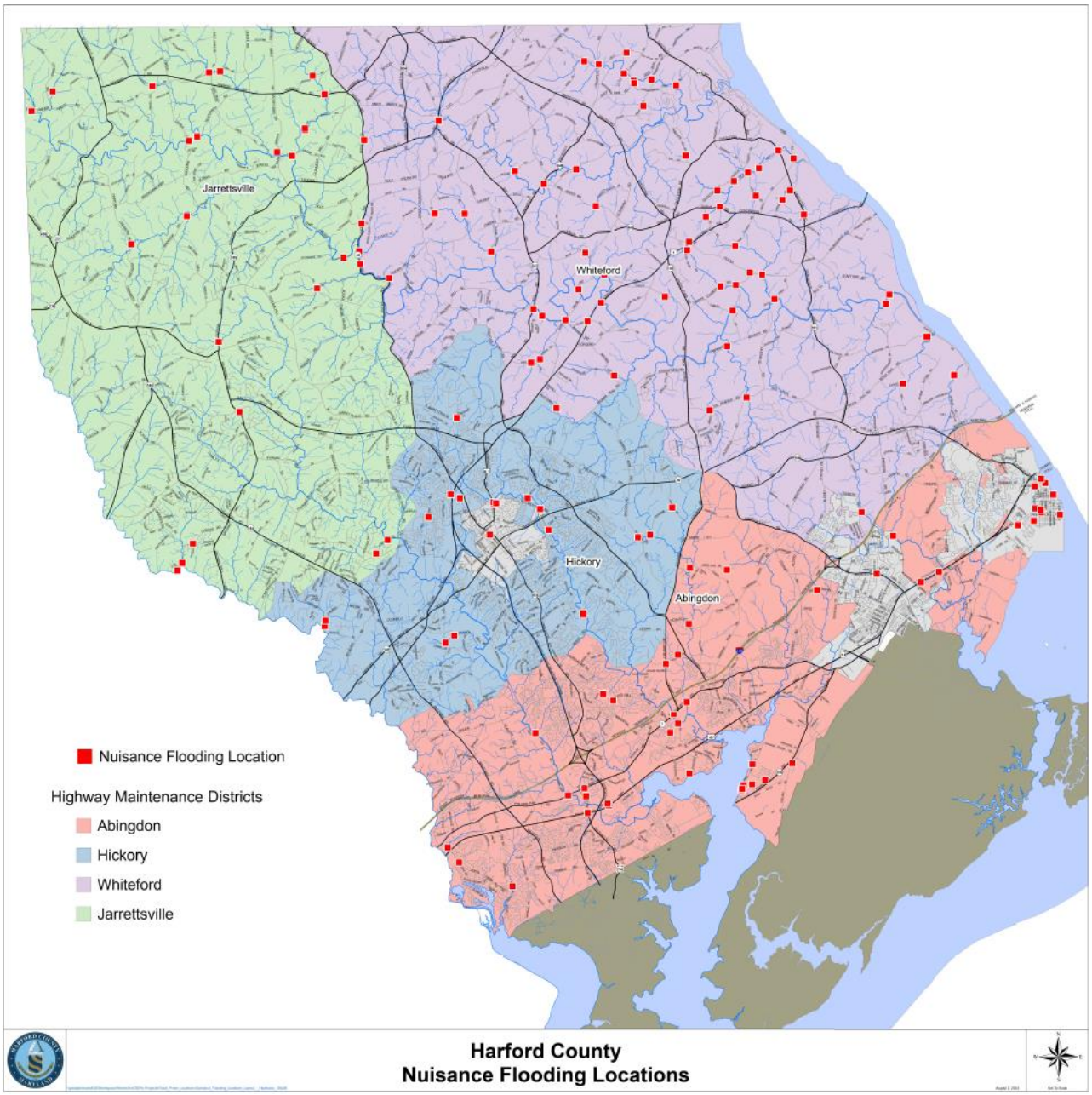
2024/2025 Plan Review/Revision Committee

NAME	AGENCY
Linda Ploener	Harford County Department of Emergency Services
Matt Kropp	Harford County Department of Planning and Zoning
Joel Gallihue	Harford County Department of Planning and Zoning
Frank Krick	Harford County Department of Emergency Services
Dan McKinney	Harford County Department of Emergency Services
Steve Walsh	Harford County Department of Public Works
Renee Baumgardner	Harford County Department of Public Works

Appendix III – Nuisance Flooding Documentation Tool

9-1-1 Nuisance Flood Log									
Date	Time	Caller's Name	Caller's Phone	Dispatcher	Location Information	Impacts	Agency Notified	Agency Staff Notified (Name)	Action Taken (if known)/ Notes

Appendix IV - Harford County Map of Nuisance Flooding Locations



At the end of this document, this flood nuisance road list is an essential resource for emergency management, fire services, and local authorities in mitigating flood risks and coordinating response efforts. Regular assessments should be conducted to update and refine this list based on changing environmental conditions and infrastructure improvements.

Flood Nuisance Road List

Harford County Department of Emergency Services – Emergency Management Division

Introduction

The following list identifies roads within the service areas of various volunteer fire companies (VFCs) that are prone to nuisance flooding. This list, compiled with input from the Department of Public Works (DPW), serves as a reference for emergency responders, public safety officials, and transportation agencies to anticipate and mitigate flood-related impacts.

Flood-Prone Roads by Fire Company Service Areas

Company 1: Level Volunteer Fire Company (VFC)

No nuisance flooding roads within the service area.

Per DPW:

- Cooley Mill Rd.
- Craigs Corner Rd.
- Stafford Rd.
- Wilkinson Rd.
- Glenville Rd.
- Nobles Mill Rd.
- Old Robin Hill Rd.
- Lapidum Rd.
- Cool Branch Rd.
- Bush Chapel Rd.

Company 2: Aberdeen VFC

- Old Robinhood Rd. at Swan Creek
- Route 40 at Swan Creek
- Route 40 at West Bel Air
- Route 40 between Beards Hill Rd. (extension)
- Club House Rd. (between Perryman Rd. and Park Beach Drive)
- Gold and Forest Green
- Route 22 and Paradise Rd.
- Park Beach Rd.
- Chelsea Rd.

Company 3: Bel Air VFC and Bel Air Police Department (BAPD)

- Hickory Ave. and Moores Mill Rd.

- Bond St. and Lester Way
- 1900 – 2000 Ruff's Mill Rd.
- 2200 block Edwards Lane
- 800 block Conowingo Rd. & 600 block Moores Mill Rd. (same overflow event)
- 1200 block St. Francis Rd.
- Redfield Rd. and Brierhill Drive
- 700 block Whitaker Mill Rd.
- Sandy Hook Rd., Kalmia Rd., and Walter's Mill Rd. Intersection
- Walters Mill Rd. and Ady Rd.
- Sandy Hook Rd. and Kalmia Rd.
- Patterson Mill Rd.
- Alibone Rd.
- Hoopes Rd.
- Gibson Rd.

Company 4: Abingdon VFC

- 2205 Philadelphia Rd. (just north of Edgewood Rd. and Route 7)
- Route 136 at the James Run Bridge
- Route 136 at Twelve Stones Rd.
- Goat Hill Rd.
- Route 7 at James Run (between Route 136 and Route 543)
- Route 7 between Route 136 and Harford Town
- Winters Run Rd.
- Route 7 @ Winters Run Road
- Nova Scotia Rd.
- Abingdon Beach Rd.

Company 5: Susquehanna Hose Company

- Water St. (entire length)
- Juniata St. (entire length)
- Revolution St. (from Adams Rd. to Lewis Lane)
- Concord St. (entire length)
- 800 block Lafayette St.
- Girard St. (from Juniata St. to Union St.)
- Parkway and Bay Blvd.
- Conesteo St.
- Foot of Green St.

Company 6: Whiteford VFC

- Old Pylesville Rd. (between St. Mary's Rd. and Route 543)
- Mill Green Rd. and Prospect Rd.
- Kerr Rd.
- Burkins Rd.
- Cherry Hill Rd.
- Deep Run Rd.
- Delp Rd.
- Little Rd.

- Millers Rd.
- Prospect Rd.
- Taylor Rd.
- Thomas Bridge Rd.

Company 7: Jarrettsville VFC

- St. Clair Bridge Rd. (near King & Queen Seat Entrance)
- Federal Hill Rd. (near Grimmels Pond)
- Baldwin Mill Rd. (near Furnace)
- Harford Creamery Rd. (near Norrisville Rd.)
- Madonna Rd. (near the Catskill Bridge)

Company 8: Joppa-Magnolia VFC

- Edgewood Rd. at the CSX Bridge
- Edgewood Rd. at the Amtrak Bridge
- Route 7 at Fashion Way/Winters Run Bridge
- Winters Run Rd. (from Fashion Court to Singer Rd.)
- Route 7 at Winters Run
- Route 40 and Edgewood Rd. (intersection during heavy rains)
- Route 40 and the Otter Creek Ramps (by Home Depot)
- Route 24 Spur to Route 40
- Rock Station Rd.
- Knopp Rd.
- Church Ln.
- Falling Branch Rd.
- Red Bridge Rd.
- Amos Mill Rd.

Company 9: Darlington VFC

- 1525 Arena Rd.
- 3610 Berkley Rd.
- 3631 Berkley Rd.
- 1273 Boyd Rd.
- 2200 Castleton Rd.
- 2500 Castleton Rd.
- 3248 Cedar Church Rd.
- 3638 Dublin Rd.
- 1800 Glen Cove Rd.
- 1919 Glen Cove Rd.
- 2241 Glen Cove Rd.
- 3505 Hughes Rd.
- 3680 Love Rd.
- 1282 Macton Rd.
- 3508 Mill Green Rd.
- 3651 Mill Green Rd.
- 3856 Peach Orchard Rd.
- 1548 Poole Rd.

- 1927 Poole Rd.
- 3116 Sandy Hook Rd.
- 1103 Stafford Rd.
- 2000 Block Susquehanna Hall Rd.
- 3932 Tabernacle Rd.
- 1352 Trappe Rd.
- 1650 Trappe Church Rd.
- 1934 Trappe Church Rd.
- E. Nobles Mill Rd.
- Deth's Ford Rd.
- Macton Rd.
- Robinson Mill Rd.
- Susquehanna Hall Rd.
- Love Rd.

Company 10: Norrisville VFC

- Route 24 (between Route 165 and St. Mary's Rd., near Jack's Hole)
- Fawn Grove Rd., Eden Mill Rd., and Red Bridge Rd. (Eden Mill Nature Center vicinity)
- Neal Rd. (near Big Branch)
- West Heaps Rd. and Buttermilk Rd. (near Big Branch)
- Carea Rd. and Telegraph Rd. (near Hidden Valley)
- Green Rd. (near Deer Creek and Muskrat Drive)

Company 13: Fallston VFC

- Carrs Mill Rd. (from Wildwood Drive to Vale Rd.)
- 2300 block Bel Air Rd.
- Wildwood Drive Intersection (water from west side of Carrs Mill Rd.)
- Greene Rd. at Baltimore County Line and at tributary to Gunpowder River (between Dale Ct. and Eagle Ct.)
- Laurel Brook Rd.
- Guyton Rd. at Bottom Rd. (within Gunpowder State Park)
