



2023

St. Mary's County, Maryland



St. Mary's County
Department of Emergency Services
23090 Leonard Hall Drive
Leonardtwn, MD 20650

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CHAPTER 1 - INTRODUCTION

1.0 Overview

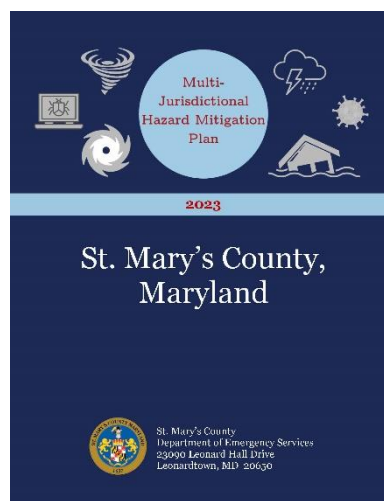
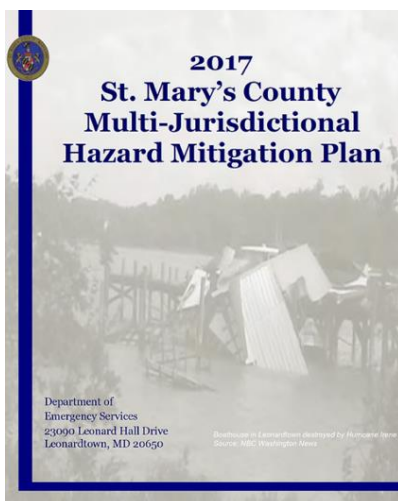
The Disaster Mitigation Act of 2000 (DMA 2000) was signed by the president on 30 October 2000. The act requires state and local governments to prepare and adopt hazard mitigation plans as a condition for receiving Pre-Disaster Mitigation (PDM) grant assistance and Hazard Mitigation Grant Program (HMGP) assistance after November 1, 2004. The St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan was first adopted in November of 2006 as a long-range strategic plan prepared to fulfill the requirements of DMA 2000 as administered by the Maryland Emergency Management Agency (MEMA) and the Federal Emergency Management Agency (FEMA) Region III.

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended), Title 44 Code of Federal Regulations (CFR), as amended by Section 102 of DMA 2000, provided the framework for state and local governments to evaluate and mitigate all hazards as a condition for receiving federal disaster assistance. A major requirement of the law is the development of a local hazard mitigation plan.

When applying for certain types of non-emergency disaster assistance, FEMA requires a hazard mitigation plan. These requirements are part of the [laws, regulations and policy](#) surrounding hazard mitigation planning.

Approved and locally adopted hazard mitigation plans are necessary for specific FEMA grant project funding eligibility.

- [Hazard Mitigation Grant Program \(HMGP\)](#);
- [Flood Mitigation Assistance Grant Program \(FMAG\)](#);
- [Building Resilient Infrastructure and Communities \(BRIC\)](#); and,
- [Rehabilitation of High Hazard Potential Dam \(HHPD\) Grant Program](#).
- The first hazard mitigation plan for St. Mary's County was completed in 2006 and updates to the plan were completed and adopted by the county and the Town of Leonardtown in 2011, and again in 2017. The planning process for this version of the plan started in December of 2021 with plan approval and adoption in 2023.



The St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan applies to all areas of the county, including the Town of Leonardtown. The plan recommends hazard risk reduction measures that will minimize losses to life and property affected by the natural hazards that face the County.

2.0 Purpose

Hazard mitigation is any action taken to permanently reduce or eliminate long-term risks to people and their property from the effects of hazards. Natural hazards can take many forms: tornadoes, floods, hurricanes, severe storms, winter weather, droughts, landslides, or earthquakes resulting from natural phenomena. In order to better prepare to face these natural hazards, communities can plan for and implement mitigation techniques for almost any type of hazard that may threaten its people and property.

This plan establishes an ongoing hazard mitigation planning program by: a) identifying and assessing potential natural hazards that may pose a threat to life and property; b) evaluating which local mitigation measures should be undertaken; and c) outlining procedures for monitoring the implementation of mitigation strategies. The plan update provides guidance to St. Mary's County officials on local mitigation activities that should be implemented over the next five-year planning cycle. It encourages activities that are most cost-effective and appropriate for mitigating the effects of all identified natural hazards.

Developing and maintaining the hazard mitigation plan empowers St. Mary's County to work towards the following goals:

- Increase education and awareness on natural hazards and community vulnerabilities;
- Build partnerships with government, organizations, businesses, and the public to reduce risk;
- Identify long-term strategies for risk reduction with input from stakeholders and the public;
- Identify cost-effective mitigation actions that focus resources on the greatest risks areas;
- Integrate planning efforts and risk reduction with other community planning efforts;
- **Minimize downtime, accelerating recovery and reducing the costs of disaster response;**
- **Accomplish other community objectives, such as capital improvements, infrastructure protection, open space preservation and economic resiliency;**
- **Promote the development of policies, programs, initiatives, and projects that prioritize diversity, equity, and environmental justice;**
- Align risk reduction with other state and community objectives; and,
- Communicate priorities to potential funders.

Note: Newly developed St. Mary's County hazard mitigation planning goals for the 2023 Plan Update were emphasized in **bold** in the above listing.

3.0 Consistency with Federal and State Mitigation Policies

The goals, objectives and policies of this plan have been developed for the mitigation of natural hazards through local strategies intended to:

- Substantially increase public awareness of natural hazard risks and the measures available to create safer, more disaster-resistant communities; and
- Significantly reduce the risk of loss of life, injuries, economic costs, and destruction of natural and cultural resources that result from natural hazards.

FEMA has developed ten fundamental principles for the nation's mitigation strategies that likewise underlie the strategies of this plan:

1. Risk reduction measures ensure long-term economic success for the community as a whole, rather than short-term benefits for special interests.
2. Risk reduction measures for one natural hazard must be compatible with risk reduction measures for other natural hazards.
3. Risk reduction measures must be evaluated to achieve the best mix for a given location.
4. Risk reduction measures for natural hazards must be compatible with risk reduction measures for technological hazards (hazardous materials) and vice versa.
5. All mitigation is local.
6. Disaster costs and the impacts of natural hazards can be reduced by emphasizing proactive mitigation before emergency response; both pre-disaster (preventive) and post disaster (corrective) mitigation is needed.
7. Hazard identification and risk assessment are the cornerstones of mitigation.
8. Building new federal-state-local partnerships and public-private partnerships is the most effective means of implementing measures to reduce the impacts of natural hazards.
9. Those who knowingly choose to assume greater risk must accept responsibility for that choice.
10. Risk reduction measures for natural hazards must be compatible with the protection of natural and cultural resources.

[2021 Maryland Hazard Mitigation Plan](#) goals, newly developed goals for the 2021 Plan are emphasized in **bold**.

1. Protect life, property, the economy, and the environment from hazard events to the greatest extent possible.
2. Increase public awareness of potential hazards, mitigation actions, preparedness efforts, and resiliency planning.
3. Protect state assets, infrastructure, and critical facilities from hazard events.
4. Enhance coordination across the whole community, including federal, state, and local government, and nongovernmental organizations, by strengthening existing linkages and creating new linkages between state and local mitigation and resiliency efforts.
5. Promote actions that protect natural resources while enhancing hazard mitigation and community resiliency.
6. Identify and implement projects that will reduce the impacts of hazards and efficiently use state resources.

- 7. Integrate hazard mitigation planning into other state planning efforts (comprehensive plan, floodplain management regulations, land use/zoning, green infrastructure) and encourage and educate counties and municipalities to integrate across local plans and ordinances.**
8. Identify and reduce flood hazard impacts in areas outside of the Special Flood Hazard Area (SFHA), that have experienced increased frequency and intensity in flooding but do not meet FEMA's RL and SRL criteria.
9. Reduce flood-related losses, with an emphasis on reducing RL and SRL properties over the next hazard mitigation planning cycle.
- 10. Promote the development of policies, programs, initiatives, and projects that prioritize diversity, equity, and environmental justice.**

St. Mary's hazard mitigation planning goals align with both FEMA and the Maryland Department of Emergency Management.

4.0 Organization of the Plan

The next several chapters comprise the Hazard Mitigation Plan.

- Chapter 1 begins with an **Introduction** to the plan including information on the purpose, organization of the plan, and demographics pertaining to St. Mary's County. In addition, the planning process is outlined regarding how program changes and information updates were made with assistance from the Hazard Mitigation Planning Committee and state and federal assisting agencies.
- Chapter 2 encompasses the natural hazard risk assessment and **Hazard Identification** which identifies and profiles each of the natural hazards that could affect St. Mary's County.
- Chapter 3 identifies the county's assets and provides a **Vulnerability Analysis** to assess the potential impacts of the identified natural hazards on the people, buildings, and infrastructure in St. Mary's County.
- Chapter 4 contains **Community Capabilities** and ideas for **Plan Integration**.
- Chapter 5 contains the **Goals and Objectives** of the plan.
- Chapter 6 includes the **Mitigation Strategy**, which identifies each mitigation measure, the lead implementation agencies or departments, approximate cost, and potential funding sources for implementation of each strategy.
- Chapter 7 outlines the **Action Plan** with procedures and details on how St. Mary's County and the Town of Leonardtown will maintain the mitigation plan to keep the data current and update the progress on the mitigation strategy.

4.1 Plan Update Highlights

This plan update included various updates and new plan elements and outreach initiatives.

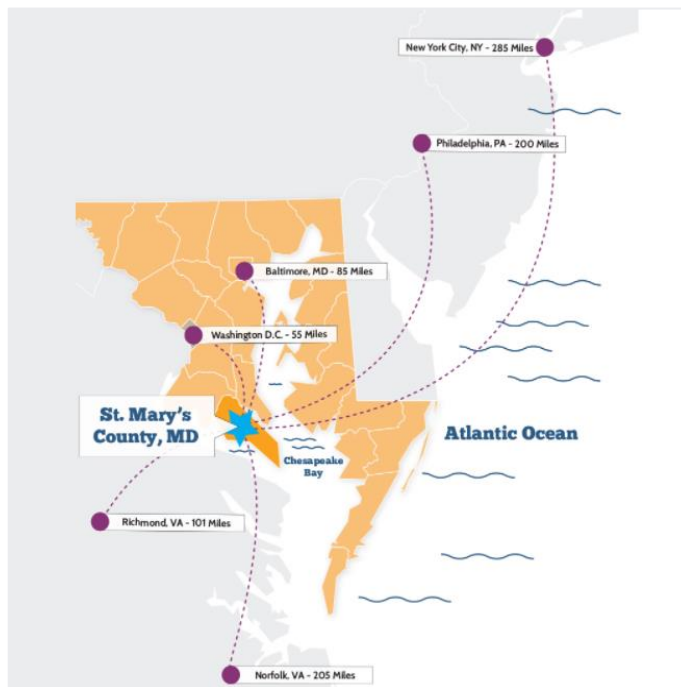
- Developed a new project website and added content continuously over the course of the plan update process.
- Developed and distributed new hazard risk perspective online public survey.
- Conducted a social media campaign in addition to print media.
- Integrated information from the 2021 State of Maryland Hazard Mitigation Plan.
- Future conditions for each identified hazard was added as a new plan element.
- Social vulnerability was added to Chapter 3 as a new plan element.
- Two new hazards were added during this plan update: Dam Failure and Pandemic & Emerging Infectious Disease.
- New Hazard Identification and Risk Assessment (HIRA) completed for Chapter 2
- Updates to the critical and public facilities prompted the reassessment of all vulnerability analysis presented in Chapter 3. All mapping products including hazard vulnerability maps were updated.
- Added new capabilities to Chapter 4.
- Added new Region 3 HMP Guidance Checking-In on the NFIP- Community Worksheets for both St. Mary's County and the Town of Leonardtown.
- New mitigation actions and project sheets were added to Chapter 5.

5.0 County Profile

5.1 Location

St. Mary's County is located approximately 55 miles southeast of Washington, D.C., and 85 miles south of Baltimore in southern Maryland (see Figure 1.0). St. Mary's County is situated on a peninsula bordered by the Wicomico River on the west, the Potomac River on the south, the Chesapeake Bay on the east, and the Patuxent River on the northeast. The Governor Thomas Johnson Bridge connects the northern shore of the Patuxent River at Solomon's Island in Calvert County with its southern shore in St. Mary's County. The total area of the county is approximately 357 square miles with a density of 294 persons per square mile. The Town of Leonardtown is the only incorporated town within the County.

**Figure 1.0 –
St. Mary's Location**

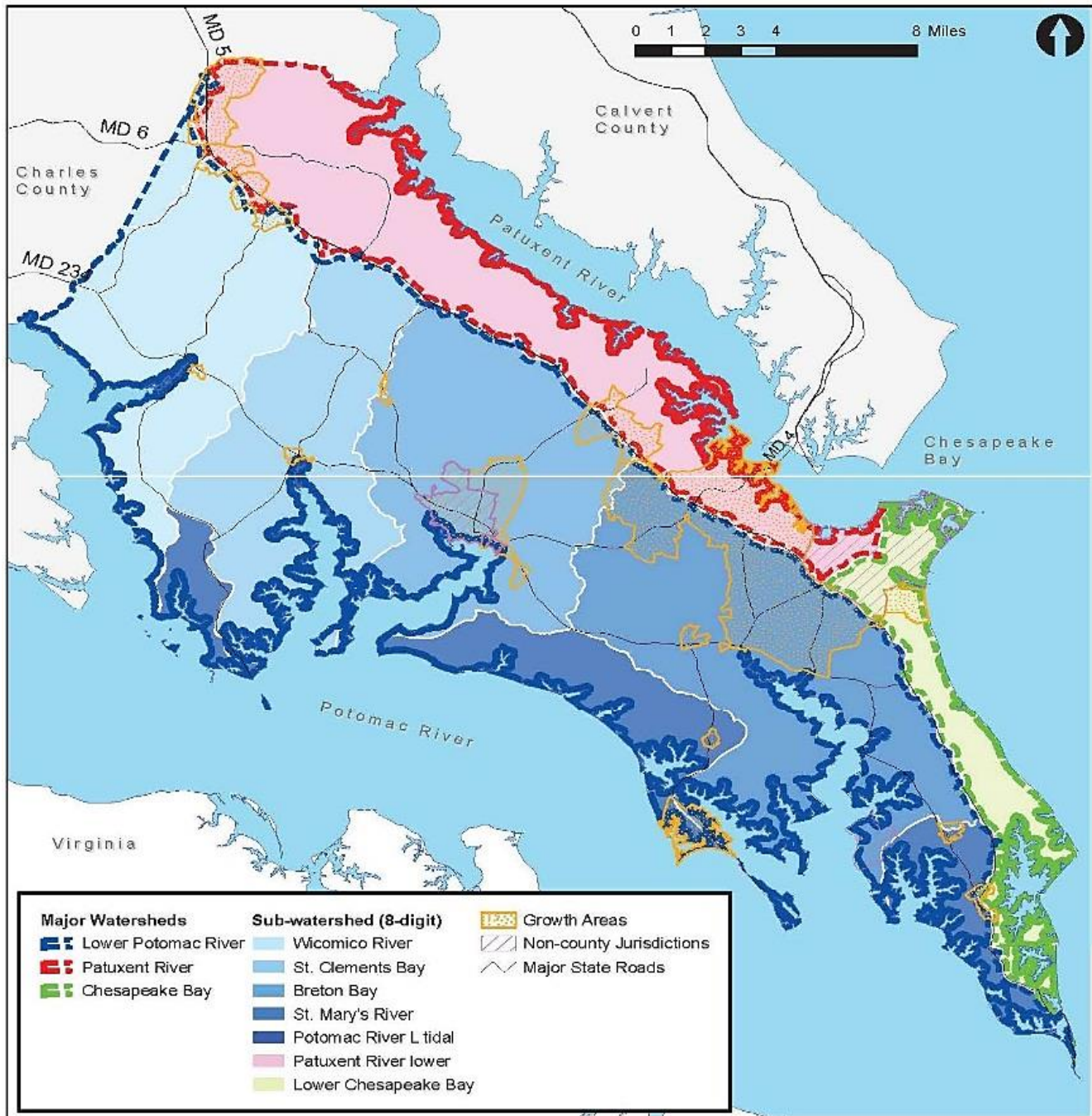


*Source: St. Mary's
County Department of
Economic Development*

5.2 Watersheds

As shown in Figure 1.0 below – obtained from the *2010 St. Mary's County Comprehensive Plan*, St. Mary's County is encompassed by three primary watersheds, the Lower Potomac (shown in blue), the Patuxent Watershed (shown in red), and the Chesapeake Bay (shown in green). The figure further delineates seven sub-watersheds (8-digit), Wicomico River, St. Clements Bay, Breton Bay, St. Mary's River, Potomac River L tidal, Patuxent River lower, and the Lower Chesapeake Bay.

Figure 1.1 – St. Mary’s County Watershed Boundaries



Source: St. Mary’s County 2010 Comprehensive Plan- *Most Current Comprehensive Plan available for 2023 Plan Update

5.3 Population

According to the 2020 U.S. Census Bureau, Maryland's population was 6,177,224 on April 1, 2020. The U.S. Census 2020 population for St. Mary’s County is 113,777. From 2010 to 2020, Maryland’s population grew approximately 7% percent, a gain of 403,672 persons. Over the same period St. Mary’s population grew 8.2%, a gain of 8,626 people. St. Mary’s County was among the fastest growing counties in the State of Maryland; however, from 2017 to 2020, the population growth has plateaued somewhat. According to the U.S. Census Bureau, Maryland, as well as St. Mary’s County, will continue

to increase in population over the next few decades. Additionally, St. Mary's County continues to have one of the youngest populations in the state with a median age of 36, and one of the highest percentages of veterans, 13.6%. Maryland's population is projected to grow approximately 9.1% while St. Mary's County population is projected to grow by approximately 29.3% over the next twenty years.

Table 1.1

Projected Population Estimates for Maryland & St. Mary's County			
	2020	2030	2040
State of Maryland	6,177,224	6,413,690	6,739,410
St. Mary's County	113,177	131,260	146,350

Source: www.msa.maryland.gov

5.4 Housing

According to the U.S. Census Bureau, the county's residents were housed in 46,807 units in 2019, with an owner-occupied rate housing rate of 70.3%. Table 1.2 below shows the housing price trends for the year ending in February of 2022. In February of 2022, the average housing price sold for \$391,856, up from \$372,758 in February of 2021. This is an increase of 5.1% in one year.

Table 1.2

Housing Price Trends			
	2022	2021	% Change
Average Sold Price	\$391,856	\$372,758	5.12%
Median Sold Price	\$360,000	\$315,000	14.29%
Total Units Sold	117	129	-9.30%
Average Days on Market	34	27	25.93%
Average List Price for Solds	\$390,298	\$374,577	4.20%
Average Sales Price to Original List Price Ratio	99.2%	98.8%	0.46%

Source: Southern Maryland Association of Realtors, February 2022

5.5 Income and Poverty

Median household income in St. Mary's County continues to be higher than that of the State of Maryland as reported by the U.S. Census Bureau. As shown on Table 1.3 below, median household income is shown on an upward trend county and statewide.

Table 1.3

Median Household Income				
	2017	2018	2019	2020
State of Maryland	\$80,776	\$83,242	\$86,738	\$87,063
St. Mary's County	\$81,495	\$92,250	\$87,947	\$95,864

Source: U.S. Census Bureau, 2017 – 2020; American Community Survey

The unemployment rate in St. Mary's County has been commensurate with that of the State of Maryland as reported by the Maryland.gov website, with a noticeable differential in 2020. As shown on Table 1.4 below, the unemployment rate for St. Mary's County increased from 4.1% in 2016 to 4.8% in 2020, a rate increase of 17.1%; however, the period between 2016 and 2020 showed decreases in the unemployment rate.

Table 1.4

Unemployment Rate – 16 Years and Over					
	2016	2017	2018	2019	2020
State of Maryland	4.3%	4.0%	3.6%	3.0%	6.7%
St. Mary's County	4.1%	3.9%	3.7%	3.3%	4.8%

Source: *www.msa.maryland.gov*

5.6 Economy

The Patuxent River Naval Air Station in St. Mary's County is located on the Chesapeake Bay near the mouth of the Patuxent River. It is the headquarters of the U.S. Naval Air Systems Command (NAVAIR), Naval Air Warfare Center Aircraft Division (NAWCAD), Naval Research Laboratory, Flight Support Detachment Air Test and Evaluation, and the Webster Field Annex at St. Inigoes, and over 200 high-tech defense contractors. Due primarily to the influx of technical jobs and technology firms; the County's increase in median household income during the past decade has been the largest in the state. The county has emerged as a world-class center for aviation and avionics research, development, testing, and evaluation. St. Mary's County's 2,000 businesses employ 28,200 workers; nearly 50 of these businesses have 100 or more workers. According to the St. Mary's Department of Economic Development, Naval Air Station Patuxent River and MedStar St. Mary's Hospital are the top two major employers in St. Mary's County. Table 1.5 shown below includes the top twenty major employers in the county.

Table 1.5

Major Employers			
Firm	Employment	Firm	Employment
Naval Air Station Patuxent River*	11,915	SAIC	515
MedStar St. Mary's Hospital	1,260	Booz Allen Hamilton	400
DynCorp International	1,020	St. Mary's College of Maryland	555
KBRwyle	700	PAE Applied Technologies	500
BAE Systems	645	General Dynamics	600
Lockheed Martin	470	Smartronix	250
Engility	500	CACI	280
Northrop Grumman	415	J.F. Taylor	475
Boeing	450	Sikorsky	280
Precise Systems	250	McKay's Foodland	225

Source: *Maryland Department of Commerce, 2018*

Note: *Excludes post offices, state and local governments; includes higher education institutions.*

**Employee counts for federal and military facilities exclude contractors to the extent possible; embedded contractors may be included.*

Furthermore, with continued growth in the manufacturing industry (small but growing), housing, hotel development, and tourism continue to have an impact on attracting new residents and promoting economic development.

5.7 Climate

St. Mary's County's climate is generally mild. There are four distinct seasons. The average annual winter temperature is approximately 39 degrees Fahrenheit with an average snowfall of 14.2 inches. The summers can be hazy, hot, and humid with an average summer temperature of approximately 78 degrees Fahrenheit. Afternoon thunderstorms are also a common occurrence in the summer months. As shown in Table 1.6 below, the average annual rainfall is approximately 45.4 inches.

Future variability in climate will likely influence the frequency and severity of the occurrences of natural hazards for the county.

Table 1.6

Average Precipitation – Rainfall in Inches													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Inches	3.2	2.9	4.3	3.6	4.0	3.9	4.5	4.2	4.3	3.5	3.3	3.6	45.4

Source: U.S. Climate Data, Mechanicsville, St. Mary's County, 2021

5.8 Transportation

St. Mary's County is a peninsula which is itself divided into numerous peninsulas by rivers and creeks. Minor local arterial roads generally follow ridgelines and are connected to the county's four principal state arterial roads—MD 5, MD 235, MD 4, and MD 234. Maryland Route 5 (MD5) is a four-lane highway from Charles County to MD 235 (Three Notch Road). At its junction with 235, Route 5 bears right and continues as a two-lane road south to Leonardtown (the county seat) and then runs along the length of the county through Ridge to Point Lookout.

From the junction with MD5, Three Notch Road continues as a four-lane road southeast to California, expands to six lanes through Lexington Park (the principal growth center for the county) drops to two lanes south of Lexington Park and continues southeast ending at Route 5 in the unincorporated community of Ridge, Maryland. Route 4 is four-lane highway in Calvert County which drops to a 2-lane road at the Governor Thomas Johnson Bridge over the Patuxent River, continues across Three Notch Road at California and ends at MD 5 just south of Leonardtown. Route 234 runs from US 310 in eastern Charles County ending at Route 5 just north of Leonardtown.

The population increase in the county has resulted in increased traffic volumes and highway-related commercial activities. Increased volume on the four principal state roads makes entering, exiting and crossing the highways from side roads increasingly difficult. The lack of interconnections and alternative north-south routes increase congestion and delays particularly along the Three Notch Road (MD 235) corridor from Hollywood through Lexington Park. In response to this congestion, projects such as widening and the addition of turn lanes to Three Notch Road through California and Lexington Park, widening of Great Mills and Chancellor's Run roads in Lexington Park, construction of sections of FDR Boulevard which will parallel Three Notch Road in Lexington Park, requirements for road interconnection between parcels, and provision of additional traffic lights and median separation to expedite the flow of traffic and reduce traffic accidents have been completed or are in progress.

According to Brief Economic Facts – St. Mary's County, Maryland, St. Mary's County accommodates their community's transportation needs through the following:

- **Highways:** Maryland arteries in the county connect with U.S 301, I-95, and I-495 (Washington D.C. Beltway)
- **Rail:** The closest rail depot, CSX Transportation, is in adjacent Charles County at Waldorf. Waldorf to Newburg – affects two evacuation routes (Route 301 (Crain Highway) will route all evacuation traffic northbound with north pointing signs. Additionally, signage will be placed

along the following state routes north and south of Crain Highway: Routes 257, 6, 234, 236, 231, 5, 488, 225, 227, 228, 224, 425, and 344)

- **Truck:** Forty-six local and long-distance trucking establishments are in Southern Maryland
- **Water:** Served by the Port of Baltimore, 50' channel; a leading U.S. automobile and break-bulk port; seven public terminals including the state-of-the-art Intermodal Container Transfer Facility; Cove Point – imports propane; and is 81 miles from Leonardtown
- **Air:** Served by Baltimore/Washington International Thurgood Marshall Airport, Washington Dulles International Airport and Ronald Regan Washington National Airport; St. Mary's County Regional Airport

5.9 Population & Development Trends

According to the U.S. Census Bureau, the geographical size of St. Mary's County is approximately 357 square miles and contains 18 census tracts. In 2020, the County's total population was 113,177 people with 46,807 households. While the population growth of St. Mary's County was generally lower than other southern Maryland counties during the 80's and 90's, it is comparable to other counties, and greater than the State's during the 2000 to 2010 era. In the past ten years, the population growth of the County is still slightly higher than the State and between that of Calvert and Charles counties.

Table 1.7

Population Change: Southern Maryland Region					
Jurisdiction	1970-1980	1980-1990	1990-2000	2000-2010	2010-2020
State of Maryland	7.0%	11.8%	9.7%	9.1%	7.0%
Calvert County	40.3%	32.6%	31.1%	23.1%	4.6%
Charles County	34.5%	28.1%	16.1%	20.2%	13.7%
St. Mary's County	20.9%	21.2%	13.5%	22.3%	8.2%

Source: U.S. Census Bureau, 2010 & 2020 Census Population

St. Mary's County has a total land area of approximately 357 square miles. According to the Maryland Department of Planning Generalized Land Use/Land Cover Inventory, in 2010, 46 percent is forested, with agriculture accounting for 22 percent. In 2012 the Census of Agriculture counted 67,086 acres of land in farms in St. Mary's County, which was a slight decrease from 68,648 acres in 2007 which was down from 68,153 acres in 2002. Developed land accounts for nearly 30 percent of the total land area, which is an increase of 14 percent from 2002 to 2010. In addition, low-density residential development for St. Mary's County in 2002 was 31,008 acres and 34,529 acres in 2010, a difference of 3,649 or 11.4 percent.

To understand the vulnerability of the built environment an analysis of the County's development trends is necessary. This allows us to focus on where and what type of future development will occur and determine how to fortify it to be hazard resistant.

In the County's 2010 Comprehensive Plan, Lexington Park and Leonardtown are designated development districts which are to be the primary growth centers; Charlotte Hall, New Market, Mechanicsville, Hollywood, and Piney Point are designated as town centers (the county's secondary growth centers); and Callaway, Chaptico, Clements, Loveville, Ridge, St. Inigoes, and Valley Lee are village centers (tertiary growth centers). The Lexington Park Development District serves as a destination and a focus for St. Mary's County, offering a mix of governmental, retail, office, residential, entertainment, and recreational uses. The Patuxent River Naval Air Station is the pride of Lexington Park. Commercial uses are concentrated primarily in Leonardtown and Lexington Park, and in the town and village centers. The county's Comprehensive Plan discusses promoting development of designated traditional rural service centers, Budds Creek, Oraville, Helen, Avenue, St. James, Dameron, and Park Hall. The county also has plans to encourage expansion of rural services and moderate residential

growth in the seven village centers: Callaway, Chaptico, Clements, Loveville, Ridge, St. Inigoes, and Valley Lee.

Non-residential development has occurred principally in the Lexington Park Development District within a narrow corridor on either side of major roads, especially Three Notch Road (MD235) and Great Mills Road (MD246). The northern town centers of Charlotte Hall and Mechanicsville have attracted non-residential development within a narrow corridor on either side of Three Notch Road (MD5) to a lesser extent. The town centers of Piney Point and Hollywood are targeted for this type of land use, but growth has been slow.

Within Leonardtown, the County Seat, there has been a steady growth in jobs and facilities associated with law and government, the hospital, and the Leonardtown campus of the College of Southern Maryland. These trends are expected to continue. Leonardtown has accomplished revitalization of a public wharf which is attracting business and residential growth. In addition to non-residential activities, home occupations and agri-business; roadside stands, and farmer's markets continue to occur.

In the *2010 Leonardtown Municipal Growth Element*, growth will not be limited to areas currently located within the existing corporate limits of the town. Several locations adjacent to the town's corporate limits have the right to petition for annexation at any time. Town policy is to evaluate any requested annexation on its own merits and to assure growth through annexation is sustainable and does not exceed the capacity of town infrastructure to support it. The Hayden Farm, recently acquired by the county, represents one area where annexation was completed to support new school facilities, a library and park facilities. Any annexation will be subject to substantial consideration in keeping with recommended annexation policies identified later in the comprehensive plan.

According to the most recent [St. Mary's County Planning Commission Report](#), changes in development patterns are consistent with each other in that development is guided by the County's Comprehensive Plan and the Lexington Park Master Plan. New subdivision approvals in the Priority Funding Areas (PFAs), water and sewer category changes, and infrastructure improvements support the promotion of development and redevelopment in our priority funding areas.

Adjoining jurisdictions are notified of all water and sewer category changes for review and comment and to ensure compliance with their adopted plans. Also, St. Mary's and Calvert Counties coordinate on regional transportation projects through the Metropolitan Planning Organization.

The 2040 Maryland Transportation Plan: Unified Planning Work Program Calvert-St. Mary's Metropolitan Planning Organization Transportation Improvement Program, and our Metropolitan Planning Organization Long Range Transportation Plan, projects are reviewed for consistency at the very earliest stages of the planning process. This includes projects listed in the county's capital improvements program and all development projects at subdivision review.

A further analysis of planning policies, tools and standards has been included in *Chapter 4: Plan Integration and Capabilities*.

6.0 Planning Process

6.1 Hazard Mitigation Planning Committee

Following the adoption of the [2017 St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan](#), the Commissioners of St. Mary's County officially established the St. Mary's County Hazard Mitigation Planning Committee (HMPC) to institutionalize hazard mitigation planning and resiliency.

**BYLAWS
OF THE ST. MARY'S COUNTY
HAZARD MITIGATION PLANNING COMMITTEE**

PURPOSE OF THE HMPC

The purpose of the HMPC is to advise the Commissioners of St. Mary's on all matters relating to planning and mitigation due to natural hazards, community outreach, coordination or resources and agencies and any other issues relating to hazard mitigation that the Commissioners of St. Mary's County or the HMPC deems appropriate (hereinafter "the Public Activity").

- All HMPC members shall be appointed by the Commissioners of St. Mary's County unless otherwise provided by the legal authority governing the Body.
- Regular meetings of the members shall meet as often as necessary but at least quarterly per calendar year. A schedule of regular meetings for each calendar year shall be adopted prior to the commencement of the calendar year.
- Special meetings may be scheduled by a majority vote of the members or called by the Chairperson and shall be called by the Chairperson upon the written request of any seven (7) members of the HMPC.

The Department of Emergency Services (DES) is the lead agency for hazard mitigation planning efforts in St. Mary's County. DES project management staff applied for and received FEMA Hazard Mitigation Assistance funding for the 2023 Plan Update. Thereafter, Smith Planning and Design (S&D) was contracted by St. Mary's County to assist in the plan update process in December 2021.

As the HMPC has continuously met since the adoption of the 2017 Plan, the HMPC was immediately engaged to provide guidance and oversight for the Plan Update.

Table 1.8

Hazard Mitigation Planning Committee Members	
Member Name, Position	Agency/Department
Gerald Gardiner, Emergency Manager	Emergency Services
William Hunt, Director	Land Use and Growth Management
John Deatruck, Director	Department of Public Works & Transportation
Ed Hogan, Chief of Facilities and Operations	MetCom
Mark Stancliff, Network Manager	Information Technology
Phillip Burch, Resident Maintenance Engineer	MDOT- Leonardtown
Stephen Walker, Deputy Director	Emergency Services
F. Michael Wyant, Chief of Safety and Security	St. Mary's County Public Schools
Vince Whittles, SERVPRO Owner	Business Owner in St. Mary's County
Tony Wheatley, Town Administration	Town of Leonardtown

Source: *Hazard Mitigation Planning Committee Members*

HMPC meetings held during the plan update process included:

- May 18, 2022 HMPC Board Meeting; and,
- September 28, 2022 HMPC Board Meeting.

Immediately following the September 28, 2022 HMPC Board Meeting a **Mitigation Workshop** was held. The HMPC was expanded to include a broad cross-section of stakeholders. The following table details attendees and their associated department, agency, or organization.

Table 1.9

September 28, 2022 Mitigation Workshop Attendees	
Name	Position, Organization/Department
*Gerald Gardiner	Emergency Manager, Emergency Services
Amy Bledsoe	Emergency Planner, Emergency Services
*Tony Wheatley	Town Administration, Town of Leonardtown
Ben Cohen	MPO Planner III, Land Use Growth Management
Roy Copsey	Parks Division Manager, Parks & Recreation
Tressa Setlak	Division of Preparedness and Response, SMHD
Quinn Alsheimer	Assistant Public Health Emergency Planner, SMHD
Alexis Zoss	Director, St. Mary’s County Department of Social Services
Brandy Glenn	Planner IV, Land Use Growth Management
Courtney Jenkins	Senior Planner, Land Use Growth Management
*Ed Hogan	Chief of Facilities & Operations, MetCom
Jim Gotsch	Director, Department of Public Works- Transportation
Kara Buckmaster	Calvert County Emergency Management Specialist
*William Hunt	Director, Land Use Growth Management
Amber Thompson	Permits Manager, Land Use Growth Management
Gary Whipple	Deputy Director, Department of Public Works- Transportation
Laschelle McKay	Town Administration, Town of Leonardtown
Tracy Lumpkins	Capital Planning Program Analyst, DSS
Richard Tarr	County Highways, Department of Public Works- Transportation
Nora Lagola	Public Assistance Officer, MDEM
Sarah Bender	Disaster Risk Reduction Directorate Director, MDEM
*Phillip Birch	Resident Maintenance Engineer, MDOT
Eric Benson	GIS Supervisor, Information Technology
*Vince Whittles	SERVPRO Owner, St. Mary’s and Calvert Counties
Caitlin Whiteleather	SMHO, MDEM
Donald Mills	Municipal Engineering Deputy Director, Department of Public Works- Transportation

Note: *Indicates Hazard Mitigation Planning Committee - Board Members



Those invitees who were unable to attend the Mitigation Workshop received meeting notes and materials, see Appendix G.

6.2 Small Topical Group Meetings

In addition to the HMPC meetings, small topical groups were formed consisting of relevant disciplines from within St. Mary’s County and other organizations that have a vested interest in hazard mitigation and resiliency projects.

Table 1.10

Small Topical Group Meetings		
Date	Group	Meeting Topic(s) and Material(s)
February 23, 2022	St. Mary's County- Land Use & Growth Mgt.	Discussed questionnaire, NFIP & CRS, mitigation & outreach activities for incorporation in HMP Update.
March 24, 2022	Representatives from FEMA & MDE Dam Safety and St. Mary's County	TTX Exercise Plan and discussion questions. Integration of the dam hazard into HMP Update.
June 8, 2022	Public Health	Agenda topics included: Infectious disease data and plan(s), CDC Guiding Principles, integration, capabilities, and new ideas.
June 8, 2022	Social Vulnerability/Equity	Agenda topics included: Joint Resolution on Social Equity, Hazards and Social Vulnerability, Capabilities, and new ideas.
September 12, 2022	Leonardtown Area Flood Assessment	Discussed what work has occurred to date, what still needs to be addressed and go through any questions or concerns that anyone may have.

6.3 Data Collection

Data collection efforts were undertaken early in the plan update process to ensure that the most up to date and relevant data was incorporated. Various data sources were identified and pertinent information pertaining to natural hazards including past occurrences, projected frequencies of future occurrence/the anticipated risk where available, and inventory information, specifically new information from 2017 to present.

Additionally, policy and regulatory information was collected. This included comprehensive plans, zoning ordinances, development ordinances, and building codes and other relevant documents.

Information was collected from public works, planning, emergency management, and GIS departments. Updated hazard data, permit data, community capabilities, and FEMA NFIP data were identified and integrated. Furthermore, data and information from several state and federal agencies was obtained including the Maryland Department of Emergency Management, Maryland Department of Natural Resources, the Federal Emergency Management Agency, Maryland Department of the Environment, and the U.S. Army Corps of Engineers. A listing of resources gathered and utilized throughout the plan can be found in *Appendix D: Sources*.

6.4 Hazard Identification Risk Assessment

As part of the plan update process for St. Mary's County, Maryland, a Hazard Identification Risk Assessment (HIRA) has been completed for the County.

Ten (10) natural hazards have been identified and a hazard risk has been assigned to each. Only natural hazards are included in this assessment as they lend themselves better to data collection related to geographic extent than technological and man-made hazards.

Table 1.11

Natural Hazard Identification and Risk Assessment Ranking Results			
Hazards	2017 Hazard Ranking	2022 Hazard Ranking	2022 Composite Score
Coastal Events	High	High	24
Thunderstorm	Medium-High	Medium-High	20
Pandemic & Infectious Disease	n/a	High	22
Wind	Medium-High	Medium-High	20
Flood	Medium-High	Medium-High	15.5
Tornado	Medium-High	Medium-High	18
Extreme Heat	Medium	Medium-High	18
Drought	Medium	Medium	15
Winter Storm	High	Medium	13.5
Wildfire	Medium-Low	Medium-High	17.5

To assess the hazard risk for the ten (10) natural hazards identified in this Plan Update, a composite score method was undertaken. The composite score method was based on a blend of quantitative and qualitative factors extracted from the National Centers for Environmental Information (NCEI) database, and other available data sources. These included:

- Historical impacts, in terms of human lives and property damage;
- Geographic extent;
- Historical occurrence; and,
- Future probability.

The previous HIRA in the 2017 St. Mary's County Multi-Hazard Mitigation Plan did not use the nine parameters used for the 2022 HIRA. The 2022 HIRA has been expanded and uses a blend of quantitative and qualitative data. The methodology and data used to complete this HIRA has been included Appendix A of the Plan Update.

In review of the [2021 State of Maryland Hazard Mitigation Plan](#), HIRA results indicate that the State ranked Coastal Events, High Wind, and Winter Storm as high-risk hazards for St. Mary's County. Except for Winter Storms, 2022 St. Mary's County HIRA results align with the State. This may be attributed to the fact that the local risk perspective used as one of the ranking parameters for State's HIRA used the 2017 St. Mary's County Hazard Ranking.

6.5 Mitigation Status Report

The next step in the planning process involved reviewing the projects identified in the May 2017 plan. The following projects have been assessed and the status provided.

Table 1.12

Projects from the 2017 St. Mary's County Hazard Mitigation Plan Completed		
2017 Project/ Action #	Status Update Description	Status
1	Encourage 2 feet of freeboard for structures within tidal influenced floodplains.	Complete
2	Freeboard increase in Moderate and Minimal Flood Risk Area.	Incomplete
3	Adkins Mobile Home Park Flood Mitigation	Incomplete
4	Apply for NFIP Community Rating System	Partial
5	Glass Upgrade	Partial
6	Complete elevation certificates for flood prone water pump station and wastewater pump stations.	Incomplete
7	Targeted Hazard Mitigation Outreach to Mobile Home Parks.	Complete
8	Identify, draft, and submit ordinance to the Commissioners of St. Mary's County/Leonardtown Commissioners to assure cleared floodplain land remains open space in perpetuity.	Partial
9	Development of Cultural & Historical Resources Plan.	Partial
10	"Repetitive Loss" be added to the definitions.	Incomplete
11	Modify Substantial Improvement Standards	Incomplete
12	Mitigate damage to power lines from falling trees.	Complete
13	MD 5, Point Lookout Road Safety Improvement Project	Partial
14	Water loop from Washington Street to Fenwick Street	Complete
15	Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).	Incomplete
16	Develop Flood Mitigation Plan	Incomplete
17	Repetitive Loss Properties, specifically those located in Piney Point and Tall Timbers	Partial
18	Ellis Road Living Shoreline and Bank Stabilization.	Incomplete
19	Sandgate's Road Living Shoreline Stabilization and Roadway Elevation Project.	Incomplete

Source: 2022 Hazard Mitigation Planning Committee

The full report with project sheets is included in *Appendix E: Mitigation Status Report*. The 2017 incomplete projects were reviewed to determine their relevancy for carry-over into the Plan Update.

6.6 Vulnerability Assessment

Analyzing the hazards that impact the county and the Town of Leonardtown and determining vulnerabilities with respect to identified hazards is the next step in the plan update process. The vulnerability assessment was performed using GIS data from the county, HAZUS-MH (GIS based loss estimation software) and other local and state sources.

In order to assess the current risk and vulnerability of the community, an inventory of critical and public facilities in the County was performed. Critical and public facilities are those facilities that warrant special attention in preparing for a disaster and/or are of vital importance in maintaining the functioning of the community.

Data was obtained from the St. Mary's County Department of Information Technology's GIS and Addressing Supervisor to aid in the development of the 2022 St. Mary's County Critical and Public

Facilities database. The Department of Information Technology provided a critical infrastructure database that contained the following attribute columns:

- Facility Type;
- Facility Name;
- Address;
- Owner;
- Calvert Cliffs Nuclear Power Plant (CCNPP) Zone;
- On Evacuation Route;
- Storage Type;
- Capacity;
- Storage; and,
- Generator.

The Department of Information Technology also provided current 2021 parcel data. This data along with Maryland Property View data, was utilized to add the following attributes:

- Account Identifier;
- Square Footage;
- Year Built;
- Improvement Value;
- Building Stories; and,
- Structure Material;

While conducting the vulnerability analysis, additional attributes were added:

- Designated between Critical and Public Facility Type;
- FEMA Flood Zone;
- Flood Depth;
- Storm Surge Inundation Areas (Hurricane Categories 1-4); and
- Facilities built in 1965 or prior.

The complete inventory of critical and public facilities for the 2023 St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan has been compiled and presented in Appendix C. The below provides a synopsis of critical and public facilities analyzed during the 2023 planning process and comparison of the 2017 critical and public facilities data.

Table 1.13

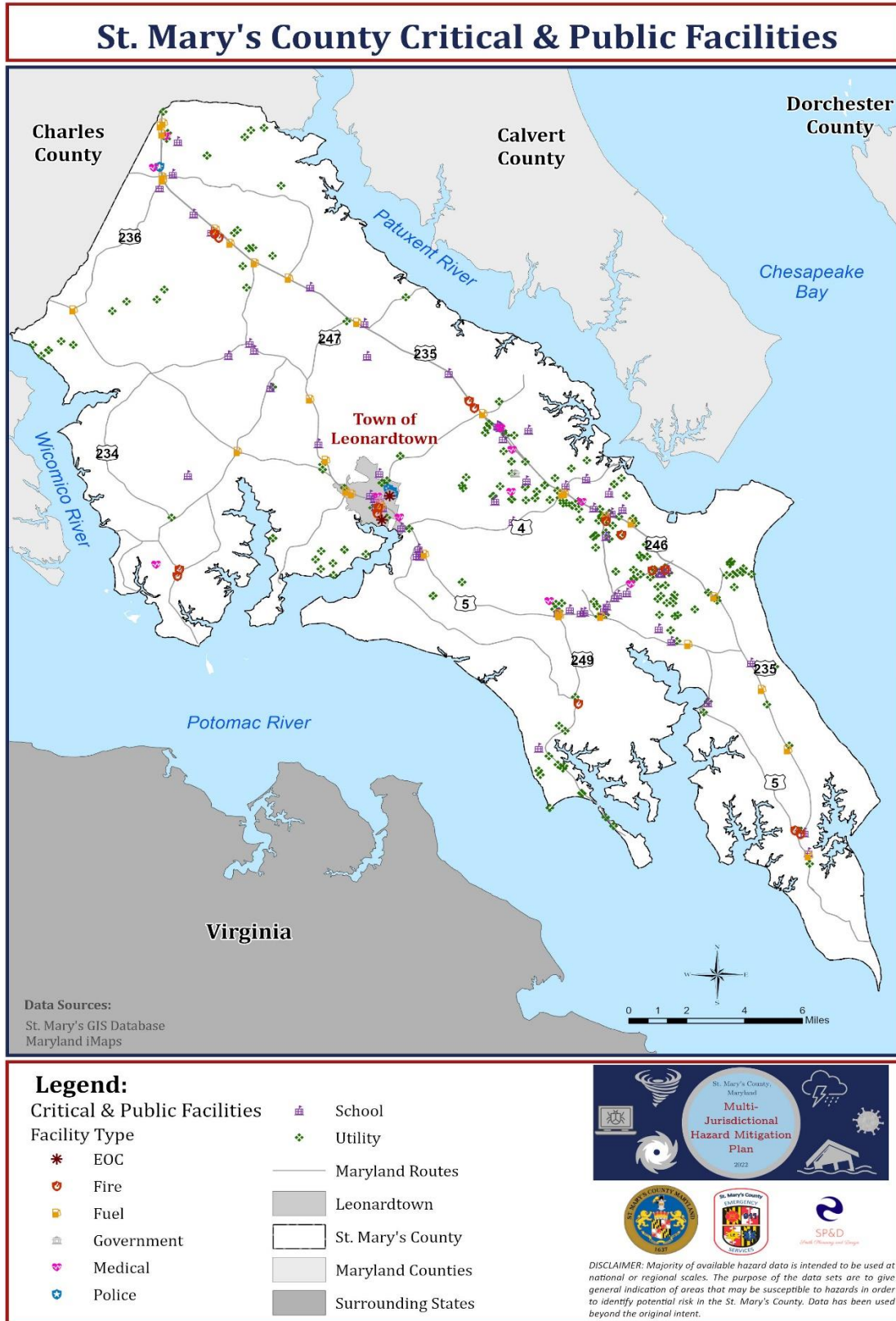
2017 Critical & Public Facilities			
Critical Facilities		Public Facilities	
Facility Type	Number of Facilities	Facility Type	Number of Facilities
EOC	2	Fuel Evacuation Routes Fueling Stations	20
Fire	16	Government	7
Medical	8	Utility Water Pump Stations Water Towers Wastewater Stations WWTP Communication Towers Power Substation	154
Police	3		
School	24		
Total	53	Total	181

Table 1.14

2022 Critical & Public Facilities			
Critical Facilities		Public Facilities	
Facility Type	Number of Facilities	Facility Type	Number of Facilities
EOC	2	Fuel Evacuation Routes Fueling Stations	33
Fire	15	Government	6
Medical	14	Utility Water Pump Stations Water Stations Well Sites Water Towers/Storage Wastewater Stations WWTP Communication Towers Power Substation	289
Police	4		
School	77		
Total	112	Total	328

As detailed in the tables above, the number of critical of public facilities increased since the previous planning process. Significant increases include the number of medical facilities, schools, fuel stations, and utilities. Several additional nursing homes were identified, increasing the medical facilities. This also occurred with the number of fueling stations located along evacuation routes. The number of schools increased due to new private schools and preschools being identified. Finally, utility facilities has the greatest increase in well sites and wastewater stations.

Map 1.1 – Critical & Public Facilities



6.7 Capabilities and Plan Integration

To assess the mitigation capabilities of the county and the Town of Leonardtown. The capability assessment, which includes existing programs and policies addressing natural hazards were reviewed and updated. An analysis of the adequacy of existing measures was performed, and potential changes and improvements were identified. Chapter 4 provides detailed information.

6.8 Implement the Plan and Monitor Progress

As was the case during the previous plan cycle, 2017-2021, the county will continue to implement the plan and perform periodic reviews and revisions through the Hazard Mitigation Planning Committee. Updated reports will be conducted by the Department of Emergency Services and distributed to all Hazard Mitigation Planning Committee members. The review and revision process will be submitted to the State Hazard Mitigation Officer. The Hazard Mitigation Planning Committee, which meets quarterly will meet review the update reports. Chapter 6 provides additional details.

6.9 Public Involvement

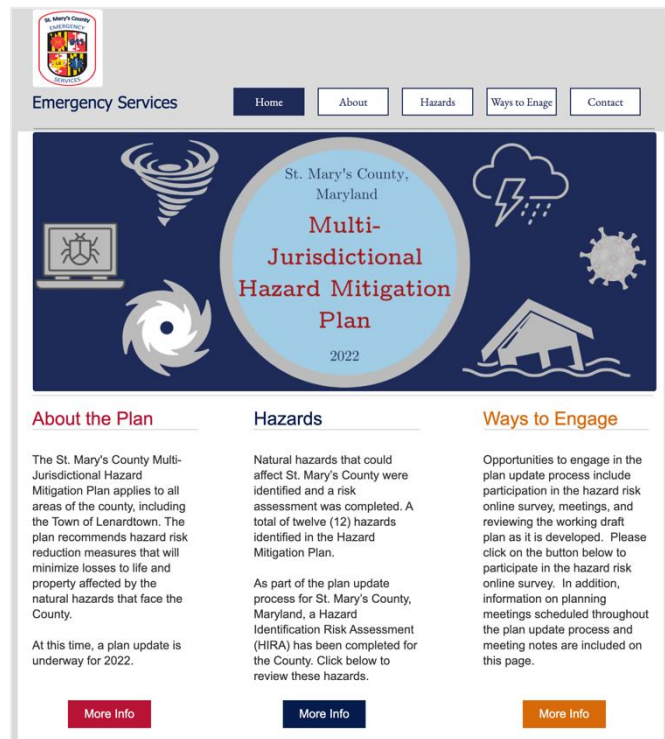
Opportunities to engage in the plan update process included visiting the **project website**, participation in the **hazard risk online survey**, meeting attendance, and reviewing the working draft plan as it was developed. In addition, information on planning meetings scheduled throughout the plan update process and meeting notes were included on the website.

[Click here to take the survey.](#)

Hazard Risk Public Survey

The Hazard and Flood Mitigation Plans form the foundation for St. Mary's County and its municipality's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The purpose of these plans is to identify, plan, and implement cost-effective hazard mitigation measures through a comprehensive approach known as hazard mitigation planning. The Federal Emergency Management Agency (FEMA) requires hazard mitigation plans to be updated every five years.

To that end, the St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan update is underway. This is an update to the previous 2017 Multi-Jurisdictional Hazard Mitigation Plan. The St. Mary's County Department of Emergency Services is the lead agency for this plan effort. Therefore, the Department of Emergency Services is seeking input on stakeholders' concerns regarding hazards. This survey is being used to collect your insight and perspective on hazards identified in the Plan.



New project website was developed for the 2023 Plan Update. Content was loaded onto the website throughout the planning process. Social media posts and press releases specific to the plan update with website address were distributed regularly.

In addition to the hazard risk online survey being made available in the project website, the survey was also available on the St. Mary’s County government website, as well.



Over the course of the plan update process:

- Website content on the Hazard Mitigation Plan received more than three hundred unique visitors.
- Updated monthly with new content.
- Public Welcome to Attend - Mitigation Workshop. Workshop posted under “Ways to Engage” on project website.
- HIRA, hazard definitions, and risk maps posted under “Hazards” on project website.
- The **public survey** has had 307 unique responses.
 - Results for **St. Mary’s County** (countywide) indicate the public is **most concerned** with Flood, Erosion, and Hurricane.
 - Least concerned: Dam Failure, Drought, and Wildfire.
 - Top 3 Preferred Mitigation Project Types:
 - ✓ Retrofit Infrastructure- elevate roads/drainage maintenance.
 - ✓ Replace inadequate or vulnerable bridges/causeways
 - ✓ Work on improving the damage resistance of utilities (electricity, communications, water/sewer, etc.)
 - The **public survey** current responses for the **Town of Leonardtown**.
 - Preliminary results indicate the public is **most concerned** with Flood, Hurricane, and Erosion.
 - Least concerned: Drought, Wildfire, and Thunderstorm.
 - Top 3 Preferred Mitigation Project Types:
 - ✓ Replace inadequate or vulnerable bridges/causeways.
 - ✓ Retrofit Infrastructure- elevate roads/drainage maintenance.
 - ✓ Work on improving the damage resistance of utilities (electricity, communications, water/sewer, etc.)
- Review Plan Elements & Comment Form.
- Draft Plan posted with public comment form.
 - The opportunity for the public to comment was available throughout the plan development process, however, no public comments were received.

In addition to the project website and public survey, news releases were disseminated throughout the plan update process, see Appendix G.

- County New Release- No. 2022 – 36- February 17, 2022: Included project website, online hazard survey link, contact information, and Facebook. In addition, this information was posted via Facebook and twitter.
- BayNet News Article- February 17, 2022: Information about the HMP Update, public survey and project website.
- Southern Maryland Chronicle Newspaper- February 18, 2022: Information about the HMP Update, public survey, and project website.
- Southern Maryland Newsfeed- February 20, 2022
- St. Mary's Government Website- February 22, 2022: A link to the survey has been added to the rotating banner ads on the SMCG webpage.
- Facebook Post & Twitter- February 22, 2022: Survey link posted
- County Times Newspaper- February 24, 2022: Article printed in County Times- Public Input Sought for Hazard Mitigation Plan.
- The Leader Newspaper- March 1, 2022: Information about the HMP Update, public survey, and project website.
- Facebook Post & Twitter- March 7, 2022: Survey link posted
- Social Media Post- March 27, 2022: Facebook Post on St. Mary's Government about public survey.
- Reverse 9-1-1 Message- March 27, 2022: Reverse 9-1-1 message citizens who live or work near the St Mary's Dam.
- Letter from DES to Property Owners informing of stream corridor assessment and opportunity for voluntary property assessment. April 11, 2022
- YouTube Video: MD Flood Awareness Month Video- Repetitive Flooding Town of Leonardtown posted on project website- April 12, 2022.
- Social Media Post- April 14, 2022: DES Facebook Post about project website.
- St. Mary's County Press Release- Lunch with MIA- April 28, 2022: Ask the Expert: What you need to know about reducing your flood risk for your home, car, or business. Experts from: MIA, MDE, MDEM, MDOT, and FEMA.
- Social Media Post- May 17, 2022: Public Survey- DES Facebook Page. New graphic was developed for this posting.
- Mitigation Workshop-Open to the Public posted on project website during the month of September 2022. Mitigation Workshop notes posted on project website for public review on October 4, 2022.

A complete listing of St. Mary's County Hazard Mitigation Planning, Training, and Outreach Initiatives conducted over the course of this plan update is included in Appendix H.

6.10 Interagency and Intergovernmental Coordination

In addition to the HMPC members listed above, various local, state, and federal agencies were contacted to provide data, input, and cooperation for the St. Mary's County Hazard Mitigation Plan. These agencies and their reason for contact are shown in Table 1.15.

Table 1.15

Interagency Coordination		
Agency	Method of Contact	Reason for Contact
Maryland Department of the Environment	Kevin G. Wagner, Community Assistance Program Manager 301-689-1495 kevin.wagner@maryland.gov	Repetitive Loss Information
Maryland Department of Natural Resources	Sasha Land, Chesapeake & Coastal Service Maryland Department of Natural Resources 410-260-8718	Maryland Coastal Resiliency Assessment - Shoreline Erosion Data
Maryland Department of Emergency Management	Blake Langford, Acting SHMO 410-517-3600	2021 State of Maryland Hazard Mitigation Plan- Plan Integration
Maryland Department of Planning	MD Property View	Demographics and Parcel/Tax Assessment Data
National Center for Environmental Information	www.ncdc.noaa.gov/stormevents	Severe Weather History
Maryland Department of Natural Resources – Forest Service	Kenneth Jolly, Southern Region Leader, Maryland Forest Service (410) 207-0029	Wildfire Data
Maryland Silver Jackets	Jason Stick, U.S. Army Corps of Engineers (410) 962-3475	Assessment- repetitive flooding problems on McIntosh Run and Town Run
Maryland Department of Natural Resources	Marcus Gaskins, Dave Decker, Dawn Letts, and Jonas Williams Department of Natural Resources -MPS and Engineering Personnel 410-260-8924	Table-Top Exercise & DAM EAP

Source: Smith Planning and Design

6.11 Participating Jurisdictions

The Town of Leonardtown participated throughout the plan update process.

- Completion of NFIP Region III Questionnaire;
- Hazard Risk Survey and Municipal Specific Questionnaire;
- Attended In-Person Hazard Mitigation Workshop;
- Reviewing draft plan sections;
- Offering comment on the draft plan; and
- Adopting final plan through formal resolution.

In addition, Calvert County attended and participated in the September 28, 2022 Mitigation Workshop. Meeting materials, notes, and follow-up information was provided, as well as the draft plan.

CHAPTER 2 - HAZARD IDENTIFICATION

1.0 St. Mary's County Disasters

Presidential Declarations for the State of Maryland that included St. Mary's County fall under four (4) hazard types: Hurricane, Severe Winter Storm, Severe Storm Wind event, and more recently, the Covid-19 Pandemic. In addition, the State of Maryland has obtained Presidential Declarations for two other hazard types: Tornado and Flood. As such, the top six (6) natural hazards which may affect St. Mary's County are:

- Coastal Hazard- Hurricane/Tropical Storms;
- Winter Storm/Weather;
- Flood;
- Wind;
- Tornado, and,
- Pandemic.

Note: According to the International Federation of Red Cross and Red Crescent Societies, pandemics are classified as a natural hazard. The Pennsylvania court concluded that the "the COVID-19 pandemic is unquestionably a catastrophe that 'results in ... hardship, suffering, or possible loss of life,'" and therefore it was a "natural disaster" for purposes of the Emergency Code.

These hazards are considered the most common and costly hazards affecting Maryland. Upon review of previous hazard occurrences and impacts, additional hazard types were identified, and include:

- Thunderstorm;
- Drought & Extreme Heat; and,
- Wildfire.

The standardized method used for assessing and prioritizing the eight identified hazards was based on a blend of qualitative factors extracted from the National Center for Environmental Information (NCEI) and other available sources. These include:

- Planning Committee Community Perspective;
- Historical Occurrences;
- Geographic Extent; and,
- Historical Impacts, such as human lives, injuries, property, and crop damages.

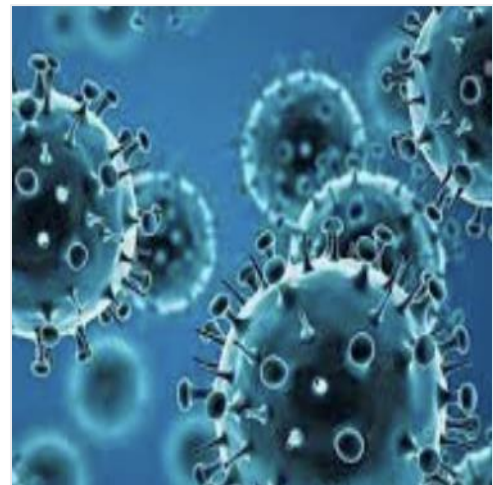


Photo Sources: Top- St. Mary's County Emergency Services- Hurricane Isaias, Middle- St. Mary's County Emergency Services- Hurricane Isaias, Bottom- World Health Organization (WHO), https://www.who.int/health-topics/coronavirus#tab=tab_1

2.0 Coastal Hazard Profile

Coastal hazards take many forms ranging from storm systems like tropical storms and hurricanes that can cause storm surge inundation, heavy precipitation that may lead to flash flooding, and exacerbation of shoreline erosion to longer term hazards such as sea level rise. Therefore, coastal hazards are to include, if applicable, coastal storms, storm surge, hurricane, tropical storm, sea level rise and shoreline erosion.

Hurricanes & Tropical Storms

Hurricanes are classified using the Saffir-Simpson Hurricane Wind Scale (Table 2.1), which rates the intensity of hurricanes based on wind speed and barometric pressure measurements. The scale is used by the National Weather Service to predict potential property damage and flooding levels from imminent storms.

Table 2.1

Saffir-Simpson Hurricane Wind Scale	
Category Wind Speed	Effects
Category 1-Weak 74-95 mph	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, and vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
Category 2-Moderate 96-110 mph	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
Category 3-Major 111-129 mph	Devastating damage will occur: Well-built frame homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water may be unavailable for several days to weeks after the storm passes.
Category 4-Major 130-156 mph	Catastrophic damage will occur: Well-built frame homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possible months. Most of the area may be uninhabitable for weeks or months.
Category 5-Major >157 mph	Catastrophic damage will occur: A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area may be uninhabitable for weeks or months.

Source: National Hurricane Center, 2012

Shoreline Erosion

The county shoreline along the Patuxent River has very steep eroding slopes and the western shore of the Chesapeake Bay varies from steep, eroding cliffs to stable slopes. Cliffs are continually eroded by wave action, landslides, groundwater seepage, freeze/thaw action, and weathering. The most severe impacts occur along those shorelines with the greater fetch length. Although erosion is a natural process, it can create significant problems for property owners, businesses, and the public, especially when inappropriate planning and design activities either increase natural erosion rates or compound the impact of natural erosion processes. The Maryland Geological Survey (MGS) began to quantify the problem in 1914, documenting major

Fetch is the distance of open water over which wind can blow and generate waves. The greater the fetch, the greater the potential for wave energy.

reductions of various islands throughout the state.

Sea Level Rise

According to the 2018 National Climate Assessment Overview, human-induced climate change means much more than just hotter weather. Increases in ocean and freshwater temperatures, frost-free days, and heavy downpours have all been documented. Global sea-level has risen, and there have been large reductions in snow-cover extent, glaciers, and sea ice. For coastal communities, sea level rise, combined with coastal storms, has increased the risk of erosion, storm surge damage, and flooding. *Note: The fifth National Climate Assessment update and the Sea-level Rise Projections for Maryland 2018 is currently under development. Both of these updated planning documents should be reviewed, when available, and integrated into a countywide Climate Action Plan.*

2.1 Coastal Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "High" risk to coastal hazards classified in the Plan as tropical storm, hurricane, storm surge/tide, coastal flooding, nuisance flood, sea level rise, shoreline erosion.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked coastal hazards, which include hurricanes/tropical storms, storm surge, and coastal flooding, sea level, and shoreline erosion as a "High" risk. Future probability of coastal hazards was documented in the HIRA as "Likely."

Results of the *St. Mary's County Public Survey* ranked coastal hazard separately based on their level of concern per hazard, as follows: hurricane, tropical storms, and storm surge as "Concerned," sea level rise as "Somewhat Concerned," and shoreline erosion as "Somewhat Concerned."

Town of Leonardtown Municipal Survey ranked coastal hazard based on their level of concern per hazard as follows: hurricane, tropical storms, and storm surge as "Somewhat Concerned," sea level rise as "Somewhat Concerned," and shoreline erosion as "Somewhat Concerned."

2.2 Coastal Hazard History

Hurricanes & Tropical Storms

Five (5) tropical storm events were reported in St. Mary's County, between January 1950 and January 2022, resulting in 154 injuries, no deaths, \$90.775M in property damage, and \$50.00K in crop damage. There were zero hurricane or tropical depression events reported over the same time. The five tropical storm events are below:

Table 2.2

Tropical Storm Events				
Date	Type	Injuries	Property Damage	Crop Damage
09/16/1999	Tropical Storm/ Hurricane Floyd	0	\$25.00K	\$0.00K
09/18/2003	Tropical Storm/ Hurricane Isabel	154	\$86.200M	\$50.00K
09/06/2008	Tropical Storm Hanna	0	\$0.00K	\$0.00K
08/27/2011	Tropical Storm/ Hurricane Irene	0	\$3.800M	\$0.00K
8/4/2020	Tropical Storm Isaias	0	\$750.00K	\$0.00K
Total		154	\$90.775M	\$50.00K

Source: National Center for Environmental Information (NCEI), 2022

In 2003, there were 154 injuries recorded during the Tropical Storm/Hurricane Isabel event due to carbon monoxide poisoning from residents improperly running generators during the storm.

A review of historical tracks of tropical weather systems indicates St. Mary's County has been affected by such storms over 100 times since 1859. Numerous severe storms have struck the Atlantic Coast both above and below St. Mary's County, including Bertha (1996), Floyd (1999), Isabel (2003), Tropical Storm Irene (2011) and **Tropical Storm Isaias (2020)**. The earliest recorded hurricane dates back to 1859.

Category 1 hurricane surge areas are located along the entire shore of the Bay, most of the Potomac River, and along the Patuxent River. Point Lookout, the area around Piney Point/St. George Island and Colton's Point are most at risk from Category 1 storm surge and more extensive flooding from a Category 4 hurricane storm surge. In addition, the area around Chaptico Bay and Chaptico Run are areas prone to flooding from storm surge.

Shoreline Erosion

According to the updated study, 21 percent of the Maryland's 6,597 miles of tidal shoreline currently experience some degree of erosion, and approximately 44 percent of St. Mary's County's 535 miles of shoreline currently experience some degree of erosion. A large percentage of St. Mary's County's shorelines incur erosion accelerated by high winds and high tides. The greatest numbers of incidences occur during the fall and winter months. Additionally, damaging wind events coupled with abnormally high tides cause shoreline erosion to occur each year.

Coastal erosion is unique to the communities on Maryland's coastlines. A unique feature of Maryland is its Chesapeake Bay watershed and tidal tributaries. This ecosystem is the single largest estuary in the United States. According to NOAA's Office of Ocean and Coastal Resource Management, Maryland has approximately 3,190 miles of coastal and Chesapeake Bay tidal shoreline susceptible to coastal erosion. Counties expected to be most affected by coastal erosion include Kent, Queen Anne's, Talbot, Dorchester, Wicomico, Somerset, and Worcester on the state's Eastern Shore, and Hartford, Baltimore, Anne Arundel, Baltimore City, Calvert, Prince George's, Charles, and **St Mary's** on the Western Shore.

Sea Level Rise

Probability means the likelihood of the hazard occurring and may be defined in term of general descriptors (for example, unlikely, likely, highly likely), historical frequencies, statistical probabilities (for example: 1% chance of occurrence in any given year), and/or hazard probability maps. Sea level rise is a probable hazard and does not have an extensive hazard history as is the case with other coastal hazards. However, the location and extent of sea level rise will be assessed and has been included in the updated vulnerability analysis.

Storm Surge



Image Source:
<https://foxbaltimore.com/news/local/track-of-tropical-storm-isaias-includes-maryland>

Storm surge is the vertical rise above normal water level associated with a storm of tropical origin (e.g., hurricane, typhoon, tropical storm, or subtropical storm), caused by any combination of strong, persistent onshore wind, high astronomical tide and low atmospheric pressure, resulting in damage, erosion, flooding, fatalities, or injuries.

Sea level rise is an increase in the level of the world's oceans due to the effects of climate change.

Three (3) storm surge events were reported in St. Mary's County, between January 1950 and January 2022, resulting in \$100K in property damage. The three storm surge events are listed below:

Table 2.3

Storm Surge Events				
Date	Type	Injuries	Property Damage	Crop Damage
09/06/1996	Storm Surge	0	\$100.00K	\$0.00K
09/16/1999	Storm Surge	0	\$0.00K	\$0.00K
09/01/2006	Storm Surge	0	\$0.00K	\$0.00K
Total		0	\$100.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

Coastal Flooding

Fifty-two (52) coastal flood event days were reported in St. Mary's County, between January 1950 and January 2022, resulting in \$300K in property damage between two coastal flood events. The two coastal flood events with reported property damage are below:

Table 2.4

Coastal Flood Events				
Date	Type	Injuries	Property Damage	Crop Damage
02/04/1998	Coastal Flood	0	\$250.00K	\$0.00K
05/11/2008	Coastal Flood	0	\$50.00K	\$0.00K
Total		0	\$300.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

3.0 Winter Storm Profile

Winter weather can take many forms including **snow**, **freezing rain**, **sleet** and **extreme cold**. Some of the most significant winter storms that affect Maryland are accompanied by strong northeast winds.

Winter storms can vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death. A variety of weather phenomena and conditions can occur during winter storms. For clarification, the following are National Weather Service approved descriptions of winter storm elements:

- **Heavy snowfall** - the accumulation of 6 or more inches of snow in a 12-hour period or 8 or more inches in a 24-hour period.
- **Blizzard** - the occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.
- **Ice storm** - an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground.
- **Freezing drizzle/freezing rain** - the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.
- **Sleet** - solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.
- **Wind chill** - an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

3.1 Winter Storm Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "High" risk to winter storm which includes blizzard, cold/wind chill, freezing fog, frost/freeze, heavy snow, ice storm, sleet/freezing rain, winter storm, winter weather.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked winter storm, which include winter storm, winter weather, blizzard, ice storm, frost/freeze, heavy snow, extreme cold, and cold/wind chill as a "Medium" risk. Future probability of winter storms was documented in the HIRA as "Highly Likely."

Results of the *St. Mary's County Public Survey* ranked winter storm based on their level of concern as "Somewhat Concerned."

The *Town of Leonardtown Municipal Survey* ranked Winter Storm as "Somewhat Concerned."

3.2 Winter Storm Hazard History

There were approximately 29 winter storm events in St. Mary's County between January 1950 and January 2022. No deaths or injuries were reported. There was one (1) event on February 5, 2010, with \$5.0K in property damage and no crop damages reported. A compilation of the 29 winter storms, by year, are provided in Table 2.5 below:

Table 2.5

Winter Storm Events		
Year	Storm Event Date(s)	Reported Damages
1999	03/09/1999	\$0.00K
2000	01/20/2000; 01/25/2000	\$0.00K
2001	02/22/2001	\$0.00K
2002	01/03/2002; 12/05/2002	\$0.00K
2003	01/16/2003; 02/06/2003; 02/14/2003	\$0.00K
2009	03/01/2009; 12/18/2009	\$0.00K
2010	01/30/2010; 02/05/2010; 02/09/2010	\$5.00K
2014	01/21/2014; 01/28/2014; 03/03/2014; 03/16/2014	\$0.00K
2015	02/16/2015; 02/25/2015; 03/05/2015	\$0.00K
2016	03/03/2016	\$0.00K
2017	01/07/2017	\$0.00K
2018	01/03/2018; 03/20/2018; 12/09/2018	\$0.00K
2019	01/12/2019	\$0.00K
2021	02/18/2021	\$0.00K
2022	01/03/2022	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

A significant winter storm reported by St. Mary's County occurred on February 5, 2010. Several structures were impacted by the amount of snow that accumulated on the rooftops. Three (3) facilities were closed due to the structural soundness of the facilities' roof system. These facilities included: Garvey Senior Center, Leonard Hall Recreation Center, and the Health Department. Facilities remained closed until snow could be removed from the rooftops.

Tables 2.6-2.10 have a more detailed account of the National Weather Service description of winter storm/winter weather events.

There were approximately eight (8) heavy snow events in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries. No property damage or crop damages were reported. The heavy snow events are shown below:

Table 2.6

Heavy Snow Events		
Date	Type	# of Inches of Snow
01/09/1996	Heavy Snow	4-5"
01/12/1996	Heavy Snow	4-6"
02/02/1996	Heavy Snow	8-13"
02/03/1996	Heavy Snow	12-18"
02/16/1996	Heavy Snow	10-13"
02/08/1997	Heavy Snow	4-8"
12/06/2005	Heavy Snow	4-6.5"
02/12/2006	Heavy Snow	8-14"

Source: National Center for Environmental Information (NCEI), 2022

Note: Heavy snow events were not listed for St. Mary's County within the NCEI database after the 2006 event. However, baynet.com reported a heavy event affecting St. Mary's County in February 2010, which corresponds with the "winter storm" event in Table 2.5.

There were approximately 51 winter weather events in St. Mary's County between January 1950 and January 2022. No deaths or injuries were reported. There were no reported property damages, and no crop damages were reported. Winter Weather Events from the time period of 2017 to 2022 are shown below:

Table 2.7

Winter Weather Events			
Date	Type	Property Damage	Crop Damage
01/30/2017	Winter Weather	\$0.00K	\$0.00K
03/13/2017	Winter Weather	\$0.00K	\$0.00K
12/08/2017	Winter Weather	\$0.00K	\$0.00K
02/20/2019	Winter Weather	\$0.00K	\$0.00K
01/31/2021	Winter Weather	\$0.00K	\$0.00K
02/07/2021	Winter Weather	\$0.00K	\$0.00K
02/11/2021	Winter Weather	\$0.00K	\$0.00K
01/28/2022	Winter Weather	\$0.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

There were approximately four (4) blizzard events in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries, \$10K in property damage, and no crop damages. The four blizzard events are shown on Table 2.8:

Table 2.8

Blizzard Events			
Date	Type	Property Damage	Crop Damage
01/07/1996	Blizzard	\$10.00K	\$0.00K
02/06/2010	Blizzard	\$0.00K	\$0.00K
02/10/2010	Blizzard	\$0.00K	\$0.00K
01/23/2016	Blizzard	\$0.00K	\$0.00K
Total		\$10.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

There were approximately three (3) ice storm events in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries. No property damage or crop damages were reported. The three ice storm events are shown below:

Table 2.9

Ice Storm Events			
Date	Type	Property Damage	Crop Damage
01/30/2000	Ice Storm	\$0.00K	\$0.00K
03/01/2015	Ice Storm	\$0.00K	\$0.00K
02/13/2021	Ice Storm	\$0.00K	\$0.00K
Total		\$0.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

There were approximately five (5) extreme cold/wind chill events in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries. No property damage or crop damages were reported. The five extreme cold/wind chill events ice storm events are shown below:

Table 2.10

Extreme Cold/Wind-Chill Events		
Date	Type	Temperatures
01/21/2000	Extreme Cold/wind Chill	Teens/10-25 below zero wind chill
01/22/2000	Extreme Cold/wind Chill	8 degrees
01/27/2000	Extreme Cold/wind Chill	8-11 degrees
12/22/2000	Extreme Cold/wind Chill	20-30 degrees
04/19/2001	Extreme Cold/wind Chill	Teens/10-20 below zero wind chill

Source: National Center for Environmental Information (NCEI), 2022

4.0 Flood Hazard Profile

Flooding can be categorized as **flash**, **riverine** and **coastal** in Maryland. Flash flooding results from a combination of rainfall intensity and duration and is further influenced by local topography and the ground's capacity to hold water. Riverine flooding is caused by persistent moderate or heavy rain over one or more days, sometimes combined with snowmelt, causing a river to slowly rise and overflow its banks. Coastal flooding occurs when normally dry, low-lying land is flooded by sea water. The extent of coastal flooding is a function of the elevation inland flood waters penetrate which is controlled by the topography of the coastal land exposed to flooding. Coastal flooding is addressed in Section 2.0: Coastal Hazards Profile.

Flash floods occur suddenly after a brief but intense downpour, rapid melting of ice and snowpacks, or failure of natural or manmade dams. Flash floods also result as a secondary effect from other types of disasters, including large wildfires that remove vegetative cover and alter soil characteristics, increasing the quantity and velocity of storm water runoff. Flash floods are the number one weather-related killer, with approximately 140 deaths recorded in the United States each year. Flash floods move fast and terminate quickly. Although the duration of these events is usually brief, the damages can be quite severe.

Riverine floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies use historical records and hydrological modeling to determine the probability of occurrence for different extents of flooding. The probability of flood occurrence is based on the statistical chance of a particular size flood (expressed as cubic feet per second of water flow) occurring in any given year. The annual flood is usually considered the single greatest event expected to occur in any given year. Flash floods cannot be measured accurately when there are heavy storms (Table 2.11).

Table 2.11

Flooding vs. Flash Flooding	
Causes of Flooding	Causes of Flash Flooding
Low lying, relatively undisturbed topography	Hilly/mountainous areas
High season water tables	High velocity flows
Poor drainage	Short warning times
Paved surfaces	Steep slopes
Construction filling	Narrow stream valleys
Obstructions – bridges	Parking lots & other impervious surfaces
Soil characteristics	Improper drainage

Source: Federal Emergency Management Agency

4.1 Flood Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium-High" risk to flood which includes flood, flash flood, heavy rain.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked flood, which includes flood, flash flood, and heavy rain as a "Medium-High" risk. Future probability of flood was documented in the HIRA as "Highly Likely."

Results of the *St. Mary's County Public Survey* ranked flood based on their level of concern as "Concerned."

The *Town of Leonardtown Municipal Survey* ranked Flood based on their level of concern as "Somewhat Concerned."

4.2 Flash Flood Hazard History

Twenty-four (24) flash flood events were reported in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries, \$755K in property damage, and no crop damage. The nine (9) flash flood events listed below caused property damage in excess of \$5.0K.

Table 2.12

Flash Flood Events with Property Damage over \$5K			
Date	Type	Property Damage	Damage Description
06/20/1996	Flash Flood	\$5.00K	Damage to roadways in Lexington Park.
01/28/1998	Flash Flood	\$10.00K	Countywide damage to roads and utilities lines.
02/04/1998	Flash Flood	\$50.00K	Countywide damage to roads and utilities lines. Vehicles were damaged as well as sewage system in Lexington Park.
08/25/1999	Flash Flood	\$20.00K	Damage to basements and roadways in the northern portion of the County.
09/16/1999	Flash Flood	\$500.00K	Trailer parks, homes, and cars were damaged during this event. Roads and utilities were impacted.
08/09/2005	Flash Flood	\$100.00K	In Leonardtown, the basements of several college buildings were damaged. Vehicles and roads were impacted as well as the government center.
07/04/2020	Flash Flood	\$50.0K	Several vehicles became disabled in floodwaters near Thompson Corner Road and New Market Village Road.
08/04/2020	Flash Flood	\$15.0K	MD-6 New Market Turner Road was washed away over Persimmon Creek.
06/09/2021	Flash Flood	\$5.0K	A car was stranded in high water on Locust Grove Drive near the St. Mary's River.
Total		\$755.00K	

Source: National Center for Environmental Information (NCEI), 2022

4.3 Flood Hazard History

Forty-one (41) flood event days were reported in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries, \$30K in property damage, and no crop damage. Two (2) flood events in the database have reported property damages. Those events are listed below:

Table 2.13

Flood Events			
Date	Type	Property Damage	Crop Damage
05/11/2008	Flood	\$20.00K	\$0.00K
11/11/2020	Flood	\$10.00K	\$0.00K
Total		\$30.00K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

4.4 Heavy Rain Flood Hazard History

Thirty-four (34) Heavy Rain event days were reported in St. Mary's County between January 1950 and January 2022, resulting in no deaths or injuries, \$3K in property damage, and no crop damage. One (1) Heavy Rain event in the database has reported property damages. That event is listed below:

Table 2.14

Heavy Rain Events			
Date	Type	Property Damage	Crop Damage
08/20/1997	Heavy Rain	\$3.00K	\$0.00K
Total		\$3.00K	\$0.00K

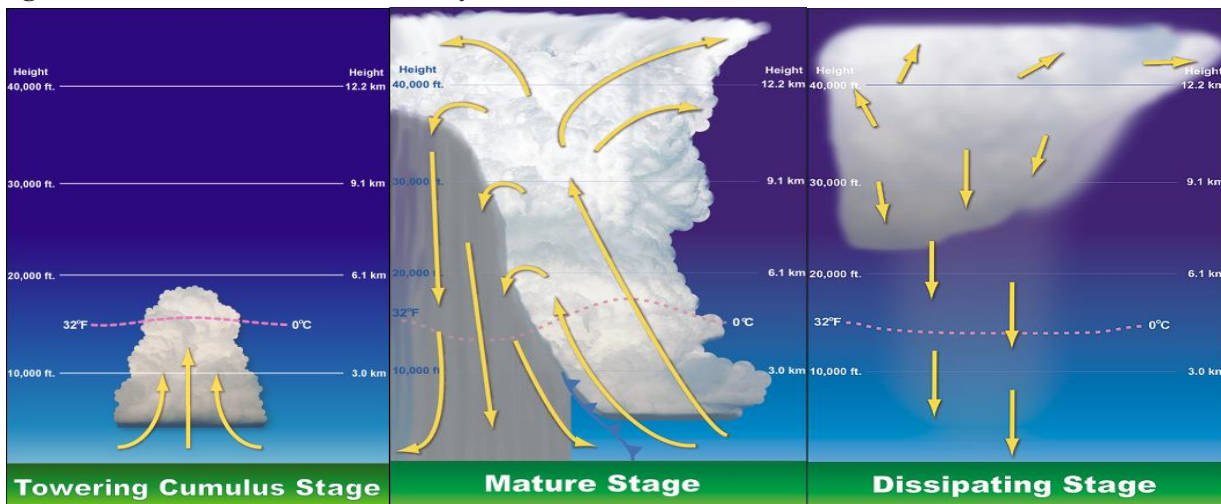
Source: National Center for Environmental Information (NCEI), 2022

5.0 Wind Hazard Profile

Wind is the motion of air past a given point caused by a difference in pressure from one place to another. The effects can include blowing debris, interruptions in elevated power and communications utilities and intensified effects of winter weather. Two basic types of damaging wind events other than tropical systems affect Maryland: **synoptic-scale winds** and **thunderstorm winds**. Synoptic-scale winds are high winds that occur typically with cold frontal passages or Nor'easters. Downbursts cause the high winds in a thunderstorm.

When wind speeds exceed 58 mph, thunderstorms are considered severe. A downburst or sudden descent of cold air during a severe thunderstorm wind event can result in straight line winds up to 134 mph.

Figure 2.1 Thunderstorm Wind Life Cycle



Source: National Oceanic and Atmospheric Administration/ National Weather Service

5.1 Wind Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "High" risk to wind which includes synoptic-scale winds and thunderstorm winds.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked wind as a "Medium-High" risk. Future probability of flood was documented in the HIRA as "Likely."

Results of the *St. Mary's County Public Survey* ranked wind based on their level of concern as "Somewhat Concerned."

The *Town of Leonardtown Municipal Survey* ranked Wind based on their level of concern as "Somewhat Concerned."

5.2 Wind Hazard History

According to the National Center for Environmental Information (NCEI) database, approximately 158 thunderstorm wind event days were reported in St. Mary's County between January 1950 and January 2022, resulting in a total of nine (9) injury cases, \$1.457M in property damage, and \$22.60K in crop damage. The following eight (8) thunderstorms had winds of 70 knots or stronger.

Table 2.15

Thunderstorm Wind Events – 70 Knots or Stronger/80.57 MPH				
Date	Type	Magnitude	Property Damage	Crop Damage
10/03/1963	Thunderstorm Wind	73 kts./84.0 mph	\$0.00K	\$0.00K
05/13/1971	Thunderstorm Wind	77 kts./88.6 mph	\$0.00K	\$0.00K
07/09/1986	Thunderstorm Wind	70 kts./80.57 mph	\$0.00K	\$0.00K
06/26/1988	Thunderstorm Wind	89 kts./102.44 mph	\$0.00K	\$0.00K
05/04/1996	Thunderstorm Wind	70 kts./80.57 mph	\$5.00K	\$0.00K
06/24/1996	Thunderstorm Wind	70 kts./80.57 mph	\$85.00K	\$0.00K
10/14/2010	Thunderstorm Wind	78 kts. EG/89.78 mph	\$10.00K	\$0.00K
04/21/2021	Thunderstorm Wind	78 kts. EG/89.78 mph	\$87.50K	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

Note: EG is Estimated Gust; 1 knot = 1.151 mph

According to the National Center for Environmental Information (NCEI) database, fifteen (15) high wind events were reported in St. Mary's County, between January 1950 and January 2022 resulting in no injury cases, \$4.855M in property damage, and no crop damage.

Table 2.16

High Wind Events				
Date	Type	Magnitude	Property Damage	Crop Damage
10/08/1996	High Wind	-	\$30.00K	\$0.00K
01/14/2006	High Wind	50 kts. EG/57.55 mph	\$65.00K	\$0.00K
09/01/2006	High Wind	55 kts. EG/63.31 mph	\$3.300M	\$0.00K
04/16/2007	High Wind	52 kts. MG/59.85 mph	\$10.00K	\$0.00K
02/10/2008	High Wind	54 kts. MG/62.15 mph	\$0.00K	\$0.00K
05/11/2008	High Wind	50 kts. EG/57.55 mph	\$10.00K	\$0.00K
12/31/2008	High Wind	50 kts. MG/57.55 mph	\$0.00K	\$0.00K
09/30/2010	High Wind	52 kts. EG/59.85 mph	\$5.00K	\$0.00K
02/25/2011	High Wind	55 kts. MG/63.31 mph	\$0.00K	\$0.00K
10/29/2012	High Wind	56 kts. MG/64.46 mph	\$1.420M	\$0.00K
02/14/2015	High Wind	51 kts. MG/58.70 mph	\$0.00K	\$0.00K
04/02/2016	High Wind	51 kts. MG/58.70 mph	\$0.00K	\$0.00K

Date	Type	Magnitude	Property Damage	Crop Damage
04/02/2016	High Wind	50 kts. EG/57.55 mph	\$0.00K	\$0.00K
03/02/2018	High Wind	60 kts. MG	\$0.00K	\$0.00K
10/11/2018	High Wind	54 kts. EG	\$10.00K	\$0.00K
04/13/2020	High Wind	55 kts. MG	\$5.00K	\$0.00K
Total			\$4.855M	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

Note: EG is Estimated Gust and MG is Measured Gust 1 knot = 1.151 mph

According to the NCEI database, fourteen (14) strong wind events were reported in St. Mary's County, between January 1950 and January 2022 resulting in no injury cases, \$82.60K in property damage, and \$75.0K in crop damage. The following strong wind events resulted in property and/or crop damages.

Table 2.17

Strong Wind Events				
Date	Type	Magnitude	Property Damage	Crop Damage
01/28/1998	Strong Wind		\$30.0K	\$0.0K
02/04/1998	Strong Wind		\$50.0K	\$75.0K
02/23/2003	Strong Wind	30 kts. EG	\$0.10K	\$0.0K
06/01/2003	Strong Wind	37 kts. MG	\$0.50K	\$0.0K
11/13/2003	Strong Wind	38 kts. EG	\$2.0K	\$0.0K
Total			\$82.60K	\$75.0K

Source: National Center for Environmental Information (NCEI), 2022

Note: EG is Estimated Gust and MG is Measured Gust 1 knot = 1.151 mph

6.0 Tornado Hazard Profile

A tornado is a violently rotating funnel-shaped column of air that extends from a thunderstorm cloud toward the ground. Tornadoes can touch the ground with winds of over 300 mph. While relatively short-lived, tornadoes are intensely focused and are one of nature's most violent storms.

Tornadoes can be ranked by intensity by using the Fujita Scale devised by Dr. Theodore Fujita at the University of Chicago in 1971. The Fujita Damage Scale (F-Scale) is used to determine the tornado strength based on observed damage. The Fujita Tornado Scale assigns a category to tornados based on their wind speed and relates this to the general type of damage that is expected. The damage scale increases in intensity from a weak Fo (40 to 70 mph wind) to a F5 (over 260 mph wind). The Fujita scale of tornado intensity indicates that tornadoes at the Fo classification cause light damage to chimneys, tree branches, and signboards. Tornadoes of F1 magnitude can cause moderate damage to road surfaces, automobiles, and mobile homes. The impact of tornadoes primarily depends upon their occurrence in developed areas-tornadoes in undeveloped areas can cause damage only to a few trees and even go unreported.

According to NOAA, the Enhanced Fujita (EF) Scale has replaced the original Fujita (F) Scale used to rate tornadoes by the NWS. The EF Scale improves upon the limitations of the original F Scale, which has been used since 1971. The tornado rating categories of the EF Scale range from zero to five, with EFO as having the lowest wind speed and EF5 as having the highest wind speed. A correlation between the two scales has been developed and this makes it possible to express ratings in term of one scale to the other, thus preserving the historical database. The major improvements of the EF Scale are the more accurate wind speed ranges in each category and an increase in the amount of detail that goes into determining a tornado rating. These improvements will allow for more consistent and accurate tornado ratings by the NWS.

Table 2.18

Enhanced Fujita (EF) Scale						
Fujita Scale			Wind Speed		Typical Damage	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Source: Noaa.gov

6.1 Tornado Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium-High" risk to the tornado hazard.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked tornado as a "Medium-High" risk. Future probability of flood was documented in the HIRA as "Occasional."

Results of the *St. Mary's County Public Survey* ranked tornado based on their level of concern as "Somewhat Concerned."

The *Town of Leonardtown Municipal Survey* ranked Tornado based on their level of concern as "Somewhat Concerned."

6.2 Tornado Hazard History

Based on data from the National Center for Environmental Information, St. Mary's County experienced twenty-five (25) tornado event days between January 1950 and January 2022 resulting in a total of four injury cases, \$4.120M in property damage, and \$21.00K in crop damage (not included in the property damage table below). The following ten tornado events caused \$25K or more in property damages:

Table 2.19

Tornado Event – 25K & Over in Property Damage				
Date	Type	Magnitude	Property Damage	Beginning Location
09/05/1979	Tornado	F1	\$25.00K	Piney Point
10/13/1983	Tornado	F2	\$25.00K	Hollywood
05/08/1984	Tornado	F1	\$2.500M	Chaptico
05/08/1984	Tornado	F1	\$250.00K	Mechanicsville
11/11/1995	Tornado	F0	\$75.00K	Hollywood
07/13/1996	Tornado	F1	\$100.00K	California
05/07/2003	Tornado	F0	\$25.00K	Thompson Corner
05/07/2003	Tornado	F0	\$25.00K	Oakville
06/27/2006	Tornado	F0	\$1.000M	Mechanicsville
04/28/2011	Tornado	EF1	\$35.00K	Abells Wharf

Source: National Center for Environmental Information (NCEI), 2022

7.0 Thunderstorm Hazard Profile

Thunderstorms are forms of convection produced when warm moist air is overrun by dry cool air. As the warm air rises, thunderhead clouds (cumulonimbus) form and cause the strong winds, **lightning**, **thunder**, **hail** and **rain** associated with these storms. Instability can be caused by surface heating or upper-tropospheric (~50,000 feet) divergence of air (rising air parcels can also result from airflows over mountainous areas). Generally, the former “air mass” thunderstorms form on warm-season afternoons and are not severe. The latter “dynamically-driven” thunderstorms generally form in association with a cold front or other regional-scaled atmospheric disturbance. These storms can become severe, thereby producing strong winds, **frequent lightning**, **hail**, downbursts and even tornadoes.

Lightning is “a visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud.”

At any given time, there are nearly 2,000 thunderstorms in progress over the earth's surface. There are at least 100,000 thunderstorms annually across the United States. To the public, lightning is often perceived as a minor hazard. However, lightning-caused damage, injuries, and deaths establish lightning as a significant hazard associated with any thunderstorm in any area of Maryland.



Damage from lightning occurs four ways: (1) electrocution/severe shock of humans and animals, (2) vaporization of materials along the path of the lightning strike, (3) fire caused by the high temperatures associated with lightning (10,000-60,000°F) and (4) the sudden power surge that can damage electrical/electronic equipment. Large outdoor gatherings (e.g., sporting events, concerts, campgrounds, etc.) are particularly vulnerable to lightning strikes that could result in injuries and deaths.

Most of the "damaging" hailstones vary between the sizes of a golf ball ("severe") to the size of a softball or larger ("oversized"). According to the National Weather Service, most of the United States experiences "severe" and "oversized" hailstorms. The largest recorded hailstone in the United States fell in Vivian South Dakota, on 23 July 2010, and measured more than 8 inches in diameter and weighed 1.94 pounds, generating an impact force of 578 lb-ft (pound-foot). Hailstorms occur all year around, at all times of the day, but are more frequent in the summer months, in the evenings, and after sunset.

7.1 Thunderstorm Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a “Medium-High” risk to thunderstorm which includes hail and lightning.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked thunderstorm, which includes hail and lightning as a “Medium-High” risk. Future probability of flood was documented in the HIRA as “Highly Likely.”

Results of the *St. Mary's County Public Survey* ranked thunderstorm based on their level of concern as “Somewhat Concerned.” Results of the *Town of Leonardtown Municipal Survey* ranked Thunderstorm based on their level of concern as “Somewhat Concerned.”

7.2 Lightning & Hail Hazard History

There have been sixteen (16) major lightning events in St. Mary's County between January 1950 and January 2022, resulting in \$662K worth of property damage. No injuries, fatalities, or crop damage were reported. The following seven lightning events had \$20K or more in property damages:

Table 2.20

Lightning Events – 20K & Over in Property Damages		
Date	Type	Property Damage
05/04/1996	Lightning	\$30.00K
06/24/1996	Lightning	\$20.00K
06/26/1998	Lightning	\$25.00K
07/15/2000	Lightning	\$20.00K
07/16/2000	Lightning	\$160.00K
06/17/2004	Lightning	\$120.00K
06/04/2008	Lightning	\$250.00K

Source: National Center for Environmental Information (NCEI), 2022

A total of fifty-three (53) hail events were reported in the county between January 1950 and January 2022. No fatalities or injuries were reported in these cases. The county incurred \$12.0K in property damage. No crop damage was reported. Four hail events with 2-inch hail or larger are shown in Table 2.21.

Table 2.21

Hail Events – 2 Inches and Larger			
Date	Type	Magnitude	Property Damage
06/09/1987	Hail	2.00 in.	\$0.00K
05/04/1996	Hail	2.00 in.	\$5.00K
08/19/2009	Hail	2.75 in.	\$0.00K
06/13/2013	Hail	2.75 in.	\$0.00K

Source: National Center for Environmental Information (NCEI), 2022

8.0 Drought & Extreme Heat Hazard Profile

Droughts are periods of time when natural or managed water systems do not provide enough water to meet established human and environmental uses because of natural shortfalls in precipitation or stream flow. Although maintaining water supplies for human use is an important aspect of drought management, drought can also have many other dramatic and detrimental effects on the environment and wildlife. Extreme Heat is oftentimes associated with drought.

Droughts result from prolonged periods of dry weather accompanied by extreme heat. They usually begin during the summer months (July and August). The warmest time of the year is July when maximum temperatures average 89 degrees. Extreme temperatures of 100 degrees occur occasionally. The occurrence of drought cannot be predicted. The usual length of time does not exceed 6 weeks in mid-summer.

When drought begins, agriculture is usually first to be affected because of its heavy dependence on stored soil moisture. Soil moisture can be rapidly depleted during extended dry periods. Dry land farming and ranching are the most at risk from drought. Water uses depending on in stream flows, such as irrigated farms; aquatic, wetland, and riparian environmental communities; and recreational uses are at high risk but less exposed. Urban and agricultural water users who rely on wells, which are dependent on aquifers, are the first to feel the effects of drought.

According to the National Weather Service, an extreme heat advisory is issued within 12 hours of the onset of the following conditions: heat index of at least 105°F but less than 115°F for less than 3 hours per day, or nighttime lows above 80°F for 2 consecutive days.

8.1 Drought & Extreme Heat Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium High" risk to drought and "Medium" risk for excessive temperatures.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked drought as a "Medium" risk and extreme heat as "Medium-High." Future probability of drought was documented in the HIRA as "Likely," while extreme heat is "Highly Likely."

Results of the *St. Mary's County Public Survey* ranked drought and extreme heat based on their level of concern as "Somewhat Concerned."

The *Town of Leonardtown Municipal Survey* ranked Drought and Extreme Heat based on their level of concern as "Somewhat Concerned."

8.2 Drought & Extreme Heat Hazard History

Data in Table 2.17 reveal that St. Mary's County experienced twelve (12) drought periods between January 1950 and January 2022. No fatalities, injuries, or property damage was reported. The 12 drought events are listed below:

Table 2.22

Drought Events				
Date	Type	Property Damage	Crop Damage	
08/01/1998	Drought	\$0.00K	\$0.00K	
10/01/1998	Drought	\$0.00K	\$0.00K	
11/01/1998	Drought	\$0.00K	\$1.670M (statewide)	
12/01/1998	Drought	\$0.00K	\$0.00K	
05/01/1999	Drought	\$0.00K	\$0.00K	
06/01/1999	Drought	\$0.00K	\$0.00K	
07/01/1999	Drought	\$0.00K	\$0.00K	
08/01/1999	Drought	\$0.00K	\$0.00K	

Date	Type	Property Damage	Crop Damage
09/01/1999	Drought	\$0.00K	\$0.00K
07/17/2007	Drought	\$0.00K	\$0.00K
08/01/2007	Drought	\$0.00K	\$0.00K
10/01/2007	Drought	\$0.00K	\$0.00K
Total		\$0.00K	\$1.670M

Source: National Center for Environmental Information (NCEI), 2022

The drought event that caused \$1.670 million in crop damage (statewide) was due to November being the fifth month in a row that drought conditions were seen across Maryland. Persistent high pressure over the Southeast U.S. forced most rain producing low pressure systems to steer north of the region. Water levels and reserves were greatly affected by the persistent drought. The level of two reservoirs along the Patuxent River were 10 to 12 feet below normal during the month. The U.S. Geological Survey reported the flow of the Potomac River through Little Falls, MD (near Washington D.C.) was 39% of median flow, and several upstream tributaries were at record low levels. The agricultural community continued to be hard hit by the persistent drought. By November 20th, 80% of topsoil moisture across the state was rated short or very short. The persistent drought contributed \$40 million in damage to the fall harvest. The lack of precipitation continued to have a negative impact on winter crops such as wheat, barley, and rye. Winter grain crops were only half as tall as they should have been at the end of November. Some farmers opted to not plant winter crops this year due to the lack of moisture.

Based on data from the National Center for Environmental Information (NCEI), there have been six (6) incidents of excessive heat between January 1950 and January 2022, resulting in no deaths or injuries, as well as no property damage or crop damage. The six extreme heat events are listed below:

Table 2.23

Excessive Heat Events		
Date	Type	Temperatures
01/02/2000	Excessive Heat	60-70 degrees
07/22/2011	Excessive Heat	114 degrees
06/29/2012	Excessive Heat	110-112 degrees
07/20/2019	Excessive Heat	110-112 degrees
07/21/2019	Excessive Heat	110-112 degrees
07/20/2020	Excessive Heat	110-115 degrees

Source: National Center for Environmental Information (NCEI), 2022

9.0 Wildfire Hazard Profile

A wildfire is an uncontrolled fire spreading through vegetative fuels, threatening and possibly consuming structures and other community assets. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that can be seen for miles. A wildland fire is a fire in an area in which development is almost nonexistent, except for roads, power lines and similar facilities. An urban-wildland interface fire is a wildfire in an area where structures and other human development meet or intermingle with wildland or vegetative fuels.

9.1 Wildfire Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium" risk to wildfire.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked wildfire as a "Medium-High" risk. Future probability of wildfire was documented in the HIRA as "Highly Likely."

Results of the *St. Mary's County Public Survey* ranked wildfire based on their level of concern as "Not Concerned."

The *Town of Leonardtown Municipal Survey* ranked Wildfire based on their level of concern as "Somewhat Concerned."

9.2 Wildfire Hazard History

Data from the Maryland Department of Natural Resources Forest Service indicates a total of 456 fires occurred in the county between 2000 and 2020, damaging approximately 342.3 acres. The largest number of fires occurred in 2007 with 71 fires, which damaged approximately 66.7 acres of land within St. Mary's County. Every year there is the potential for property damage including outbuildings, automobiles, boats, propane tanks, fences, and porch decks. Houses have been threatened by these wildfires, but none have been destroyed. Based on the data, the implementation of best management practices has drastically reduced the number of wildfires occurring each year.

Table 2.24

Wildfire Events					
Year	Number of Fires	Acres Burned	Year	Number of Fires	Acres Burned
2000	17	10.6	2011	5	0.7
2001	59	38.7	2012	16	20.6
2002	57	33.1	2013	4	3.5
2003	9	4.5	2014	5	7.2
2004	23	25.0	2015	14	3.5
2005	25	9.9	2016	2	0.3
2006	55	12.7	2017	3	7.0
2007	71	66.7	2018	1	1.5
2008	36	12.8	2019	8	4.1
2009	35	18.5	2020	4	55.6
2010	7	5.8	Total	456	342.3

Source: Maryland Forest Service

10.0 Dam Failure Hazard Profile

The National Inventory of Dams (NID) documents all known dams in the United States and its territories that meet certain criteria. It is designed to provide a variety of users the ability to search for specific data about dams in the United States and serves as a resource to support awareness of dams and actions to prepare for a dam-related emergency.

The U.S. Army Corps of Engineers (USACE) is responsible for maintaining the inventory and works in close collaboration with federal dam regulating agencies, including federal and state dam regulating agencies, to obtain accurate and complete information about dams in the database.

The database contains information about a dam's location, type, size, purpose, uses and benefits, date of last inspection, other structural and geographical information and much more.

The NID is the central information source for dams in the United States and its territories. Recent updates to the site support a wider variety of users, such as emergency managers, safety professionals, infrastructure owners, community leaders, business owners, and residents, understand the relationship between dams and their surrounding communities. The [new features](#) include:

- Public sharing of dam flood inundation maps (initially USACE only)
- Real-time data input and download
- User-friendly search functions
- Learning center for additional dam-related resources
- Additional information to explain benefits and risks of USACE dams

10.1 Dam Failure Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium-Low" risk to Dam Failure.

Future probability of Dam Failure is designated as "Not Likely."

Results of the *St. Mary's County Public Survey* ranked Dam Failure based on their level of concern as "Not Concerned."

The *Town of Leonardtown Municipal Survey* ranked Dam Failure based on their level of concern as "Not Concerned."

10.2 Dam Failure Hazard History

According to the National Inventory of dams, St. Mary's County has no reported dam failures.

The **National Inventory of Dams** contains information for more than 91,000 dams that meet the following criteria:

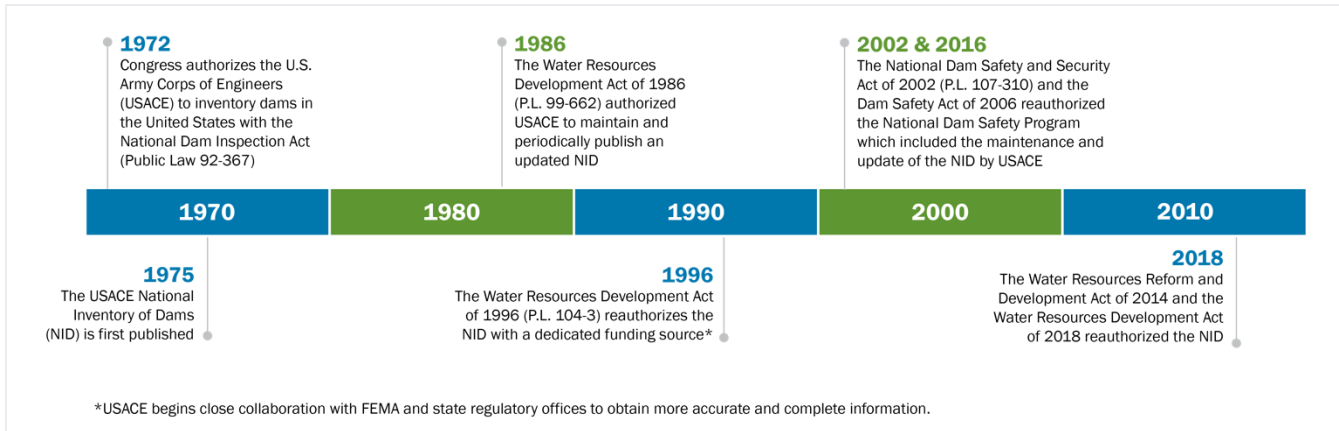
- Dams where downstream flooding would likely result in loss of human life (high hazard potential).
- Dams where downstream flooding would likely result in disruption of access to critical facilities, damage to public and private facilities, and require difficult mitigation efforts (significant hazard potential).
- Dams that meet minimum height and reservoir size requirements, even though they do not pose the same level of life or economic risk as those above – these dams are typically equal to or exceed 25 feet in height and exceed 15 acre-feet in storage, or equal to or exceeding 50 acre-feet storage and exceeding 6 feet in height.

Table 2.25

Total Dam Failure Hazard Risk Assessment Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$0	\$0	8 Dams in County – Mainly Central = 60%	No Dam Failure Events Reported

Source: National Inventory of Dams - <https://nid.usace.army.mil/#/>

Congress first authorized the U.S. Army Corp of Engineers to inventory dams in the United States with the National Dam Inspection Act of 1972. The NID was first published in 1975. Most recently the inventory was reauthorized as part of the Water Resources Reform and Development Act of 2018.



There are eleven (11) dams listed in the Maryland Department of the Environment (MDE) – [Maryland Dam Inventory](#) within St. Mary’s County.

Table 2.26

Dams in St. Mary’s County		
Name	Hazard Classification	Type of Dam
St. Mary’s River Watershed Site #1	High	Earth
Breton Bay Golf & Country Club Dam	Significant	Earth
Ledford Pond Dam	Significant	Earth
Tower Hill Community Pond Dam	Significant	Earth, Rockfill
Wildewood Community Dam	Low	Earth
Claire Peake Dam	Low	Earth
Holton Pond Dam	Low	Earth
Norris Dam	Low	Earth
Claude Johnson Dam	Low	Earth
Mill Pond	Low	Earth
Wildewood Dam on St. Mary’s River	Low	Earth

Source: National Inventory of Dams & Maryland Department of the Environment – Maryland Dam Inventory

Three classification levels are adopted as follows: LOW, SIGNIFICANT, and HIGH, listed in order of increasing adverse incremental consequences. MDE provides dam ratings based on an analysis of potential impacts in the event of a dam failure. The Dam Ratings are defined by MDE as follows:

High Hazard: Failure would likely result in loss of human life, extensive property damage to homes and other structures, or cause flooding of major highways such as State roads or interstates.

Significant Hazard: Failure could possibly result in loss of life or increase flood risks to roads and buildings, with no more than 2 houses impacted and less than six lives in jeopardy.

Low Hazard Dam: Failure is unlikely to result in loss of life and only minor increases to existing flood levels at roads and buildings is expected.

11.0 Pandemic & Emerging Infectious Disease Hazard Profile

The *Maryland Department of Health's Emerging Infectious Plan* defines Emerging Infectious Diseases as the following:

- An infectious disease that is novel or new to a geographic area;
- An existing infectious disease that is causing a marked increase in cases or geographic spread; or,
- A biological agent used to cause harm or death in a population (bioterrorism).

Epidemics can be considered as part of a broad hazard category that could be termed “public health emergencies.” In addition to disease epidemics, such events can take the form of large-scale incidents of food or water contamination, infestations of disease bearing insects or rodents, or extended periods without adequate water or sewer service. Epidemics may also be secondary to some other disaster such as flood, tornado, and hurricane or HazMat incident.

Pandemics cause a short-term fiscal impact and a long-term economic impact on the nations around the world. Pandemics have significant social and political impacts such as clashes between nations, population displacement, and increased social tension and discrimination. Modern pandemics have subtle social disruptions such as anxiety, social isolation, fear-inducing behavior, and economic hardships.

Examples of pandemics include:

- Novel Covid-19 Virus;
- Novel Influenza (H1N1); and,
- Severe Acute Respiratory Syndrome (SARS).

The World Health Organization (WHO) defines an **epidemic** as the occurrence in a community or region of cases of an illness, specific health-related behavior, or other health-related events clearly more than normal expectancy. The community or region and the period in which the cases occur are specified precisely. The number of cases indicating the presence of an epidemic varies according to the agent, size, and type of population exposed, previous experience or lack of exposure to the disease, and time and place of occurrence.

Examples of epidemics include:

- Zika Virus; and,
- Ebola.

Emerging Infectious Diseases

(EIDs) are serious public health threats, globally as well as in the WHO South-East Asia Region. An emerging infectious disease is one that either has appeared and affected a population for the first time, or has existed previously but is rapidly spreading, either in terms of the number of people getting infected, or to new geographical areas.

Source: World Health Organization. Regional Office for South-East Asia. (2014). A brief guide to emerging infectious diseases and zoonoses. WHO Regional Office for South-East Asia. <https://apps.who.int/iris/handle/10665/204722>

An emerging infectious disease is one that has appeared and affected a population for the first time, or has existed previously but is rapidly increasing, either in terms of the number of new cases within a population, or its spread to new geographical areas.

Also grouped under emerging infectious diseases are those that have affected a given area in the past, declined, or were controlled, but are again being reported in increasing numbers. Sometimes an old disease appears in a new clinical form that may be severe or fatal. These are known as re-emerging diseases, a recent example of which is chikungunya in India.

Source: WHO Library Cataloguing-in-Publication data World Health Organization, Regional Office for South-East Asia. A brief guide to emerging infectious diseases and zoonoses. 1. Communicable Diseases, Emerging 2. Zoonoses – epidemiology – prevention and control. 3. Virus Diseases. 4. Bacterial Infections. 5. Parasitic Diseases. 6. Pest Control ISBN 978-92-9022-458-7 (NLM classification: WA 110)

11.1 Pandemic & Emerging Infectious Disease Hazard Risk Ranking

The *2021 State of Maryland Hazard Mitigation Plan* indicates that St. Mary's County has a "Medium" risk to the Public Health hazards which include Endemic, Epidemic, Pandemic, Outbreak, Biological Agent/Toxin.

The new *2022 Hazard Identification and Risk Assessment (HIRA)* completed for this plan update ranked Pandemic & Emerging Infectious Disease as a "High" risk. Future probability of Pandemic & Emerging Infectious Disease was documented in the HIRA as "Highly Likely."

Results of the *St. Mary's County Public Survey* ranked Pandemic & Emerging Infectious Disease based on their level of concern as "Somewhat Concerned."

The *Town of Leonardtown Municipal Survey* ranked Pandemic & Emerging Infectious Disease based on their level of concern as "Somewhat Concerned."

11.2 Pandemic & Emerging Infectious Disease Hazard History

Our past shared experience worldwide indicates pandemics and emerging infectious diseases are a public health threat. Due to travel and globalization infectious disease can easily cross borders and spread across continents.

Various emerging and re-emerging diseases are zoonotic in origin, meaning that the disease has emerged from an animal and crossed the species barrier to infect humans. Approximately 60% of all human infectious diseases recognized so far, and about 75% of emerging infectious diseases that have affected people over the past three decades, have originated from animals ⁴. Several countries in the World Health Organization (WHO) South-East Asia Region have conditions that favor the emergence of such diseases, many of which can be lethal and spread rapidly. Scientific research on 335 emerging diseases between 1940 and 2004 indicated that certain areas of the world are more likely to experience the emergence of new infectious diseases ³. Among these global "hotspots" for emerging infectious diseases are countries related to the Indo-Gangetic Plain and the Mekong River Basin. Nipah virus, Crimean-Congo hemorrhagic fever and avian influenza A(H5N1) are examples of diseases that have recently emerged and have affected the WHO South-East Asia Region.

Many factors precipitate the emergence of new diseases, as they enable infectious agents to evolve into new ecological niches, to reach and adapt to new hosts, and to spread more easily among the new hosts. These factors include urbanization and destruction of natural habitats, leading to humans and animals living in close proximity; climate change and changing ecosystems; changes in populations of reservoir hosts or intermediate insect vectors; and microbial genetic mutation. Consequently, the impact of an emerging disease is difficult to predict but could be significant, as humans may have little or no natural immunity to the disease.

Source: WHO Library Cataloguing-in-Publication data World Health Organization, Regional Office for South-East Asia. A brief guide to emerging infectious diseases and zoonoses. 1. Communicable Diseases, Emerging 2. Zoonoses – epidemiology – prevention and control. 3. Virus Diseases. 4. Bacterial Infections. 5. Parasitic Diseases. 6. Pest Control ISBN 978-92-9022-458-7 (NLM classification: WA 110)

The Center for Infectious Disease Surveillance and Outbreak Response monitors the occurrence of infectious disease and takes action to prevent or control potential outbreaks and educates the public and health care providers about these diseases.

Reporting cases of known or suspected infectious diseases to public health authorities in Maryland serves to protect the public's health by ensuring the proper identification and follow-up of cases. Public health workers at both local and state levels follow individual cases to ensure proper treatment, identify potential sources of infection, provide education to reduce the risk of transmission, identify susceptible

contacts, and take other measures aimed at reducing the spread of disease. Analysis of data across all cases helps to monitor the impact of those conditions, measure trends, identify areas of risk, detect outbreaks, monitor control efforts, and allocate resources effectively. The Maryland Code of Regulations stipulates what conditions should be reported, who should report (mostly health care providers and laboratories), how reporting should occur, where reports are sent, important timelines, and when laboratories should submit specimens to the state public health laboratory.

Table 2.27

Cases of Selected Notifiable Conditions Reported St. Mary's County, Maryland					
Condition	2015	2016	2017	2018	2019
Amebiasis	0	0	1	0	0
Anaplasmosis	0	1	0	0	0
Animal Bites	253	479	381	365	318
Babesiosis	0	1	0	0	0
Campylobacteriosis	6	11	7	9	13
Chlamydia	351	308	404	504	511
Creutzfeldt-Jakob Disease	1	0	0	0	0
Cryptosporidiosis	1	0	0	0	1
Cyclosporiasis	0	0	0	0	3
Dengue Fever	0	2	0	0	0
Ehrlichiosis	1	2	8	5	11
Giardiasis	2	0	1	1	3
Gonorrhea	38	127	95	165	314
H. influenzae – invasive disease	4	4	3	2	1
Hepatitis A (acute symptomatic)	4	2	0	0	1
Hepatitis B (acute symptomatic)	0	1	1	0	0
Hepatitis C (acute symptomatic)	4	1	0	2	1
Influenza Novel A Virus Infection	0	0	1	0	0
Kawasaki Syndrome	0	0	0	0	1
Legionellosis	1	1	1	1	0
Lyme Disease	53	53	67	30	37
Malaria	0	0	1	1	1
Meningitis, aseptic	9	2	3	3	3
Meningitis, fungal	0	0	0	2	2
Mycobacteriosis, Other than TB & Leprosy	11	13	20	12	3
Pertussis	4	2	0	9	6
Pneumonia – Hospitalized Healthcare Worker	2	1	1	1	0
Rabies - Animal	5	14	0	5	3
Salmonellosis – other than typhoid fever	21	20	15	16	10
Shiga toxin producing E. coli (STEC)	0	1	0	5	1
Shigellosis	0	0	1	2	2
Spotted Fever Rickettsiosis	2	0	4	15	13
Strep Group A – Invasive Disease	6	3	5	3	5
Strep Group B – Invasive Disease	15	11	11	7	7
Strep pneumoniae - Invasive Disease	9	8	9	6	8
Syphilis – primary and secondary	3	1	3	5	3
Tuberculosis	2	0	2	0	0
Vibriosis (non-cholera)	1	2	1	2	2
Yersiniosis	0	0	0	3	2
Zika virus disease, non-congenital	**	1	0	0	0
Zika virus infection, congenital	**	0	0	0	0
Zika virus infection, non-congenital	**	0	0	0	0
TOTALS:	809	1,072	1,045	1,181	1,286

Cases of Selected Notifiable Conditions Reported St. Mary's County, Maryland					
Condition	2015	2016	2017	2018	2019
Average Numbers of New Cases 2015-2019	1,078.6				
<p><i>* Data sources: Maryland's NEDSS and PRISM databases. Data is current as of 1/15/2021. These are active databases and counts may vary slightly over time, as well as differ slightly from counts published by the Centers for Disease Control and Prevention (CDC). HIV/AIDS data are not included here but available at http://phpa.dhmh.maryland.gov/OIDEOR/CHSE/SitePages/statistics.aspx.</i></p> <p><i>** Zika virus infections not reported for the years 2014 and 2015 in the database.</i></p>					

12.0 Summary of Events

Table 2.28 below lists the thirteen (13) presidential declarations that include St. Mary's County within the past 30 years.

Table 2.28

State of Maryland Presidential Declarations that include St. Mary's County				
Number	Date	State/Tribal Government	Incident Description	Declaration Type
4583	02/04/2021	Maryland	Tropical Storm Isaias	Major Disaster Declaration
4491	03/26/2020	Maryland	Covid-19 Pandemic	Major Disaster Declaration
3349	10/28/2012	Maryland	Hurricane Sandy	Emergency Declaration
4075	8/2/2012	Maryland	Severe Storms and Straight-line Winds	Major Disaster Declaration
4034	9/16/2011	Maryland	Hurricane Irene	Major Disaster Declaration
3335	8/27/2011	Maryland	Hurricane Irene	Emergency Declaration
1910	5/6/2010	Maryland	Severe Winter Storms and Snowstorms	Major Disaster Declaration
3251	9/13/2005	Maryland	Hurricane Katrina Evacuation	Emergency Declaration
1324	4/10/2000	Maryland	Winter Storm	Major Disaster Declaration
1303	9/24/1999	Maryland	Hurricane Floyd	Major Disaster Declaration
1081	1/11/1996	Maryland	Blizzard	Major Disaster Declaration
1016	3/16/1994	Maryland	Ice Storms, Severe Storm, Winter Storm	Major Disaster Declaration
3100	3/16/1993	Maryland	Severe Snowfall and Winter Storm	Emergency Declaration

Source: FEMA

Table 2.29 below provides a summary of the natural hazards as described herein, including total number of events, death/injury reports, and total property and crop damage estimates.

Table 2.29

Summary of Natural Hazard Events 1950 – January 2022					
Hazard Events	Total Events	Death	Injury	Property Damage	Crop Damage
Coastal Events	60	0	154	\$91.175M	\$50K
Winter Storm	100	0	0	\$15K	\$0K
Flood	99	0	0	\$788K	\$0K
Wind	187	0	9	\$6.3946M	\$97.6K
Tornado	25	0	4	\$4.12M	\$21K
Thunderstorm	69	0	0	\$674K	\$0K
Drought & Extreme Heat	18	0	0	\$0K	\$1.67M (statewide) \$72.6K (statewide/23 counties)
Wildfire	456	0	0	\$0	\$0
Total	1,014	0	167	\$103.167M	\$241.2K

Source: National Center for Environmental Information (NCEI), 2022

CHAPTER 3 – HAZARD RISK & VULNERABILITY

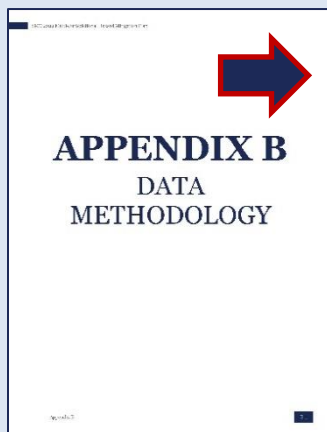
1.0 Hazard Risk & Vulnerability

Chapter 3 – Hazard Risk & Vulnerability has been organized by hazard type. Each hazard type includes information on hazard risk area(s), vulnerability, loss estimations, and consequence analysis.

- **Risk:** The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event.
- **Vulnerability:** The degree to which people, property, the environment, or social and economic activity are susceptible to injury, damage, disruption, or loss.
- **Loss Estimations:** An estimation of the total loss to the structure and contents in terms of replacement in like kind and quantity.
- **Consequence Analysis:** A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) is performed to better understand and outline the impacts from hazard events on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of St. Mary’s County, and public confidence in the local governance.

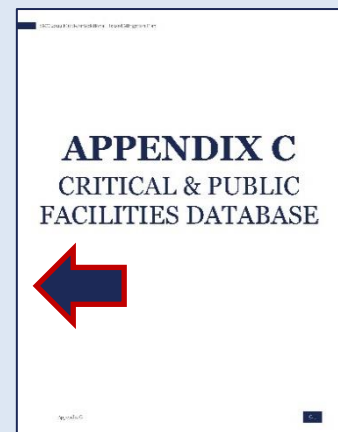
The first step in updating **Chapter 3 Hazard Risk & Vulnerability** included working with St. Mary’s County Department of Information Technology’s GIS and Addressing Supervisor to obtain current local data. Additional data obtained for this chapter included:

- Maryland Property View
- National Weather Service's SLOSH (Sea, Lake, and Overland Surge from Hurricanes) Model
- NOAA Sea Level Rise
- Coastal Resiliency Assessment - Maryland Shoreline Hazard Index
- 1% Annual Chance Flood Depth Grid



The methodology used for the facilities update is detailed in **Appendix B Data Methodology**.

All current data obtained was integrated into the updated **Appendix C Critical and Public Facilities Database**.



2.0 Coastal Hazards Risk & Vulnerability

Coastal hazards include:

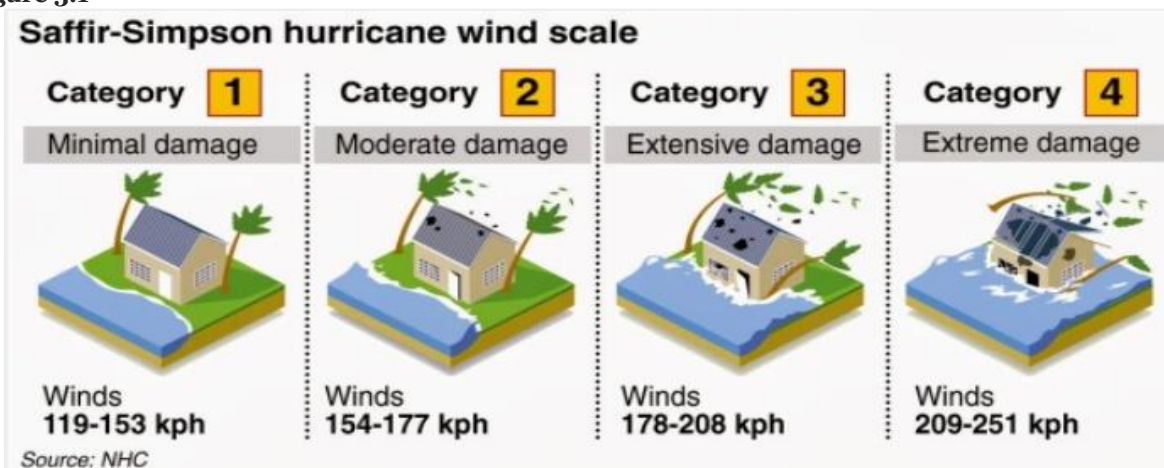
- Storm Surge (Hurricane, Tropical Storm, etc.);
- Sea Level Rise; and
- Shoreline Erosion.

2.1 Coastal Hazards Risk

Hurricane Storm Surge

Storm surge can be modeled by various techniques; one such technique is the use of the NWS's Sea, Lake and Overland Surges from Hurricanes (SLOSH) model. The classification of the surge inundation area is based on the hurricane category causing the flooding. As the category of the storm increases, more land area will become inundated. The SLOSH Basin used for mapping was Chesapeake Bay (CP5), released in 2014. This data was prepared by the U.S. Army Corps of Engineers, Baltimore District, Planning Division in January 2016. SLOSH storm tide elevations used for this mapping are based on the Maximum of Maximums (MOM) SLOSH output dataset. The MOM output elevations represent the highest calculated storm tide values based on thousands of SLOSH simulations using different combinations of approach direction, forward speed, landfall point, astronomical tide, and intensity (Category 1 through Category 4). Categories 1 through 4 refer to the Saffir-Simpson Scale of hurricane intensity (Chapter 2 – Table 2.1, page 2-2).

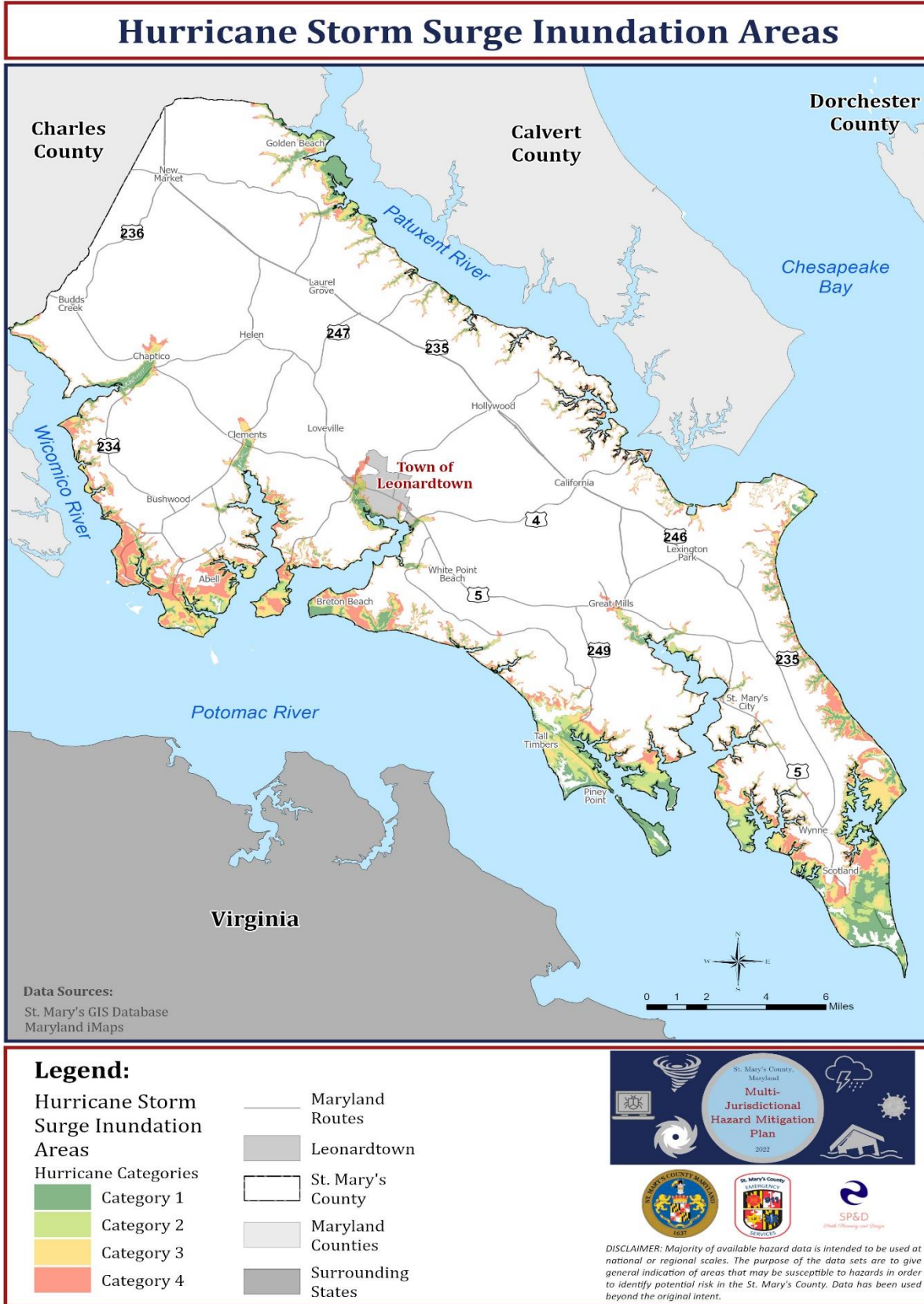
Figure 3.1



Source: <https://34kiwis.wordpress.com/2012/12/27/how-does-a-tropical-storm-form/>

Map 3.1 depicts hurricane storm surge inundation areas based on hurricane categories. All four storm surge inundation areas based on hurricane categories, 1 through 4, are depicted on the map below. This map does not reflect the expected storm tide flooding for every hurricane, or for any one particular type of hurricane. Instead, the data depicts an overall footprint of the area that has some risk of storm tide flooding from hurricanes, based on the MOM output dataset. The purpose of this data is to support hurricane emergency management planning activities. From the SLOSH maps, it may be concluded that the VE zones (an area inundated by 1% annual chance flooding with velocity hazard (action wave); base flood elevations have been determined) would be inundated during a Category 1 storm.

Map 3.1



Sea Level Rise

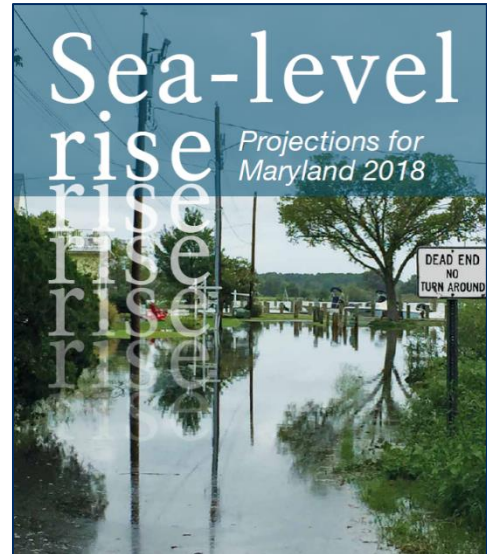
According to the NOAA’s Climate.gov’s article [Climate Change: Global Sea Level](#), the rising water level is mostly due to a combination of melt water from glaciers and ice sheets and thermal expansion of seawater as it warms. In 2020, global mean sea level was 3.6 inches above the 1993 average, making it the highest annual average in the satellite record (1993-present).

In order to fulfill the Maryland Commission on Climate Change Act of 2015, the 2018 Sea Level Rise Projections for Maryland report was developed. This report establishes science-based sea-level rise projections for Maryland’s coastal areas and is updated at least every 5 years by the University of Maryland Center for Environmental Science (UMCES).

Likely means a two-thirds chance of sea-level rise within that range.

The report states the “likely” range (66% probability) of the relative rise of mean sea level expected in Maryland between 2000 and 2050 is 0.8 to 1.6 feet, with about a one-

in-twenty chance it could exceed 2.0 feet and about a one-in one hundred chance it could exceed 2.3 feet. Rates of sea-level rise increasingly depend on the future pathway of global emissions of greenhouse gases during the next sixty years. If emissions continue to grow well into the second half of the 21st century, the “likely” range of sea level rise experienced in Maryland is 2.0 to 4.2 feet over this century.



Year	Emissions Pathway	Central Estimate 50% probability SLR meets or exceeds:	Likely Range 67% probability SLR is between:	1 in 20 Chance 5% probability SLR meets or exceeds:	1 in 100 Chance 1% probability SLR meets or exceeds:
2030		0.6 ft	0.4 – 0.9 ft	1.1 ft	1.3 ft
2050		1.2 ft	0.8 – 1.6 ft	2.0 ft	2.3 ft
2080	Growing	2.3 ft	1.6 – 3.1 ft	3.7 ft	4.7 ft
	Stabilized	1.9 ft	1.3 – 2.6 ft	3.2 ft	4.1 ft
	Paris Agreement	1.7 ft	1.1 – 2.4 ft	3.0 ft	3.2 ft
2100	Growing	3.0 ft	2.0 – 4.2 ft	5.2 ft	6.9 ft
	Stabilized	2.4 ft	1.6 – 3.4 ft	4.2 ft	5.6 ft
	Paris Agreement	2.0 ft	1.2 – 3.0 ft	3.7 ft	5.4 ft
2150	Growing	4.8 ft	3.4 – 6.6 ft	8.5 ft	12.4 ft
	Stabilized	3.5 ft	2.1 – 5.3 ft	7.1 ft	10.6 ft
	Paris Agreement	2.9 ft	1.8 – 4.2 ft	5.9 ft	9.4 ft

Source: [2018 Sea-level Rise Projections for Maryland](#)

Sea level rise driven by global warming will increase both high and low tide levels. Sea level is measured by two main methods: tide gauges and satellite altimeters. Tide gauge stations from around the world have measured the daily high and low tides for more than a century, using a variety of manual and automatic sensors. The tide gauge located in St. Mary's County is the Piney Point tide gauges.

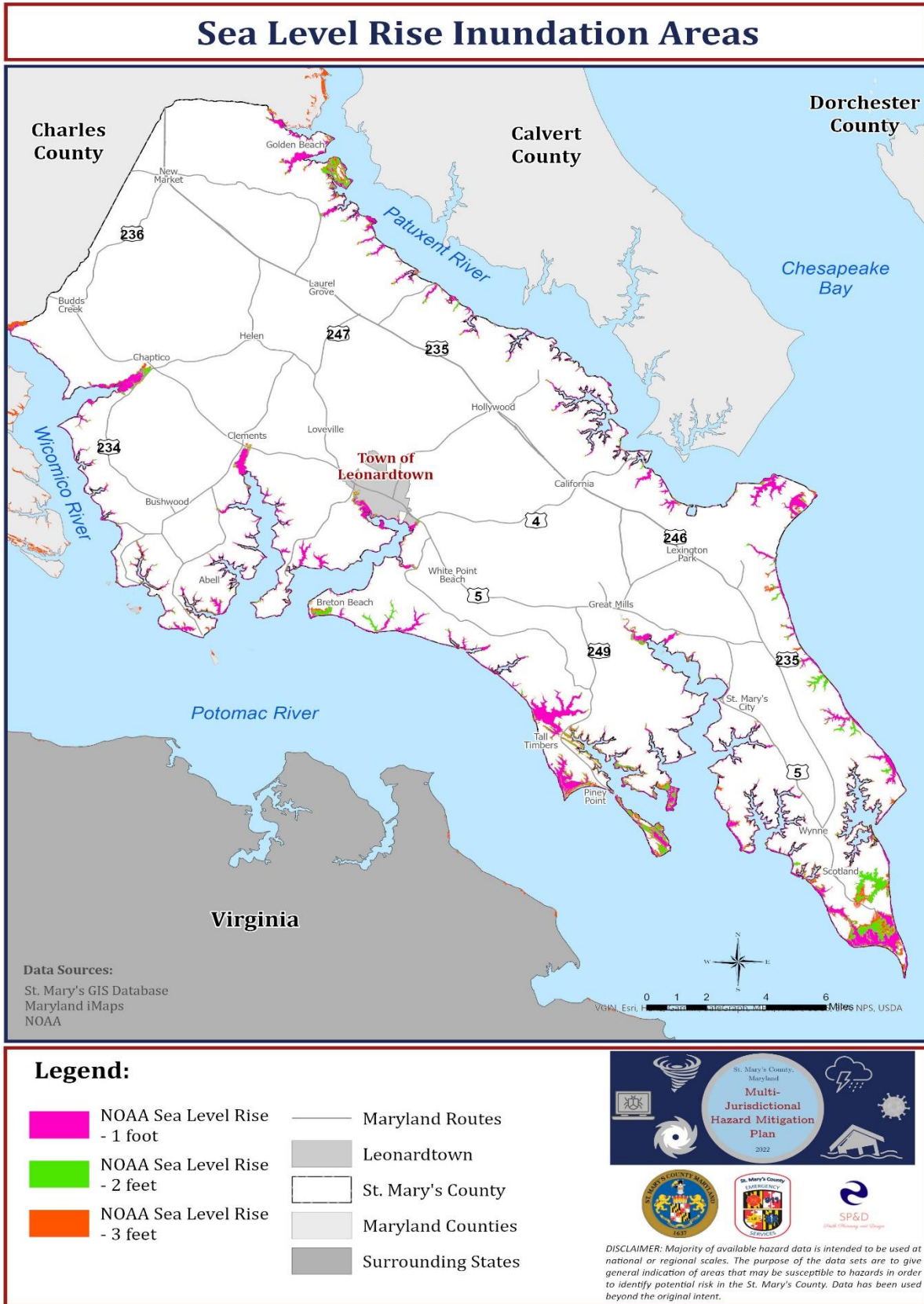
In 2019, [NOAA's Office for Coastal Management](#) released new Sea Level Rise data. The sea level rise layers show inland extent and relative depth of inundation above mean higher high water (MHHW). The sea level rise inundation areas are illustrated during the highest high tides (excludes wind-driven tides) with the sea level rise amount. These layers are projections and do not consider natural processes such as erosion, subsidence, or future construction.

Mean Higher High Water (MHHW) is the average height of the highest tide recorded at a tide station each day during the recording period.

([NOAA Digital Coast Sea Level Rise Viewer](#), January 2017: Frequently Asked Questions)

For the vulnerability assessment, both the sea level rise projections provided in the 2018 Sea Level Projections for Maryland for 2050, ranging from 0.8 to 1.6 feet and the 2019 NOAA Sea Level Rise data were used. Map 3.2 shows a range of sea level projections between 1 and 3 feet. Areas shown in pink indicate 1 foot in sea level rise, while 2 feet of sea level rise is denoted in bright green and 3 feet is depicted in orange. These depictions reflect permanent flood inundation area(s), they do not account for increased storm activity or storm surge. Areas of sea level rise, as depicted, indicate dry land that water will permanently submerge in the future.

Map 3.2



Shoreline Erosion

According to the [US Climate Resilience Toolkit](#), coastal erosion is the process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along the coast. All coastlines are affected by storms and other natural events that cause erosion; the combination of storm surge at high tide with additional effects from strong waves—conditions commonly associated with landfalling tropical storms—creates the most damaging conditions.

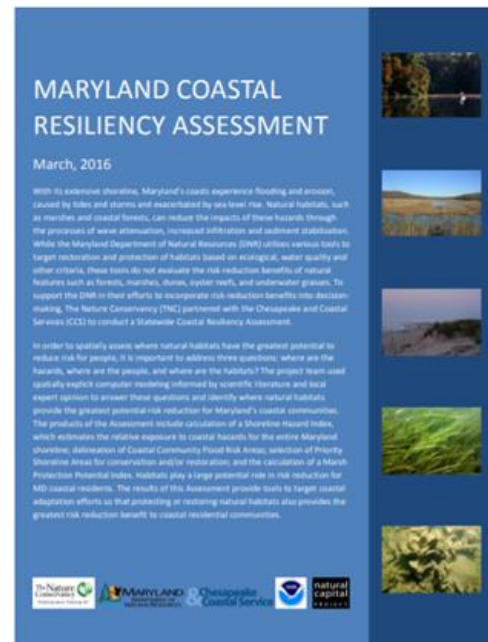
St Mary's is cradled between Potomac and Patuxent Rivers with 534 miles of shoreline. According to [St. Mary's Comprehensive Plan](#), the coastline of the County is diverse, ranging from steep bluffs to low eroding banks, from fringe marshes to wide sandy beaches and dunes, from wide tidal flats and winding tidal guts through marshes and estuaries. As the Bay's waters ebb and flood with the tides and waves formed by wind and storms, the shoreline is being continually worn down, moved, and rebuilt. Some of the impacts from shoreline erosion include the direct loss of land and its economic, cultural, and ecological values as well as the offsite impacts caused by increased sediment.



Source: Bank erosion due to vertical expansion of zone of wave influence. St. Clements I., Potomac R., St. Mary's Co. - S. Alexander (photographer), 2003, St. Mary's Co. Dept. of Public Works

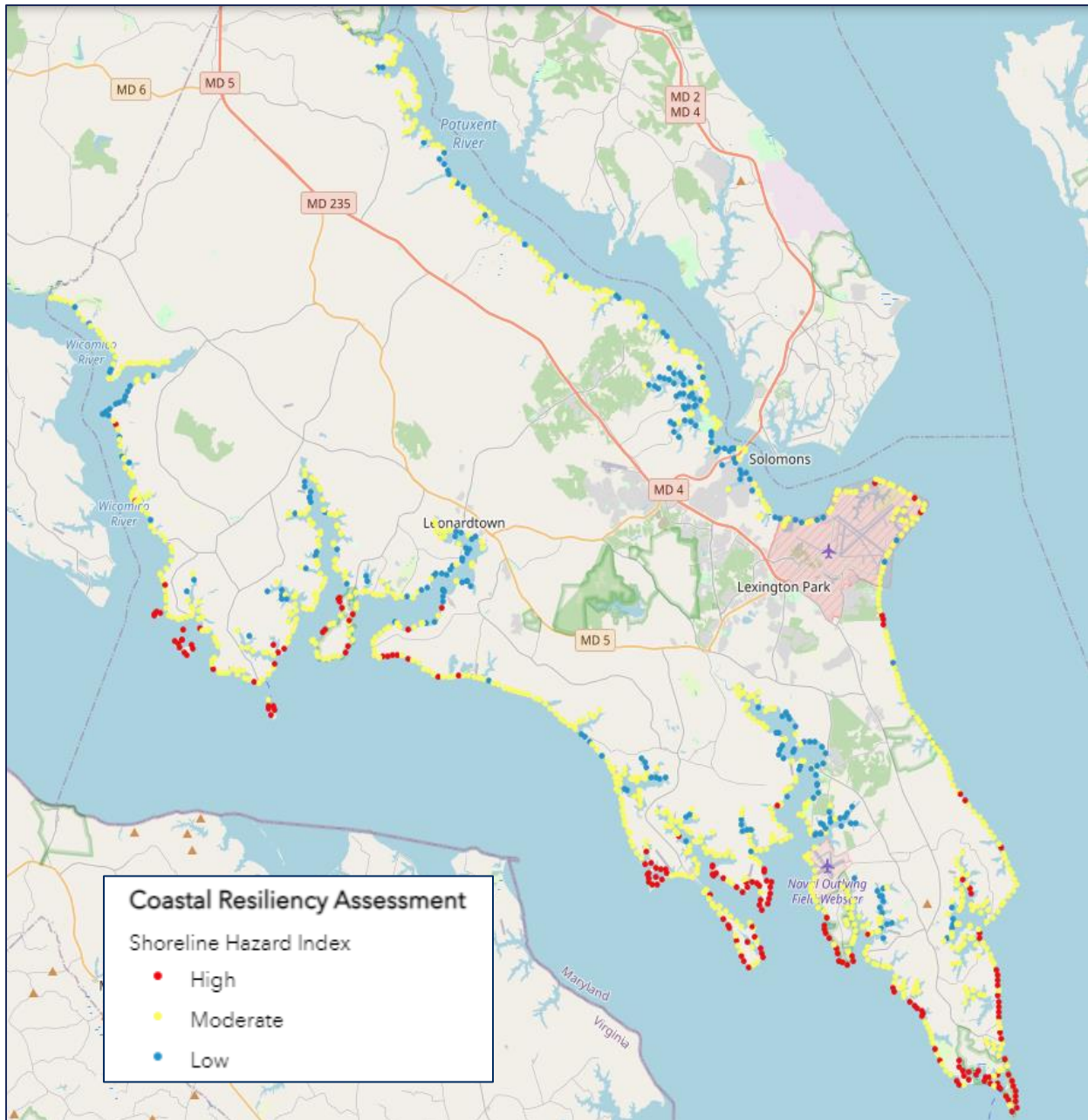
The [Maryland Coastal Resiliency Assessment](#), produced by the Maryland DNR, is a landscape-level spatial analysis and modeling effort that identifies where natural habitats provide the greatest potential risk reduction for coastal communities. In part, this assessment includes a **Shoreline Hazard Index**, which identifies high, moderate, and low hazard shorelines based on six (6) variables: **sediment type, historic erosion rates, elevation, localized sea level rise risk, wave power, and storm surge height**. Shoreline segments are represented by points every 250 meters along the shoreline. The shoreline hazard index also takes into consideration how protection due to natural habitats may change the ranking of a section of shoreline. Figure 3.2 shows the rankings without the presence of habitat and Figure 3.3 depicts how these rankings change with natural habitat. Habitats include tidal wetlands, marshes, vegetated buffers, oyster reeds, submerged aquatic vegetation, bay island, beaches, and dunes.

The Maryland analysis estimated the relative exposure of each 250-meter segment of the Maryland coastline to storm-induced erosion and flooding, and the relative effectiveness of existing natural habitats to buffer the shoreline from these hazards. The Shoreline Hazard Index, depicted in Figure 3.2, represents the relative exposure to coastal hazards for St. Mary's County shoreline. Exposure is rated high, moderate, and low.



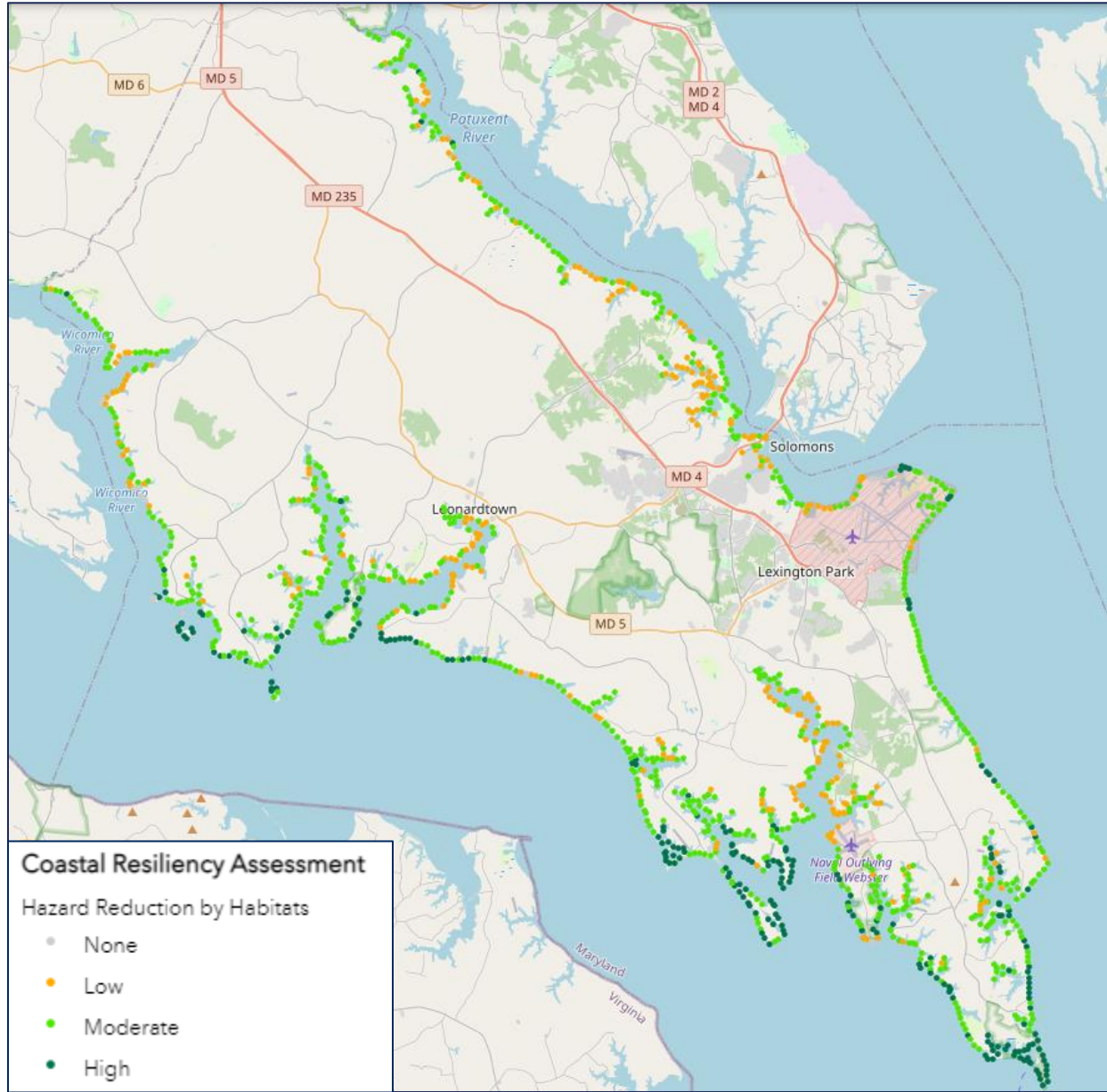
To calculate a Shoreline Hazard Index, representing the relative exposure of each segment to storm-induced erosion and flooding. Inputs to the model included 6 physical variables (geomorphology, elevation, sea level rise, wave power, storm surge height and erosion rates) and 5 habitat types (forest, marsh, dune, oyster reef and underwater grass). Two scenarios of the model were run: one scenario incorporating the protective role of all existing coastal habitats and the other scenario simulating the complete loss of habitats. **The difference between the two scenarios indicates the potential magnitude of coastal hazard reduction by habitats at each location.** Model results were integrated with MD DNR’s Community Flood Risk Areas (March 2016) in order to highlight areas where hazard reduction by habitats is most likely to benefit at-risk coastal

Figure 3.2 Shore Hazard Index Exposure Rates- Rankings without the presence of habitat



Source: [Maryland Coastal Atlas](#)

Figure 3.3 Shore Hazard Index Exposure Rates- Rankings with the presence of habitat



Source: [Maryland Coastal Atlas](#)

Note: Habitats include tidal wetlands, marshes, vegetated buffers, oyster reeds, submerged aquatic vegetation, bay island, beaches, and dunes.

2.2 Coastal Hazards Vulnerability

Hurricane Storm Surge

Storm surge inundation areas, critical and public facilities, building footprints and parcels were used to complete the storm surge vulnerability assessment. Critical and public facilities located within the hurricane storm surge inundation areas are listed in the table below.

Table 3.1

Hurricane Storm Surge Inundation Area – Critical & Public Facilities				
Facility Category	Facility Type	Facility Name	Street	City
Category 1				
Utility	Commercial Asset	Valero Pier	44701 Lighthouse Rd	Piney Point
Utility	Wastewater Station	Wastewater Station at 16668 Piney Point Rd	16668 Piney Point Rd	Piney Point
Utility	Sewer Pumpstation	St. George Island	16668 Piney Point Rd	Piney Point
Utility	Water Storage	Potomac Land Lodge	16810 Piney Point Rd	Piney Point
Category 2				
<i>Please note, all facilities listed in Categories 1 Hurricane Storm Surge are included in Category 2 Hurricane geographic extent.</i>				
School	Public Elementary School	Piney Point Elementary School	44550 Tall Timbers Rd	Tall Timbers
Utility	Power Substation	Power Substation	17799 Piney Point Rd	Piney Point
Utility	Wastewater & Pumpstations	Wastewater Station at 45271 Bloch Ave	45271 Bloch Ave	Piney Point
Utility	Wastewater Station	Wastewater Station at 35277 Golf Course Dr	35277 Golf Course Dr	Mechanicsville
Utility	(2) Well Sites & Storage	Water Station at 45271 Bloch Ave	45271 Bloch Ave	Piney Point
Utility	Well Site	Landings at Piney Point	17641 Driftwood Dr	Tall Timbers
Utility	Pumpstation	Glebe Run	24511 Point Lookout Rd	Leonardtown
Utility	Pumpstation	Wicomico Shores #3	35277 Golf Course Dr	Mechanicsville
Utility	Wastewater Station	Wastewater Station at 48841 Evergreen Park Rd	48841 Evergreen Park Rd	Lexington Park
Utility	Wastewater Station	Wastewater Station at 24511 Point Lookout Rd	24511 Point Lookout Rd	Leonardtown
Utility	Wastewater Station	Wastewater Station at 17831 Saint Georges Park Rd	17831 Saint Georges Park Rd	Tall Timbers
Utility	Pumpstation	Sheehan	17831 Saint Georges Park Rd	Tall Timbers
Utility	Pumpstation	Cedar Cove Marina Pump Station	18623 Cedar Cove Ln	Valley Lee

Category 3				
<i>Please note, all facilities listed in Categories 1 & 2 Hurricane Storm Surge are included in Category 3 Hurricane geographic extent.</i>				
Fuel	Fueling Station	St. Mary's Gas	23950 Colton Point Rd	Clements
Fuel	Fueling Station	CITGO	25965 Point Lookout Rd	Leonardtown
Utility	Commercial Assets	NuStar	17877 Piney Point Rd	Piney Point
Utility	Wastewater Station	Wastewater Station at 35420 Army Navy Dr	35410 Army Navy Dr	Mechanicsville
Utility	Well Site, Water Tower, Water Storage	Piney Point Landings	17741 Driftwood Dr	Tall Timbers
Utility	Well Site	Piney Point	45271 Bloch Ave	Piney Point
Utility	Pumpstation	St. Mary's City	47610 College Dr	Lexington Park
Utility	Wastewater Station	Wastewater Station at 17999 Driftwood Dr	18097 Driftwood Dr	Tall Timbers
Utility	Pumpstation	Evergreen Park	48841 Evergreen Park Rd	Lexington Park
Utility	Pumpstation	Piney Point Landings	17999 Driftwood Dr	Tall Timbers
Utility	Pumpstation	Wicomico Shores #2	35410 Army Navy Dr	Mechanicsville
Category 4				
<i>Please note, all facilities listed in Categories 1, 2 & 3 Hurricane Storm Surge are included in Category 4 Hurricane geographic extent.</i>				
Fuel	Fueling Station	Sheetz	20760 Old Great Mills Rd	Great Mills
Fuel	Fueling Station	Exxon	26065 Point Lookout Rd	Leonardtown
Utility	Power Substation	Power Substation 26030 Point Lookout Rd	26030 Point Lookout Rd	Leonardtown
Utility	Wastewater Station	Wastewater Station At 20208 Point Lookout Rd	20208 Point Lookout Rd	Great Mills
Utility	Wastewater Station	Wastewater Station At 48400 Surfside Dr	48400 Surfside Dr	Lexington Park
Utility	Pumpstation	Great Mills	20208 Point Lookout Rd	Great Mills
Utility	Pumpstation	Waters Edge	48400 Surfside Dr	Lexington Park
Utility	WWTP	Marlay Taylor	48020 Pine Hill Run Rd	Lexington Park
Utility	Wastewater Station	Wastewater Station At 20540 Pershing Dr	20540 Pershing Dr	Lexington Park
Utility	Pumpstation	Breton Bay		Leonardtown
Utility	Pumpstation	Pembroke	20540 Pershing Dr	Lexington Park
Utility	Pumpstation	St. George's Peninsulas	18550 Peninsulas Ct	Valley Lee

Category 1 Hurricanes and/or tropical storms are the most likely to storm impact Maryland. These storms tend to lose their intensity as they travel from their point of origin up the Atlantic coastline. Often these storm events are downgraded to a Tropical Storm or Depression by the time they reach Maryland.

Hurricane Category Winds

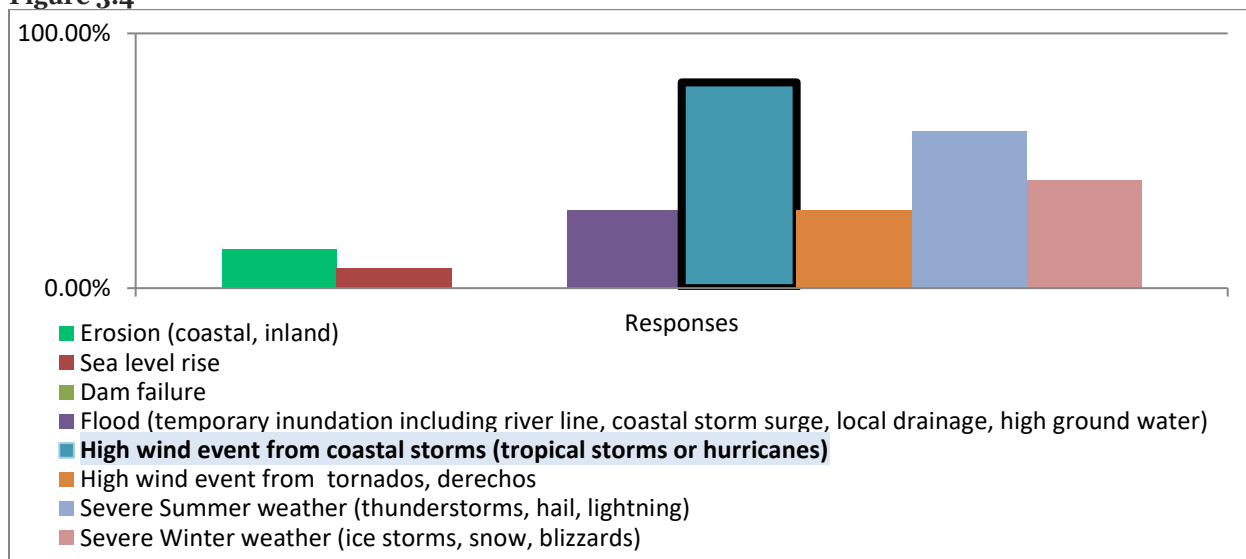
Having investigated the different wind hazard issues of concern in St. Mary’s County, an analysis was conducted to assess the current, relative vulnerability of structures in the County to high wind hazards. Tropical storms, thunderstorms, and tornadoes are the types of events considered most probable to have a widespread effect on the County. Wind vulnerability of structures is dependent on several factors, including:

- structure location particularly coastal vs. inland areas;
- level of engineering design attention to quality of materials and construction;
- structure exposure and height;
- beneficial or adverse effects of nearby trees and structures;
- age and condition; and,
- degree of rainfall or water penetration.

The primary hazard caused by wind is the transport of debris, which can cause casualties and property loss or even the dislodging of manufactured homes from their foundations or vehicles. High winds may also cause damage to poles and lines carrying electric, telephone, and cable television service. As mentioned earlier, older structures built prior to the adoption of the 1988 IBC could be more susceptible to wind damage.

Although St. Mary’s County has not been directly hit by a hurricane, it is very vulnerable to one, by virtue of being a peninsula. The County is subject to the wind and flooding effects from hurricanes that hit the east coast and travel inland. Older critical facilities are vulnerable to wind damage due to the age of construction and possible poor condition, especially in the more rural and isolated areas of the County. It is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Evaluation criteria include the age of the building (and what building codes may have been in effect at the time of construction), type of construction, and condition of the structure (i.e., how well the structure has been maintained). Results for the public survey , 81% of participants indicated that their property was damaged to a high wind event from a coastal storm.

Figure 3.4



As development in the County and population density increase, wind may present an increased threat to the people and structures in the County. Building codes currently in place should be reviewed to ensure that they sufficiently address the excessively high wind velocities occasionally experienced in the County.

Sea Level Rise

NOAA’s Sea level rise scenarios: 1 foot, 2 feet, and 3 feet were utilized to assess the critical and public facilities vulnerability to each inundation zone. Critical and public facilities within the three (3) sea level rise scenarios are listed below.

Sea Level Rise – 1 foot

No Critical and Public Facilities

Sea Level Rise – 2 feet

Wastewater Station - 16668 Piney Point Road

Valero Pier – 44701 Lighthouse Road

Sea Level Rise – 3 feet

Wastewater Station at 16668 Piney Point Road

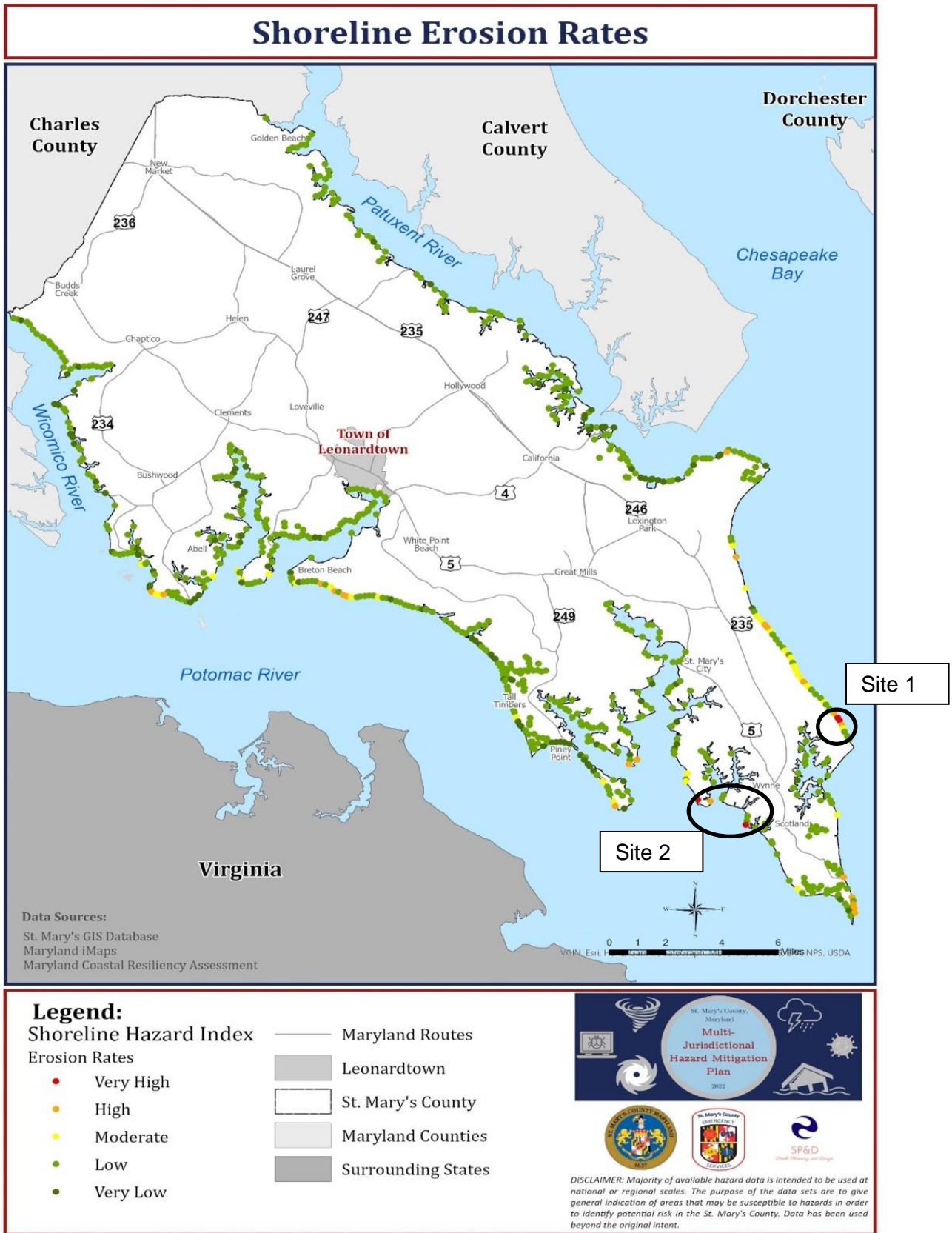
St. George Island Pumping Station - 16668 Piney Point Road

Potomac Land Lodge Water Storage - 16810 Piney Point Road

Shoreline Erosion

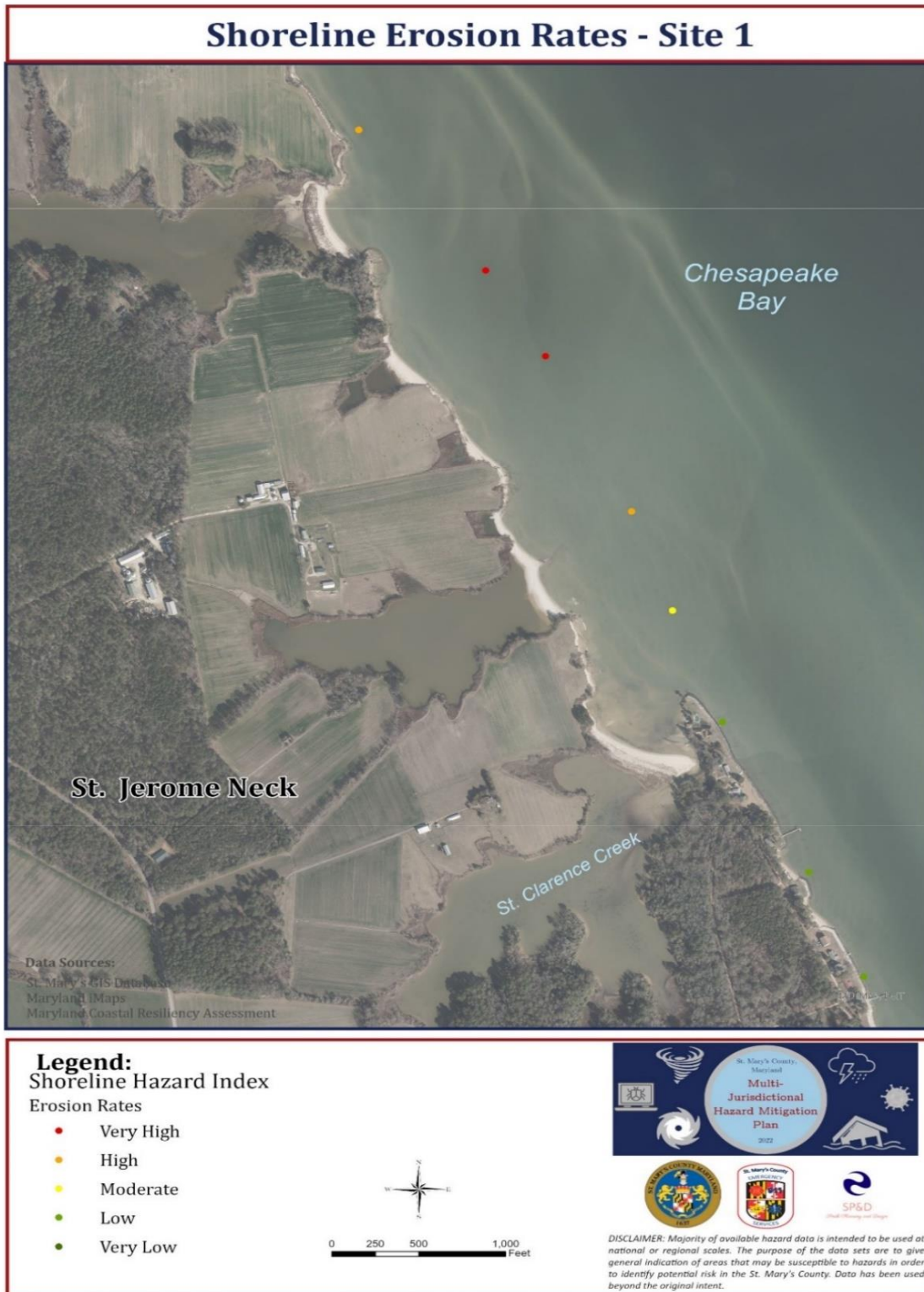
The Maryland Coastal Resiliency Assessment dataset is useful for a high-level examination of the overall health of the County’s shorelines. Most of the southern and western portions of St. Mary’s County shoreline, as depicted in Map 3-3, have areas ranked as “high” hazard. It is important to note that all hazard rankings as part of the coastal resiliency assessment are in comparison to the entire State. While the Shoreline Hazard Index used six (6) variables for determine exposure rates, Map 3.3 depicts “**erosion rates only**” for locations along St. Mary’s County’s coast, which is derived from the historic erosion rates for Maryland and makes up one factor of the overall shoreline hazard index.

Map 3-3



Areas shown on Map 3.3 as “very high” erosion rates, are shown in more detail in Maps 3.4 and 3.5. These areas are vulnerable to continued erosion, especially with increased storm activity, surge, and sea level rise. Shoreline stabilization projects, such as, living shorelines may be considered for hazard mitigation using nature-based solutions.

Map 3.4



Map 3-5



The Maryland Department of Natural Resources offers resources for shoreline erosion mitigation to property owners including field inspections for shoreline erosion projects, state assistance for shoreline erosion projects, shoreline maintenance manuals, conservation landscaping guides for planting appropriate native plants along the shorelines, and natural approach guidance for reducing the loss of waterfront land.

2.3 Coastal Hazards Loss Estimations

Hurricane, Tropical Storms & Storm Surge

Loss estimations for hurricane, tropical storms and storm surge were calculated for those facilities within hurricane storm surge inundation areas.

Table 3.2

Storm Surge - Critical & Public Facilities Loss Estimations		
Hurricane Category	# of Facilities	Loss Estimation
Category 1	4	\$4,800
Category 2	9	\$180,800
Category 3	8	\$13,099,400
Category 4	6	\$1,403,700
Total	24	\$14,688,700

Source: 2022 Critical and Public Facilities Database

Hurricane Winds

The HAZUS-MH Hurricane Model from FEMA's loss estimation software was used to estimate losses to St. Mary's County. A probabilistic scenario was developed for a Category 2 hurricane (96-110 mph 1 minute-sustained winds) that made landfall in the county. Hurricane parameters (wind speed, radius to maximum winds, central pressure, and time) were defined to simulate the effects a Category 2 hurricane, the losses for which were calculated.

Based on this analysis, HAZUS estimates that approximately 253 buildings will suffer at least moderate damage (this includes severe damage and destruction) and 2,254 buildings will suffer minor damage. Of those that incur minor damages, the majority will be wood buildings (1,523). Approximately 580 and 100 masonry buildings will incur minor and moderate damage, respectively. Three buildings, one mobile home, and two wood structures will be completely destroyed.

A HAZUS Level 2 Analysis was conducted for Hurricane Winds in 2017. The HAZUS analysis conducted during the 2017 Plan utilized the most recent version of the software (version 3.1), which was released in April 2016. At the time of this HAZUS Level 2 Analysis for Hurricane Wind, 2010 Census data was used with the Hazus version 3.1 software. The release of Hazus 5.1 continues to utilize 2010 census data. Hazus 3.1 also used 2014 RS Mean Values for building stock. Therefore, loss estimations were adjusted to reflect the 2022 inflation values

Building related losses are broken into two categories: direct property damage losses and business interruption losses. Direct property damage losses are the estimated costs to repair the damage caused to the building and its contents. Business interruption losses are the losses associated with the inability to operate a business because of the damage sustained during the hurricane. Business interruption losses also include temporary living expenses for those people displaced from their homes. The total building-related economic losses due to the modeled hurricane are estimated at \$50 million (\$62,553,012.64 as of 2022). Of this, the largest loss was sustained by residences, \$48.7 million (\$60,926,634.31 as of 2022) and \$950,000 (\$1,188,507.24 as of 2022) was sustained by commercial properties.

Approximately 1.3 million tons of debris would be generated, of which most would consist of tree debris. If the building debris tonnage is converted to an estimated number of truckloads, it would require 202 truckloads at 25 tons/truck to remove the debris generated by the hurricane. In terms of shelter requirements, approximately 21 households would be displaced due to the hurricane and of these, 5 households would seek temporary shelter in public shelters.

Note 1: These estimates are based on the HAZUS-MH Hurricane Model estimate of total number of structures identified at 30,852 (approximately 74 percent of the actual building count of 41,530) and total dollar exposure of these structures estimated at \$5.05 billion (\$6,331,442,619.63 as of 2022). Since the numbers of structures are estimated within the HAZUS-MH Hurricane Model and are much lower than the actual current building count, adjustments for the difference is necessary for planning purposes. These figures are only for indicative/informative purposes and should not be viewed literally for analytical purposes.

Note 2: HAZUS-MH is one of many planning tools used by states and local governments. Other tools should be considered in developing the hazard analysis and risk assessment for local communities. In some cases, other tools and methodologies may offer more usefulness than HAZUS in the performance of a measure hazard analysis and risk assessment.

Sea Level Rise

In order to assess sea level rise vulnerability, critical and public facilities were intersected with sea level rise inundation areas. The Table 3.4 indicates critical and public facilities within the 1-, 2- and 3-foot sea level rise inundation areas.

Table 3.3

Sea Level Rise - Critical & Public Facilities Loss Estimations		
Sea Level Rise Scenario	# of Facilities	Loss Estimation
1 foot	0	\$0
2 feet	2	\$430,500
3 feet	3	\$479,400
Total	5	\$909,900

Source: 2022 Critical and Public Facilities Database

2.4 Coastal Hazards Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that coastal hazards may have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County and public confidence in the local governance. The results of the consequence analysis are shown in Table.

Table 3.4

Coastal Hazards Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	<p>Home and landowners along the coastline are most at risk to impacts from coastal hazards. Impacts to the public include destruction and/or loss of land and property, displacement of populations, and negative economic impacts to coastal tourism.</p> <p>Hurricanes impacting St. Mary’s County have resulted in 154 injuries – National Center for Environmental Information, NOAA 2016.</p> <p>Significant sea level rise is expected to occur over a period of 50-100 years, which means it is unlikely that sea level rise will result in injury or loss. In addition to the number of structures in the 100-year, the structures in the 500-year floodplain or minimal risk area and therefore may be affected by sea level rise. Which could increase their flood risk from “minimal” or “moderate” risk. In St. Mary’s County 435 residential</p>

	<p>structures could be impacted by sea level rise considering they are located within the 500-year floodplain.</p> <p>Shoreline erosion can occur suddenly during a tropical cyclone event, such as a hurricane. In this case, people in coastal areas at the time of the event are at an increased risk of injury due to erosion, in addition to the distinct hazards a hurricane brings. Forty-four percent of St. Mary’s County shoreline is experiencing some degree of erosion.</p>
<p>Health and Safety of Responders</p>	<p>First responders would likely face minimal adverse impacts due to long-term sea level rise. The potential exception would be in the case of a temporary rise in sea level as caused by a severe tropical cyclone event. In this case, first responders would be exposed to the standard occupational hazards involved in dealing with a coastal flooding event.</p> <p>First responders would likely face minimal adverse impacts due to long term shoreline erosion. However, an exception would be in the case of sudden erosion which can be caused by a severe tropical cyclone event. In this case, first responders would be exposed to the standard occupational hazards involved in dealing with a coastal erosion/flooding event.</p>
<p>Continuity of Operations (incl. delivery of services)</p>	<p>The impacts on continuity of operations will be limited unless a facility is within the coastal hazard risk area(s). Critical facilities within the risk area(s) will face economic impacts related to costs of mitigation measures, relocation, and potential damages. In addition to the number of structures in the 100-year floodplain, structures located in the 500-year floodplain or “minimal” risk area may be affected by rising sea levels, thereby increasing the flood risk from a “minimal” to a “moderate” risk. In St. Mary’s County two (2) public structures (wastewater pumping stations) could be impacted by sea level rise considering they are located within the 500-year floodplain.</p> <p>The impacts on continuity of operations will be limited, unless a facility is within a coastal area during a severe tropical cyclone event that causes shoreline erosion. In this event, delivery of services may be slowed or halted in coastal areas if key roadways become impassable due to erosion.</p>
<p>Property, facilities, and infrastructure</p>	<p>Home and landowners within coastal regions may experience damage to or loss of property depending upon the severity of water inundation in the area. Infrastructure may experience impacts in the form of damages to roads/bridges and/or the complete loss of transportation routes.</p> <p>Facilities located within Hurricane Categories Storm Surge Inundation Areas include: (14) Wastewater Stations, (3) Water Stations, (2) Power Substation, (1) School, and (4) Fueling Stations.</p> <p>There are approximately 329 properties in the 50-year erosion zones mapped as having High, Moderate, Low erosion rates. 175 properties are residential, and 21 properties are commercial or exempt commercial.</p>
<p>Environment</p>	<p>Sea level rise will alter the landscape. Changes in the shoreline will occur, with some areas of shore becoming completely inundated, while others are damaged from erosion. Vegetation and wildlife habitat along the coast may be damaged or destroyed within inundation areas. According to the Department of Natural Resources’ <i>Maryland Coastal Resiliency Assessment</i>, Maryland’s coasts experience flooding and erosion, caused by tides and storms and exacerbated by sea level rise. Natural habitats such as marshes and coastal forests can reduce the impacts of these hazards through the processes of wave attenuation, increased</p>

	<p>infiltration, and sediment stabilization. According to the assessment, St. Mary's County's shorelines are at "moderate risk" for sea level rise.</p> <p>Shoreline erosion will negatively impact beaches, wetlands, marshes, and coastal habitats. With the loss of environments, coastal areas may experience more frequent and destructive flooding. According to the Department of Natural Resources' <i>Maryland Coastal Resiliency Assessment</i>, the majority of shorelines in St. Mary's County are at "high-very high risk" for shoreline erosion.</p>
Economic condition	<p>Hurricanes impacting St. Mary's County resulted in \$91.175 million in property damages and \$50 thousand in crop damages – National Center for Environmental Information, NOAA 2020.</p> <p>Sea level rise and major changes to the coastline will drain state, county, and local resources. The economic costs related to mitigation and relocation measures will be high, in addition to the economic burden caused by loss of land.</p> <p>At present, it is estimated that nearly 70% of shoreline in the state is being eroded to some degree. Erosion of the shoreline at this level will drain state, county, and local resources. The economic costs related to mitigation projects, relocation, loss of land, and more severe flooding will be high.</p>
Public confidence in governance	<p>Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to sea level rise. On December 28, 2012, Governor Martin O'Malley issued an executive order on Climate Change and "Coast Smart" Construction that requires State agencies consider the risk of coastal flooding and sea-level rise to capital projects and to site and design such projects to avoid or minimize associated impacts.</p>

Source: St. Mary's County Hazard Mitigation Planning Committee

2.5 Coastal Hazards Future Conditions

According to Climate and Energy Solutions' article [Hurricanes and Climate Change](#), frequency and intensity vary from basin to basin. In the North Atlantic Basin, the long-term (1966-2009) average number of tropical storms is about 11 annually, with about 6 becoming hurricanes. More recently (2000-2014), the average is over 15 tropical storms per year, including about 7 hurricanes. This increase in frequency is correlated with the rise in North Atlantic sea surface temperatures, which could be partially related to global warming.

According to a [study](#) published in the journal *Science Advances*, the number of hurricanes and typhoons rated as Category 3 storms and higher could double by the year 2050, due to climate change. Using computer modeling, as global air and water temperatures continue to rise due to excess greenhouse gas emissions, the increase in the number of major hurricanes and typhoons will affect a larger number of people.

The study states that climate change will increase the wind speeds of major hurricanes by as much as 20% over the next 28 years, as well as the overall frequency of Category 4 and 5 storms by more than 200% in some parts of the world. The study projected Miami to see a modest annual increase in probability of experiencing a major hurricane in a given year (from 3.6% at present to 4.0% by 2050), while Honolulu is forecasted to see that probability more than double (from 4.0% to 8.6%) over the same span.

Mean sea level rise and its acceleration are projected to aggravate coastal erosion over the 21st century, which creates a major challenge for coastal adaptation. According to the [NOAA's 2022 Global and Regional Sea Level Rise Scenarios for the United States](#), sea level rise driven by global

climate change is a clear and present risk to the United States today and for the coming decades and. Sea levels will continue to rise due to the ocean’s sustained response to the warming that has already occurred— even if climate change mitigation succeeds in limiting surface air temperatures in the coming decades. Rising sea levels and land subsidence are combining, and will continue to combine, with other coastal flood factors, such as storm surge, wave effects, rising coastal water tables, river flows, and rainfall (Figure 3.5), some of whose characteristics are also undergoing climate-related changes. The net result will be a dramatic increase in the exposure and vulnerability of this growing population, as well as the critical infrastructure related to transportation, water, energy, trade, military readiness, and coastal ecosystems and the supporting services they provide.

Figure 3.5 Physical Factors Directly Contributing to Coastal Flood Exposure
Physical Factors Directly Contributing to Coastal Flood Exposure



Figure 1.1: Schematic (not to scale) showing physical factors affecting coastal flood exposure. Due to the clear and strong relative sea level rise signal (i.e., combination of sea level rise and sinking lands), the probability of flooding and impacts are increasing along most U.S. coastlines.

Source: [NOAA's 2022 Global and Regional Sea Level Rise Scenarios for the United States, Section 1: Introduction](#)

According to the [U.S. Climate Resilience Toolkit – Coastal Erosion](#), sea level rise will cause an increase in coastal erosion and the human response will be critical. If communities choose to build hard structures in an attempt to keep the shoreline position stable, beach area could be lost due to scour. If shorelines migrate naturally, communities can expect to see erosion rates increase, especially in regions of the coast that are already dealing with starved sediment budgets and rapid shoreline migration. Increases in storm frequency and intensity in the future will also cause increased coastal erosion.

The Shore Hazard Index Exposure Rates (Map 3.2) indicates that St. Mary’s County coastline along the Potomac River has the highest exposure rate. Projected sea level rise will exacerbate the possible shoreline erosion along this shoreline. Mitigation measures to reduce potential shoreline erosion such as a living shoreline should be considered for this area.

3.0 Winter Storm Hazard Risk & Vulnerability

All areas of St. Mary's County are subject to the effects of winter storms. These storms may include snow, winter weather, freezing rain, sleet, and extreme cold. Major winter storms and occasional blizzard conditions bring bursts of heavy snow accumulating 3-6 inches in short periods or 1-2 feet in 12-24 hours. Blizzard conditions develop with winds over 35 mph which decrease visibility and increase the wind-chill factor.

Snow and ice can be extremely hazardous. The entire County would be affected by snow, ice, and extreme cold. It could reduce visibility and surface accumulation could reduce traction and put a strain on power lines, roofs, and other structures. Severe winter storms could result in an expected increase in traffic accidents, impassable roads, and lost income as normal commuting could be hindered.

Severe storm activity poses a significant threat to unprotected or exposed lifeline systems. Generally, commercial power networks are very susceptible to interruption from lightning strikes, high winds, ice conditions, and hail. Other utilities, including underground pipelines, may be impacted if not protected from exposure.

Vulnerability to the effects of winter storms on buildings depends on the age of the building, the building codes in effect at the time it was built, type of construction, and condition of the structure (i.e., how well it has been maintained).

All critical and public facilities in the county are vulnerable to the effects of severe winter storms due to the potential disruption of services and transportation systems as well as possible structure failure due to heavy snow loads. Severe winter storms have been and will continue to be a significant threat to the economic and social wellbeing of St. Mary's County.

3.1 Winter Storm Hazard Vulnerability

Freezing rain and drizzle can create a coating of ice that is hazardous for both vehicular and pedestrian travel. Other impacts include hazardous conditions caused by falling trees and powerlines; requirement of additional manpower to clear debris, snow removal and salting; large scale use of public shelters; and traffic delays.

Critical and public facilities' vulnerability to winter weather depends on the age of the building (and the building codes in effect at the time it was built), type of construction, and condition of the structure (how well it has been maintained). The following types of critical and public facilities were built prior to 1970, before the International Building Code was enforced, and may be at a higher risk due to age of construction and lack of building codes during that time period.

Table 3.5

Winter Storm - Critical & Public Facilities			
Facility Category	Facility Type	Facility Name	Year Built
EOC	Emergency	911 Communications At Leonardtown	1940
Fire	Fire Department	Seventh District Volunteer Fire Department	1952
Fire	Rescue Squad	Lexington Park Volunteer Rescue Squad	1960
Fire	Fire Department	Leonardtown Volunteer Fire Department	1964
Fuel	Commercial Assets	Ridgell Oil	1957
Fuel	Fueling Station	Ridgell Service Center	1957
Fuel	Fueling Station	St. Mary's Gas	1955
Fuel	Fueling Station	Citgo	1958
Fuel	Fueling Station	Sunoco	1946
Fuel	Fueling Station	Citgo	1967
Fuel	Fueling Station	Oceanic	1959
Fuel	Fueling Station	Shell	1967

Facility Category	Facility Type	Facility Name	Year Built
Fuel	Fueling Station	South Bound Stop Gas	1953
Government	Health Department	SMC Health Department	1962
Medical	Nursing Home	Vivian Ripple Center	1951
Medical	Nursing Home	St. Mary's Adult Medical Daycare	1951
Police	Sheriff Department	Sheriff's Office Northern Outpost	1948
School	Elementary School	Dynard Elementary School	1964
School	Elementary School	Chesapeake Charter Public School	1935
School	Elementary School	Lexington Park Elementary School	1950
School	Elementary School	Mechanicsville Elementary School	1950
School	Elementary School	Oakville Elementary School	1967
School	Elementary School	Park Hall Elementary School	1964
School	Elementary School	Town Creek Elementary School	1958
School	Elementary School	White Marsh Elementary School	1957
School	Middle School	Esperanza Middle School	1966
School	Middle School	Margaret Brent Middle School	1956
School	CCC	Oakville School Age Center	1967
School	CCC	Lexington Park Baptist Preschool	1960
School	Elementary School	Greenview Knolls Elementary School	1965
School	College	St. Mary's College Of Maryland	1930
School	CCC	Little Flower School Pre-K & B/A	1927
School	CCC	Hollywood Recreation School Age Center	1951
School	CCC	St. John's School	1890
School	CCC	St Andrews Preschool	1930
School	CCC	Creative Beginnings Preschool	1952
School	CCC	Hollywood United Methodist Preschool	1947
School	CCC	Prep & Play Preschool & DCC	1931
School	CCC	Minds N Motion Early Learning Center LLC	1950
School	CCC	Mt. Zion United Methodist Church	1914

Source: 2022 Critical and Public Facilities Database

3.2 Winter Storm Hazard Loss Estimations

Critical and public facilities built prior to modern building codes and are 50-years and older are listed in the table below.

Table 3.6

Winter Storm - Critical & Public Facilities Built Prior to 1970		
Facility Type	# of Facilities	Loss Estimation
EOC (Backup)	1	\$ 528,300
Fire	3	\$ 1,082,600
Fuel	9	\$2,468,906
Government	1	\$1,940,600
Medical	2	\$762,400
Police	1	\$184,200
School	35	\$93,946,300
Utility	6	\$13,819,200
Total	58	\$108,712,100

Source: 2022 Critical and Public Facilities Database

3.3 Winter Storm Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a winter storm event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County, and public confidence in the local governance. The results of the consequence analysis are shown in Table 3.7.

Table 3.7

Winter Storm Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Home and landowners in northern and western regions of the state are most vulnerable to impacts from a winter storm event, but no portion of the state invulnerable. Impacts to the public include potential for dangerous road conditions resulting in accidents, power outages (no heat), freezing temperatures, and medical emergencies from shoveling or falls causing injury or loss of life. In St. Mary’s County, over 5,000 residential structures could be impacted by severe winter storms due to being constructed prior to the modern building code.
Health and Safety of Responders	Emergency responders, such as fire and police, would be called to the incident area(s) to evacuate people, close roads due to dangerous conditions, perform wellness checks, and attend to any injured. In addition, there could be a delayed response from health and safety responders if county residents do not heed weather warnings. During a winter storm event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. First responders who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. What constitutes cold stress, and its effects can vary across different areas of the country. In regions, relatively unaccustomed to winter weather, near freezing temperatures are considered factors for cold stress. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems, such as, hyperthermia, frostbite, trench foot, and chilblains.
Continuity of Operations (incl. delivery of services)	Winter storms tend to affect whole regions, and sometimes an entire state. Because of this, there is a chance that continuity of operations may be affected depending upon the geographic extent and severity of the winter storm event. Continuity of operations and delivery of services may be slowed or halted in affected areas due to school/senior center closings, snow and ice accumulations, dangerous road conditions, freezing temperatures, and/or momentary losses in power and communications. Other impacts to county government could include: <ul style="list-style-type: none"> ▪ Shift changes due to fatigue ▪ Emergency shelters open ▪ Transportation to work ▪ Food ▪ Generators ▪ Communications ▪ Chain of Command – What is the priority? 58 critical and/or public facilities could be affected by winter storms in St. Mary’s County due to being constructed prior to the modern building code.
Property, facilities, and infrastructure	Home and landowners throughout the state may experience varying levels of damage to property depending upon received snow and ice loads,

	<p>although damage is usually minimal. Infrastructure may experience impacts in the form of damage to roadways (particularly during snow removal), and interruptions to above ground power and communication systems.</p>
<p>Environment</p>	<p>Winter storms impact the environment by damaging vegetation and tree limbs. Additionally, rapid snowmelt may also lead to flash flood events, which causes further environmental impacts. Snowfall totals vary greatly in Maryland. St. Mary’s county and areas of the lower Eastern Shore often have little or no snow during a winter season. Many winter storms are accompanied by low temperatures and sometimes, strong winds, ice, sleet, and freezing rain. Severe winter weather has the potential to knock out heat, power, and communications services to your home or office, sometimes for days.</p>
<p>Economic condition</p>	<p>A major winter weather event would be costly for state and local governments due to the potential for damages associated with property (during severe storms), storm cleanup, and loss of power. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event.</p> <p>Federal Disaster Fund #1324-01 – Winter Storm Released: April 10, 2000 Under the declaration, FEMA Director James Lee Witt said the state and local governments in 13 jurisdictions are eligible to apply for federal funding to pay 75 percent of the approved cost for emergency services related to the storm that occurred over the period of January 25-30. The jurisdictions designated for the assistance include the city of Baltimore and the counties of Anne Arundel, Baltimore, Calvert, Charles, Frederick, Howard, Kent, Montgomery, Prince George's, Queen Anne's, St. Mary's, and Talbot.</p>
<p>Public confidence in governance</p>	<p>Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a winter storm event. When severe weather occurs in St. Mary's County, DPW&T's computerized system tracks the progress of snow removal operations (providing the data for the automated map you see here), as service crews are dispatched and completed work in their respective Service Areas. While speed and efficiency are important, DPW&T employees are instructed to maintain safety standards as they work to maintain safe roads for citizens and visitors. The map is for informational purposes only and the numbers reflected are estimates of County-maintained roadways that are being treated, plowed and/or have been visually inspected. As a part of our Snow Spotters Program, the DPW&T relies on you to call and report changing roadway conditions; your call helps us ensure that areas are not unintentionally overlooked. Snow Packed Roads: Residents are advised that although residential subdivision streets are plowed and salted, they could remain in a snow packed condition. Snow packed means that the snow has been compacted to the road's surface by vehicular traffic. In low temperatures, especially below 15-20 degrees, salt is not very effective. With or without salt, these roads sometimes do not get down to bare pavement until the snow melts. As the snow melts, the snow surface usually begins to break apart into smaller sections. At that time, the roads may either be re-plowed or left to naturally melt away.</p>

Source: St. Mary's County Hazard Mitigation Planning Committee

3.4 Winter Storm Hazard Future Conditions

According to [Climate Communication Science and Outreach](#), climate change is fueling an increase in the intensity and snowfall of winter storms. The atmosphere now holds more moisture, and that in turn drives heavier than normal precipitation, including heavier snowfall in the appropriate conditions.

Climate Signals [Climate Change Impacts Explained in Real Time](#), provides the following list, which includes known U.S. winter storm trends as it relates to climate change:

- National Oceanic and Atmospheric Administration (NOAA) scientists, examining
- 120 years of data found that there were twice as many extreme regional snowstorms in the U.S. between 1961 and 2010 compared to 1900 to 1960.
- According to the [U.S. Fourth National Climate Assessment](#), "Heavy precipitation events [defined as the heaviest 1 percent of all daily events] in most parts of the United States have increased in both intensity and frequency since 1901."
- From 1958 to 2016, the amount of precipitation falling in very heavy events (the top 1 percent of all daily precipitation events) increased by 55 percent in the Northeast.
- The [5th Assessment Report of the Intergovernmental Panel on Climate Change](#) states: It is likely that since about 1950 the number of heavy precipitation events over land has increased in more regions than it has decreased. Confidence is highest for North America and Europe where there have been likely increases in either the frequency or intensity of heavy precipitation with some seasonal and regional variations. It is very likely that there have been trends towards heavier precipitation events in central North America.

St. Mary's County should consider planning for more extreme winter weather conditions in the future. Undertaking preparedness campaigns, as well as infrastructure and utilities upgrades, and preparedness initiatives will strengthen the County's resilience.

4.0 Flood Hazard Risk & Vulnerability

The Special Flood Hazard Area (SFHA) is a mapped delineation of flood hazard risk area used to assess vulnerability and risk in flood-prone communities. Many communities have maps available that show the extent of the base flood and likely depths that will be experienced. The base flood is often referred to as the “100-year flood”, by lay persons and officially as the “one percent annual chance flood.” Experiencing a 100-year flood does not mean a similar flood cannot happen for the next 99 years; rather, it reflects the probability that, over a long period of

time, a flood of that magnitude has a 1% chance of occurring in any given year. Statistically smaller floods occur more often than larger and more widespread ones. Table 3.8 shows a range of flood recurrence intervals and their probabilities of occurrence. Every year, a 10-year flood has a greater likelihood of occurring (10% chance) than a 100-year flood (1% chance).

Areas of urban development within floodplains are located in a number of areas with pre-FIRM development in the County. These areas include the Great Mills area (within the nontidal floodplain of the St. Mary’s River), the St. George Island and Piney Point area (within the tidal floodplains of the St. Mary’s River, St. George Creek and the Potomac River), Hayes Beach, Scotland Beach and Rodo Beach (along the Chesapeake Bay); and in the Golden Beach area off the Patuxent River. There is one dam (St. Mary’s River Watershed Dam, Site 1, on the western branch of the St. Mary’s River) located just west of Great Mills with a high downstream hazard rating. A dam with a high downstream hazard rating means there is a potential loss of life or property damage downstream due to flood waters being released or structure failure.

Flooding of vacant land or land that does not have a direct effect on people or the economy is generally not considered a problem. Flood problems arise when floodwaters inundate developed areas, locations of economic importance, and infrastructures. Damage to buildings, particularly residential buildings, is usually the largest single flood-related problem faced by a community.

There are a significant number of people living and working within or near the coastal and riverine floodplains who would be affected by flooding resulting primarily from thunderstorms, tropical storms, and hurricanes. The probability of repeated inland flooding, inability to mitigate the existing drainage problems due to a lack of funding, and existing structures located within the FEMA designated floodplains results in a high level of vulnerability to flood hazards. Given the large number of people that can be affected by flooding, high economic costs and moderate response costs, the vulnerability to flooding is high in St. Mary’s County. FEMA designated flood zones are shown below and depicted in Map 3.2.

Table 3.8

Flood Probability Terms	
Flood Recurrence	Chance of Occurrence in any given year
10-Year	10%
50-Year	2%
100-Year	1%
500-Year	0.2%

Source: Federal Emergency Management Agency

Table 3.9

FEMA Related Flood Zones		
Flood Zones	Description	
High Risk Areas – Special Flood Hazard Areas (SFHA)		
1% Annual Chance Flood Hazard	A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
	AE	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
	VE	Coastal areas with a 1% or greater chance of flooding and an additional

		hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
Moderate Risk Areas		
0.2% Annual Chance Flood Hazard	X Shaded	Areas outside the 1% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

Source: FEMA

Based on the information provided by FEMA’s National Flood Insurance Program (NFIP), there has been a decrease in policies since 2017. In 2017, there was a total of 1,255 policies in the County and 28 policies in the Town of Leonardtown, insured at a total amount of \$353.4 million and approximately \$1,087,616 in premiums. As of April 2022, there were 1,101 policies in the County and 20 in Leonardtown. Total coverage for St. Mary’s County and Leonardtown totaled \$326,443,300.

Note: Flood insurance is available for any structure (except in certain circumstances in mapped Coastal Barrier Resource or Otherwise Protected Areas) even those structures outside of the mapped Special Flood Hazard Area (SFHA). Therefore, in some cases, the number of policies in a community includes policies for structures that are outside the mapped floodplain.

According to the online public survey, the majority of the residents and commercial property owners do not have flood insurance due to cost, stating it was too expensive.

In regard to Repetitive Loss Properties (RL) and Severe Repetitive Loss Properties (SRL), the Federal Emergency Management Agency (FEMA) defines repetitive loss properties as:

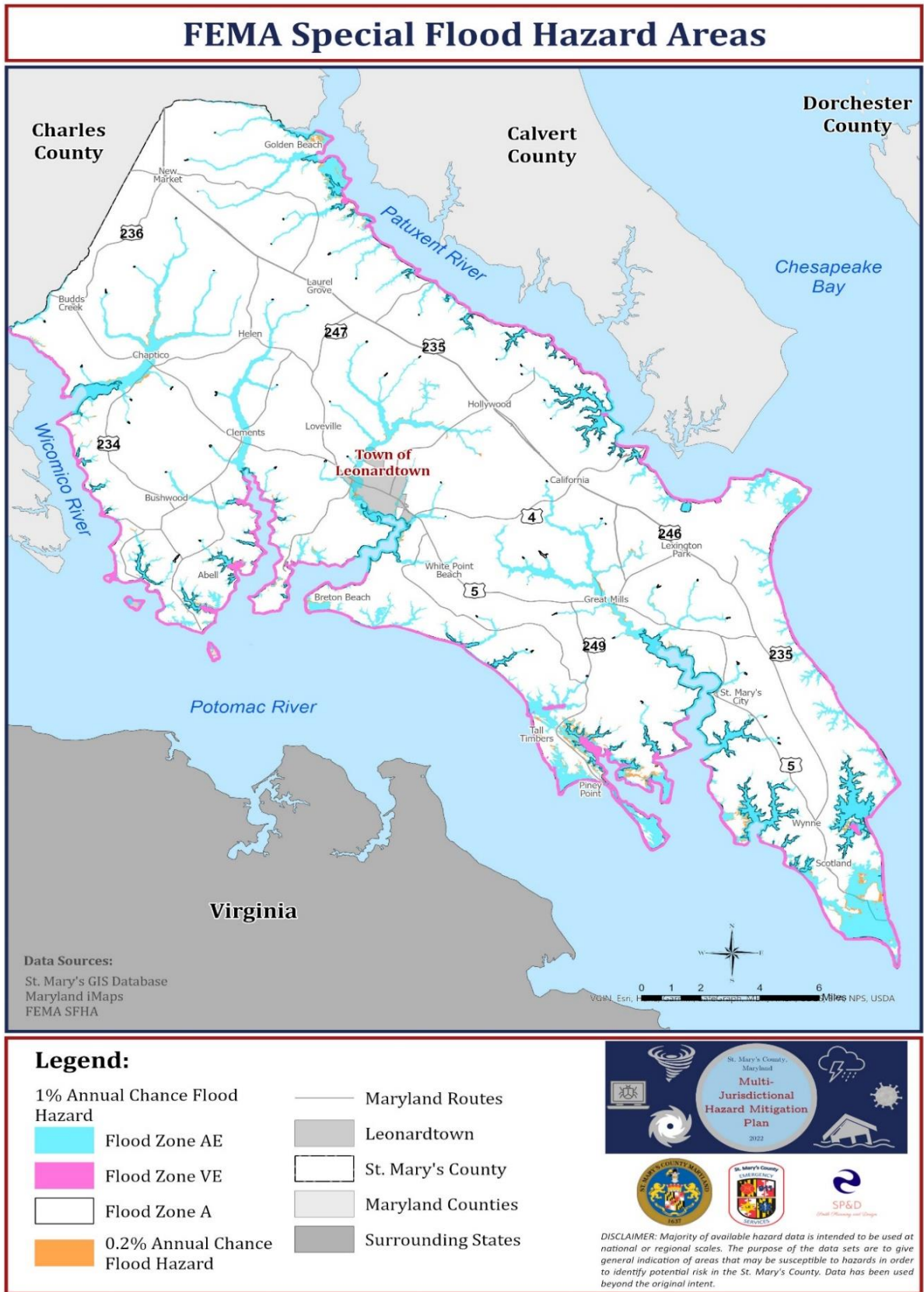
- Any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A repetitive loss property may or may not be currently insured by the NFIP; or
- A property that has incurred flood damage on two occasions, in which the cost to repair, on average, equaled or exceeded 25 percent of the market value of the structure.

FEMA defines a severe repetitive loss property as:

- A single-family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which 4 or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding \$5,000 and with cumulative amount of such claims exceeding the reported value of the property.

As part of the update process, the repetitive loss listing for St. Mary’s County was obtained from the Maryland NFIP Coordinating Office. As of March 2022, there are sixty (60) repetitive loss properties containing single-family and commercial structures within St. Mary’s County compared to the fifty-eight (58) repetitive loss properties identified in 2017. In 2017, there were no severe repetitive loss properties located within the County, however there are now seven (7) severe repetitive loss properties in St. Mary’s County.

Map 3.6



4.1 Flood Hazard Vulnerability

Critical and public facilities within the 1% and 0.2% annual chance flood hazard are listed on Table 3.10.

Table 3.10

Flood Zone	Critical & Public Facilities within the FEMA Flood Zones	
SFHA-High Risk Area	Minimum Risk Areas	
1% Annual Chance Floodplain	<ul style="list-style-type: none"> ○ Commercial Assets 44701 Lighthouse Rd ○ Power Substation 26030 Point Lookout Rd ○ Fueling Station on Critical Evacuation Route 20760 Old Great Mills Road 25965 Point Lookout Road ○ Pump Stations <ul style="list-style-type: none"> - 20208 Point Lookout Road - 16668 Piney Point Road - 45572 Aspen Lane - 24511 Point Lookout Road - 20540 Pershing Drive ○ Wastewater Stations <ul style="list-style-type: none"> - 20208 Point Lookout Road - 20540 Pershing Drive - 45572 Aspen Lane - 16668 Piney Point Road - 24511 Point Lookout Road - 16810 Piney Point Road 	<p>0.2% Annual Chance Floodplain</p> <ul style="list-style-type: none"> ○ Wastewater Station & Pump Station - 35277 Golf Course Drive

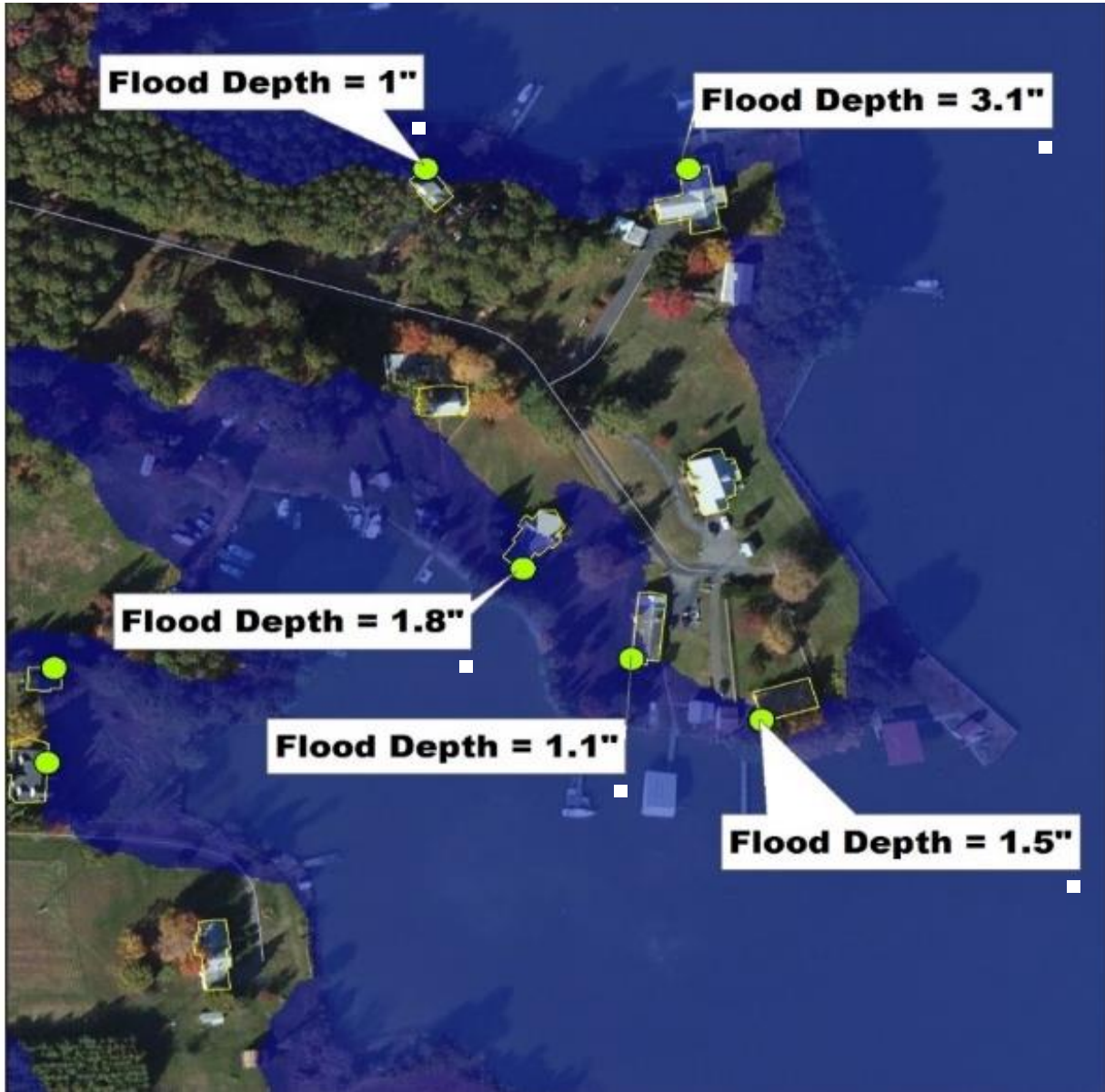
Source: 2022 Critical and Public Facilities Database

During the St. Mary’s County Hazard Mitigation Plan update process, an enhanced Hazus Analysis for FEMA Flood Zones AE and VE – coastal flood areas was performed. FEMA flood zones are geographic areas that the FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area. FIRMs for St. Mary’s County became effective on November 19, 2014. Hazus is a geographic information system-based natural hazard analysis tool developed and freely distributed by the Federal Emergency Management Agency (FEMA). In 1997 FEMA released its first edition of a commercial off-the-shelf loss and risk assessment software package built on GIS technology.

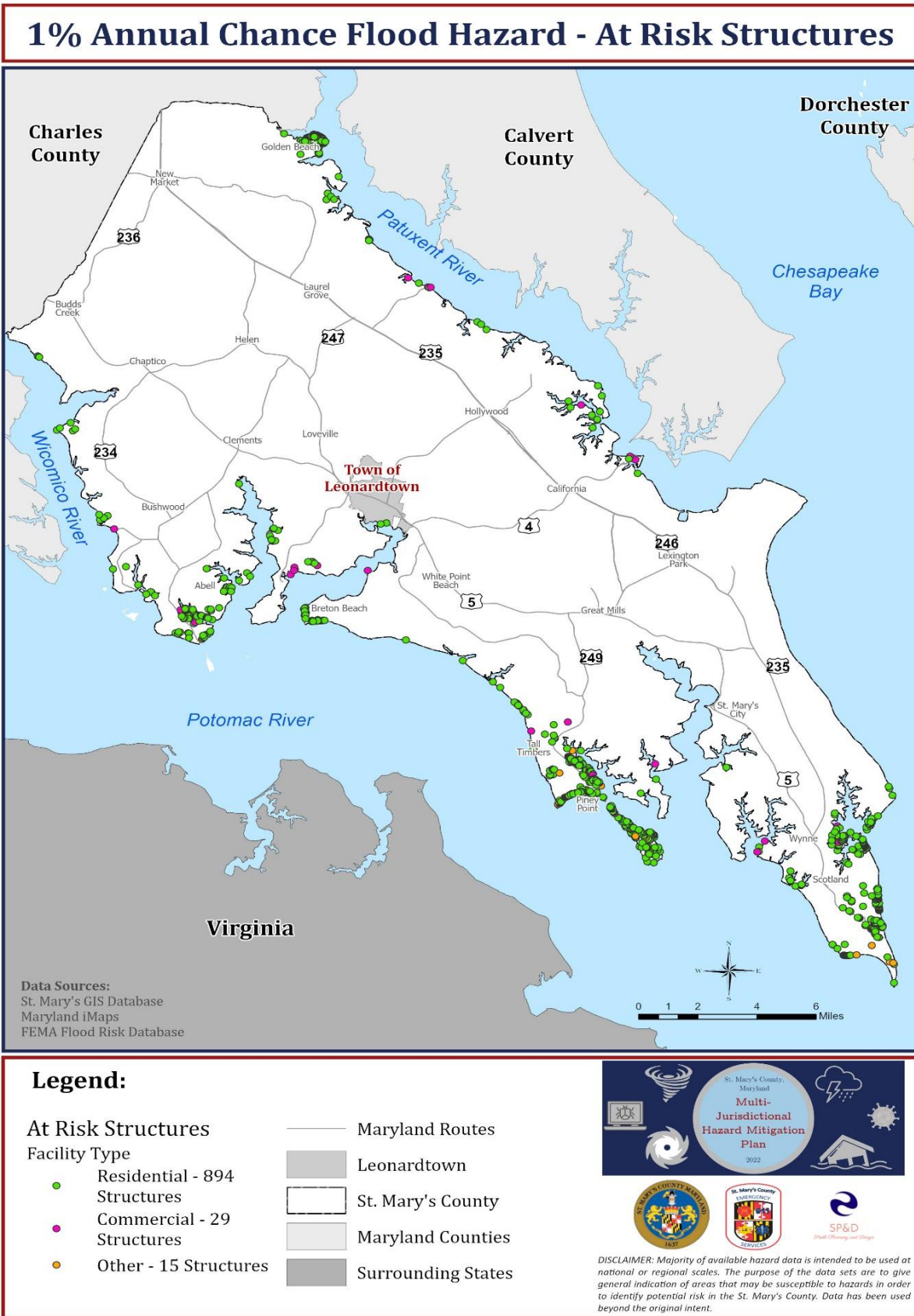
Utilizing the FEMA flood zones in conjunction with a digital elevation model, depth grids were generated. A digital elevation model (DEM) is a digital model or 3D representation of a terrain's surface – commonly for a planet (including Earth), moon, or asteroid – created from terrain elevation data. Depth grids communicate flood depth as a function of the difference between the calculated water surface elevation (Zones AE and VE) and the ground (DEM). The depth grid depicts the difference in elevation between the Base Flood Elevation (BFE) and the ground. An example of using FEMA flood zones inundation area in conjunction with DEM both structure risk to flood inundation area and the depth of flooding to the structure can be determined and depicted.

Structures within 1% annual chance flood hazard (FEMA Flood Zones AE and VE) along with flood depth is depicted on Map 3.7.

Map 3.7

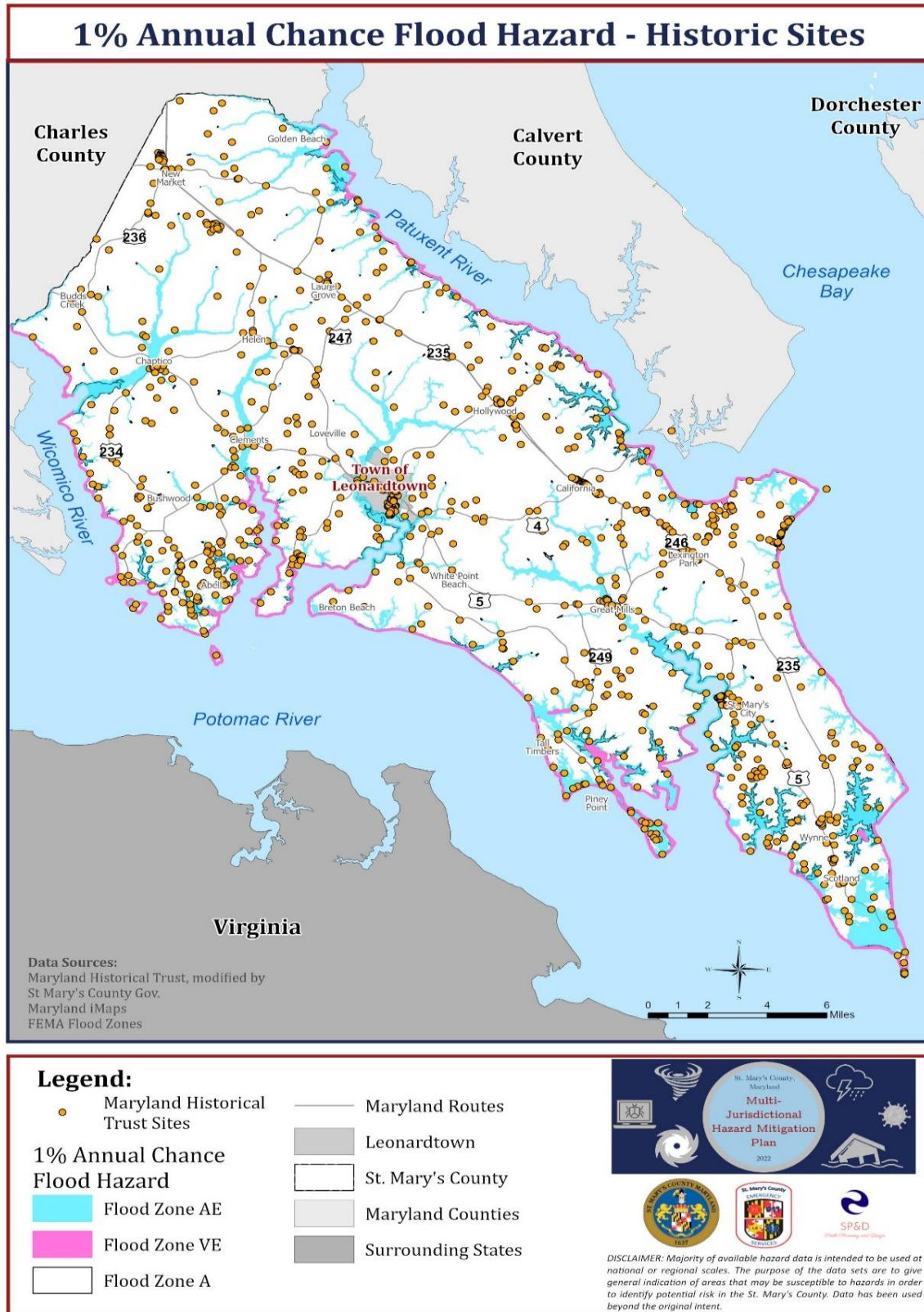


Map 3.8



Maryland Inventory of Historic Properties within the 1% annual chance flood hazard (FEMA High Risk Flood Zones A, AE, and VE) is depicted on Map 3.9.

Map 3.9



Maryland Inventory of Historic Properties within the 1% annual chance flood hazard (high risk areas) are listed on Table 3.11.

Table 3.11

Flood Zone	Maryland Historic Trust Sites within the 1% Annual Chance Flood Hazard
SFHA-High Risk Areas	
A	0 Properties
AE	63 Properties
VE	1 Properties

Source: FEMA Flood Zones & St. Mary's County GIS Data

4.2 Flood Hazard Loss Estimates

Loss estimations from the Enhanced Hazus Analysis for FEMA Flood Zones AE and VE – coastal flood areas yielded the following results.

Table 3.12

Enhanced Hazus At-Risk Summary			
Jurisdiction	Building Type	2014 Loss Estimations (Hazus RS Means Value*)	2022 Loss Estimates (Adjusted for Inflation**)
St. Mary's County Unincorporated Areas	Residential	\$172,700,000	\$216,058,105
	Commercial	\$17,000,000	\$21,268,024
	Other	\$104,800,000	\$131,111,114
	Total	\$294,500,000	\$368,437,244

Source: St. Mary's County, Maryland Coastal Study – Flood Risk Report

Table 3.13

Enhanced Hazus At-Risk Summary			
Jurisdiction	Building Type	2014 Loss Estimations (Hazus RS Means Value*)	2022 Loss Estimates (Adjusted for Inflation**)
Town of Leonardtown	Residential	\$400,000	\$500,424
	Commercial	\$0	\$0
	Other	\$0	\$0
	Total	\$400,000	\$500,424

Source: St. Mary's County, Maryland Coastal Study – Flood Risk Report

Table 3.14

Enhanced Hazus Loss Estimations			
Jurisdiction	Building Type	2014 Loss Estimations (Hazus RS Means Value*)	2022 Loss Estimates (Adjusted for Inflation**)
St. Mary's County Unincorporated Areas	Residential	\$16,400,000	\$20,517,388
	Commercial	\$3,500,000	\$4,378,710
	Other	\$1,400,000	\$1,751,484
	Total	\$21,300,000	\$26,647,582

Source: St. Mary's County, Maryland Coastal Study – Flood Risk Report

Table 3.15

Enhanced Hazus Loss Estimations			
Jurisdiction	Building Type	2014 Loss Estimations (Hazus RS Means Value*)	2022 Loss Estimates (Adjusted for Inflation**)
Town of Leonardtown	Residential	\$60,000	\$75,063
	Commercial	\$0	\$0
	Other	\$0	\$0
	Total	\$60,000	\$75,063

Source: St. Mary’s County, Maryland Coastal Study – Flood Risk Report

*All costs from RS Means are average national costs. The national costs are localized by application of residential and non-residential RS Means location factors that is provided with Hazus by states and counties throughout the U.S. These are applied in the development of GBS data for structure and contents replacement values.

**Loss Estimates were calculated using 2014 RS Means Values. Using the [U.S. Bureau of Labor Statistic](#) calculator, 2014 loss estimates were adjusted to reflect the 2022 values.

4.3 Flood Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a flood event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County, and public confidence in the local governance. The results of the consequence analysis are shown in Table 3.16.

Table 3.16

Flood Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	<p>Home and property owners within the FEMA 100-year flood zone are most at risk to impacts from a flood event. Impacts to the public include potential for injury or loss of life, destruction and/or loss of land and property, and contamination of water due to flood. In St. Mary’s County 894 residences, 29 commercial and 15 other facilities such as industrial are within the 100-year floodplain. According to the Flood Risk Report – St. Mary’s County, Maryland Coastal Study 2015, there was \$60,000 worth of estimated potential losses to residential building/contents for flood event, 1% (100-Year) for the Town of Leonardtown. Other potential flood impacts to the health and safety of the public:</p> <ul style="list-style-type: none"> ▪ Sewer back-ups; ▪ Gridlock & residents trapped in structures; ▪ Evacuation bottle neck outside jurisdiction; ▪ Communication breakdown; and ▪ Biohazard from standing water – obtain contracts with Biohazard Cleanup and Restoration (ServPro).
Health and Safety of Responders	<p>First responders, such as fire and police, would be called to the incident area(s) to evacuate people, close roads, and attend to any injured. For a flood event, as with all disaster events, responders face the risk of personal injury while performing necessary job. First responders in St. Mary’s County could face the following impacts associated with flood events:</p> <ul style="list-style-type: none"> ▪ Electrical hazards; ▪ Tree and debris removal; ▪ Carbon monoxide; ▪ Lifting injuries; ▪ Mold; ▪ Rodents, Snakes, and Insects;

	<ul style="list-style-type: none"> ▪ Chemical and biological hazards; ▪ Fire; ▪ Drowning; ▪ Hypothermia (due to the cold weather and water exposure); ▪ Unanchored propane tanks; ▪ Exhaustion (from working extended shifts); and ▪ Heat <p>Other potential flood impacts to the health and safety of first responders:</p> <ul style="list-style-type: none"> ▪ Sewer back-ups; ▪ Gridlock & residents trapped in structures; ▪ Evacuation bottle neck outside jurisdiction; ▪ Communication breakdown; and ▪ Biohazard from standing water – Possible contracts with Biohazard Cleanup and Restoration (SERVPRO).
<p>Continuity of Operations (incl. delivery of services)</p>	<p>The impacts on continuity of operations will be limited unless a facility is within a flood hazard area during a severe flood event. Delivery of services may be slowed or halted in these areas if key roadways become impassable due to flooding, power outages, or loss of pumping station(s). In addition, COOP plans need to be identified and exercised to ensure county preparedness and mitigation activity inspections and flood proofing to pumping stations. The following critical and/or public facilities in St. Mary’s County are within the 100-year floodplain:</p> <ul style="list-style-type: none"> • (1) Power Substation; • (2) Fueling Stations; • (7) Wastewater Pumping Stations; and • (1) Water Station.
<p>Property, facilities, and infrastructure</p>	<p>Home and landowners within flood zones may experience damage to or loss of property and lengthy displacement depending upon the severity of flooding in the area. Infrastructure may experience impacts in the form of damages from flooding, debris blockages, temporary closure of transportation routes, and the potential inability of the stormwater system to handle floodwaters in a severe event. According to the Flood Risk Report – St. Mary’s County, Maryland Coastal Study 2015, there were losses to commercial building/contents for flood event, 1%(100-Year) for the Town of Leonardtown. There are 938 structures in St. Mary’s County that are listed in the 100-year floodplain.</p>
<p>Environment</p>	<p>Floods impact the environment by spreading pollution; overloading water and wastewater treatment plants; carrying silt and debris; and disturbing wildlife and the natural area. Stormwater runoff is one of the most significant threats to ecosystems along the coastal areas of the U.S. As the water runs over and through the watershed it picks up and carries contaminants and soil. The blotches of leaked motor oil on parking lots, plastic grocery bags, pesticides, fertilizers, detergents, and sediments are known as non-point source pollutants. If untreated, these pollutants wash directly into waterways carried by runoff from rain and snow melt. These contaminants can infiltrate groundwater and concentrate in streams and rivers and can be carried down the watershed and into the ocean. Non-point source pollution is linked to the creation of large dead-zones (areas with minimal oxygen) in the ocean and also threatens coral reef ecosystem health around the world.</p>
<p>Economic condition</p>	<p>A major flood event would be costly for state and local governments in terms of emergency response, delivery of services, disaster cleanup, and future mitigation projects. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event. In addition, potential loss of economic image could have direct impact to economic conditions, (example: New</p>

	Orleans, LA.) There have been no flooding Disaster Declarations specific to St. Mary's County. There have been four (4) hurricane events resulting in Presidential Declarations in St. Mary's County.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a flood event. The St. Mary's County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.

Source: St. Mary's County Hazard Mitigation Planning Committee

4.4 Nuisance Flooding

In 2020, St. Mary's County developed the Nuisance Flooding Plan was developed to satisfy the Maryland Senate Bill (SB) 1006, which states that "a local jurisdiction that experiences nuisance flooding shall develop a plan to address nuisance flooding."

According to the [Nuisance Flood Plan Development Guidance](#), there is recognition by Maryland lawmakers, local and state governments, and citizens that tidally driven nuisance flood events are happening with more frequency. While nuisance flooding may not pose a serious threat or result in major damage, it interrupts and causes impacts to daily routines and can negatively impact commerce. Pursuant to Maryland House Bill 1427 (2019), §3-1018(b) and (c), on or before Oct. 1, 2020, a local jurisdiction that

experiences nuisance flooding (NF) shall develop a plan to address nuisance flooding. In addition, a local jurisdiction shall update the plan every five years; publish the plan on the local jurisdiction's website; and shall submit a copy of the plan to the Maryland Department of Planning. This legislation is an update to Senate Bill 1006 and House Bill 1350 (2018).

According to the plan, nuisance flooding of tidal waters occurs most predominately in locations near or adjacent to major bodies of water. Along the Patuxent and Potomac Rivers nuisance flooding is common on both residential and commercial properties. Elsewhere in the County, nuisance flooding has been experienced and addressed in several lowland locations. Sporadic flooding occurs at locations where debris has accumulated in ditches and culverts thus causing an overflow onto the roadways. Some culverts in low-lying areas may have difficulty conveying sufficient water during high rainfall events causing ponding on low-lying roadways within the County.

Appendix I – Nuisance Flooding Location Inventory of the Nuisance Flood Plan provided specific locations of roadway flooding identified the County's Highway Division. These roadways are provided in the table below and depicted on Map 3.10. Identification numbers provided on Table 3.17 correlated to labels on Map 3.10.

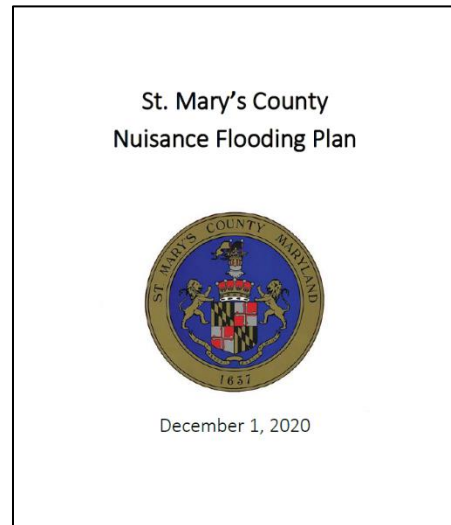


Table 3.17

Nuisance Flooding Location Inventory			
ID #	North Area	ID #	Central Area
1	Golden Beach Road, down in the flats	22	Bayside Road
2	South Sandgate Road	23	Maypole Road
3	All Faith Church Road	24	Old Breton Beach Road
4	Delabrooke Road	25	McIntosh Road
5	Morgan Parlett Road	26	St. Johns Road
6	Locke's Hill Road	27	Jones Road
		28	Morgan Road
West Area		South Area	
7	Morganza Turner Road	29	St. Jerome's Neck Road
8	Mechanicsville Road	30	Long Neck Road
9	Baptist Church Road	31	Hays Beach Road
10	Bishop Road	32	Cornfield Harbor Road
11	Bethel Church Road	33	Adkins Road
12	Hurry Road	34	Piney Point Road (County Portion)
13	Manor Road	35	Thomas Road
14	Friendship School Road	36	Ball Point Road
15	Bushwood Road	37	Flat Iron Road
16	Palmer Road	38	River Road
17	Foley Mattingly Road	39	Villa Road
18	Mill Point Road	40	Beachville Road
19	Beach Road	41	Poplar Street
20	Locks Crossing Road		
21	Davis Road		

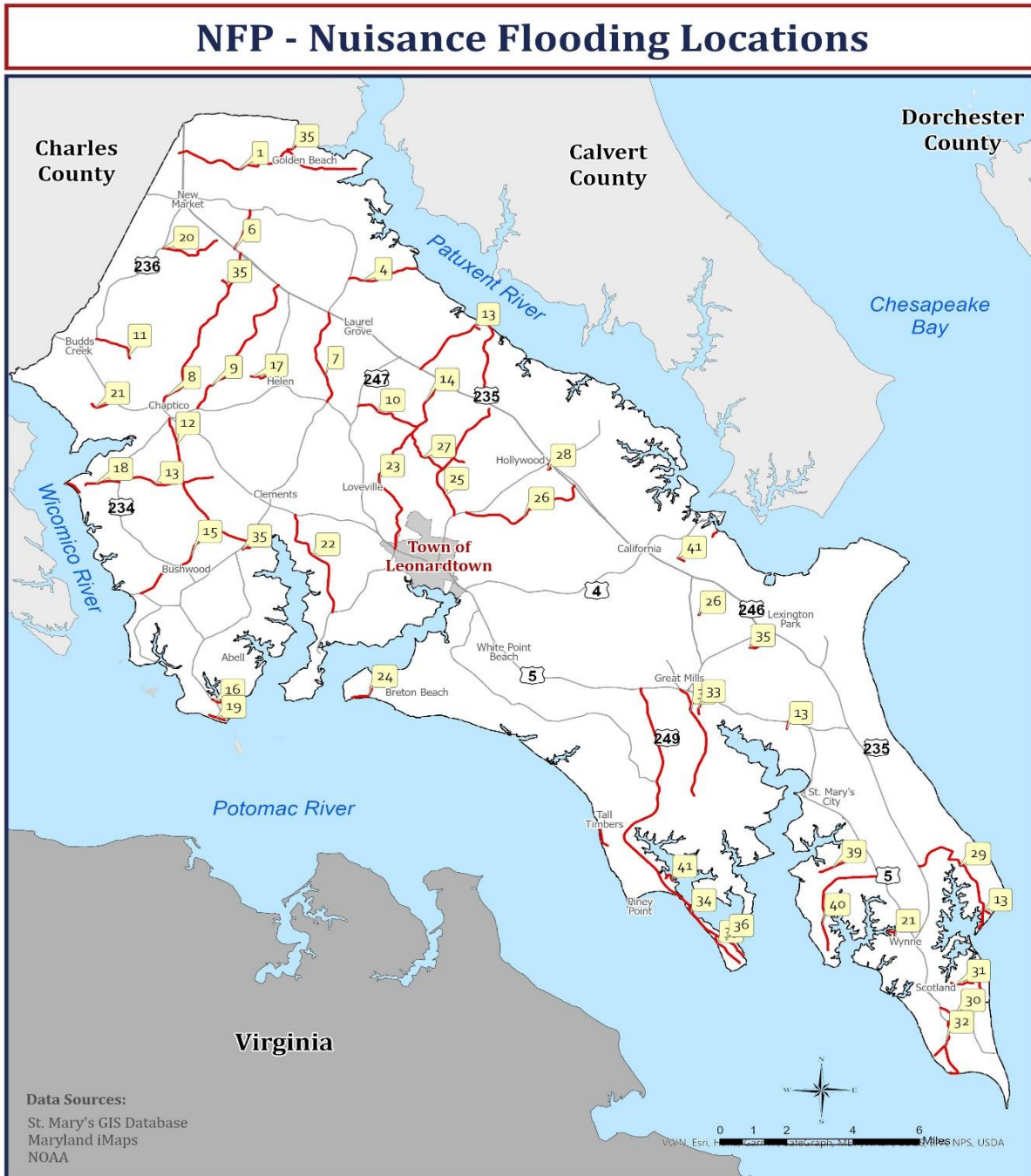
Source: St. Mary's County 2020 Nuisance Flood Plan

Roadways impacted by nuisance flooding can be significant stressors on the infrastructure, emergency response, and public health. Nuisance flooding can disrupt daily activities through a variety of ways, 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. In addition, roadways are also impacted by urban flooding, not tidally influenced flooding.

In order to prepare for a nuisance flood event, accurate flood forecasting and warning is critical to the safety and preparedness of a community. Weather forecast data is received from the Baltimore/Washington forecasting office of the National Weather Service (NWS). Critical tide information is received from the NOAA tide gauges stationed at St. Georges Island, Clements Creek, and an upstream gauge off MD Rt 242, as well as the St. Mary's River Dam. Additional gauges are available throughout the Chesapeake Bay. These gauges allow St. Mary's County to be aware of and prepare for possible nuisance flooding impacts.

St. Mary's County Department of Emergency Services to disseminate public safety information via CodeRED, the County's mass notification system, and social media outlets. When nuisance flooding is anticipated, it may be necessary for St. Mary's County Department of Emergency Services to initiate a message to flood hazard areas via CodeRED and social media outlets with details about flood severity, duration, or impacts such as road closures.

Map 3.10



Legend:

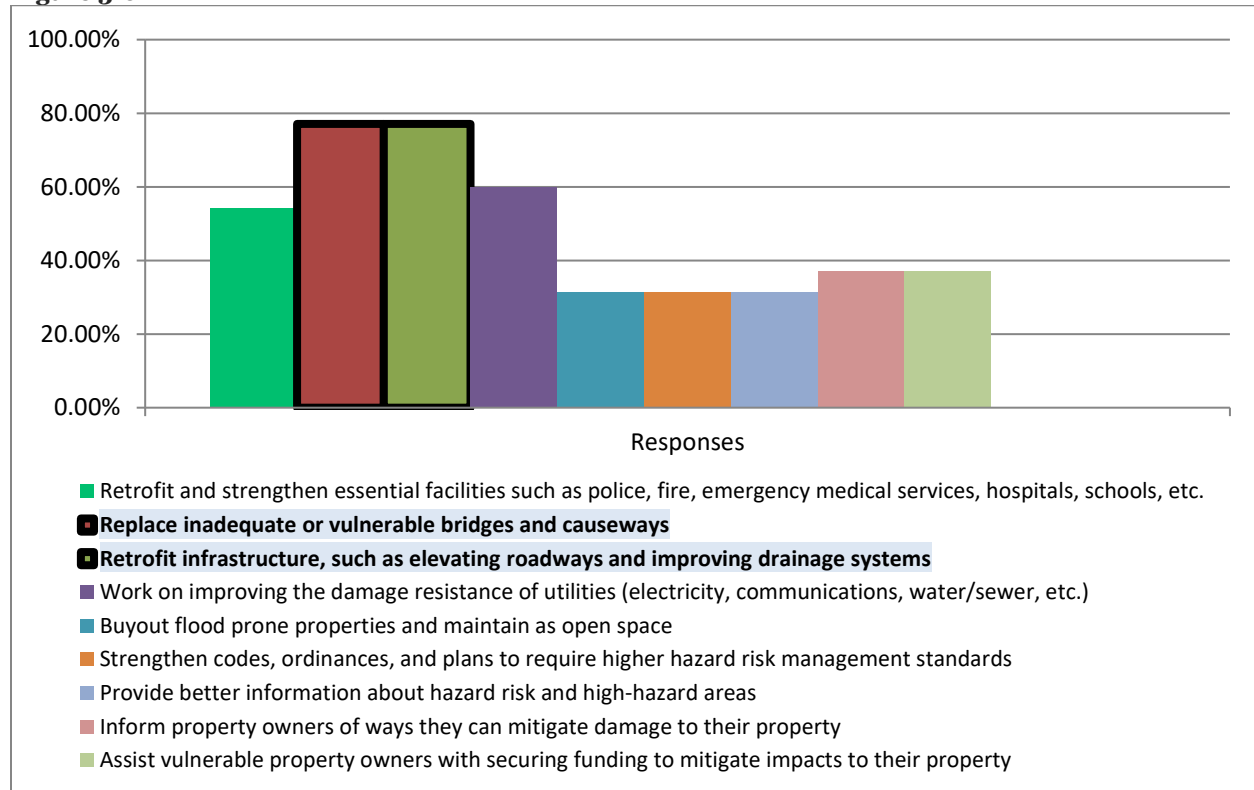
	Nuisance Flooding Location - County Highway Division		Maryland Routes
	Leonardtown		St. Mary's County
	Maryland Counties		Surrounding States

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards in order to identify potential risk in the St. Mary's County. Data has been used beyond the original intent.

As part of the online public survey, participants were asked “Which of the following mitigation project types do you believe that local government agencies should focus on to reduce disruptions of services and strengthen the community?”

Over 77% of the participants indicated that the local government should replace inadequate or vulnerable bridges and causeways and retrofit infrastructure, such as elevating roadways and improving drainage systems.

Figure 3-6



Source: Screenshot from St. Mary’s County HMP Public Survey

When reviewing the nuisance flooding location inventory provided by the County’s Highway Division for mitigation measures, roadway flooding that could be mitigated by roadway elevations or improving drainage system should be considered priorities.

4.5 Flood Hazard Future Conditions

In 2019, First Street Foundation conducted a state-by-state analysis to determine property value loss from sea level rise. First Street Foundation expanded its peer-reviewed housing market research to include 18 states along the East and Gulf Coasts. From Maine to Texas, the data shows that increased tidal flooding driven by sea level rise has eroded \$15.9 billion in relative property values between 2005 and 2017.

Out of the 18 states, Maryland was ranked as the 7th state for hardest hit cities and significantly impacted homes between 2005 and 2017.

Figure 3.7 Property Value Loss From Sea Level Rise State Ranking

STATE RANK BY TOTAL LOSS			
	STATE	LOSS	PERIOD
1	Florida	-\$5.4 B	2005 - 2017
2	New Jersey	-\$4.5 B	2005 - 2017
3	New York	-\$1.3 B	2005 - 2017
4	South Carolina	-\$1.1 B	2008 - 2017
5	Connecticut	-\$915.9 M	2005 - 2017
6	North Carolina	-\$582.3 M	2005 - 2017
7	Maryland	-\$555.7 M	2005 - 2017

Source: [State by State Analysis: Property Value Loss from Sea Level Rise](#)

The frequency of flooding, flash flooding, 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 very little or not at all are likely to start flooding.

In addition, areas currently experiencing nuisance flooding issues will gradually see an increase in these issues as the changing climate elevates water levels and drives precipitation patterns to new extremes. However, this shift will likely occur 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.

5.0 Wind Hazard Risk & Vulnerability

The wind hazard type includes thunderstorm winds and synoptic-scale winds. High wind events may have a widespread effect on the County. Wind vulnerability of structures is dependent on several factors, including:

- level of engineering design attention to quality of materials and construction;
- structure exposure and height;
- beneficial or adverse effects of nearby trees and structures;
- age and condition; and,
- degree of rainfall or water penetration.

5.1 Wind Hazard Vulnerability

The primary hazard caused by wind is the transport of debris, which can cause casualties and property loss or even the dislodging of manufactured homes from their foundations or vehicles. High winds may also cause damage to poles and lines carrying electric, telephone, and cable television service. As mentioned earlier, older structures built prior to the adoption of the 1988 IBC could be more susceptible to wind damage.

Although St. Mary's County has not been directly hit by a hurricane, it is very vulnerable to one, by virtue of being a peninsula. The county is subject to the wind and flooding effects from hurricanes that hit the east coast and travel inland. Older critical facilities are vulnerable to wind damage due to the age of construction and possible poor condition, especially in the more rural and isolated areas of the county. It is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Evaluation criteria include the age of the building (and what building codes may have been in effect at the time of construction), type of construction, and condition of the structure (i.e., how well the structure has been maintained). According to St. Mary's County Ordinance Nol. 2015-26, Chapter 203 Amendment, the current wind design is 100 miles per hour.

5.2 Wind Hazard Loss Estimations

Critical and public facilities built prior to modern building codes and are 50-years and older are listed in the table below.

Table 3.18

Winter Storm - Critical & Public Facilities Built Prior to 1970		
Facility Type	# of Facilities	Loss Estimation
EOC (Backup)	1	\$ 528,300
Fire	3	\$ 1,082,600
Fuel	9	\$2,468,906
Government	1	\$1,940,600
Medical	2	\$762,400
Police	1	\$184,200
School	35	\$93,946,300
Utility	6	\$13,819,200
Total	58	\$108,712,100

Source: 2022 Critical and Public Facilities Database

5.3 Wind Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a wind event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary's County, and public confidence in the local governance. The results of the consequence analysis are shown in Table 3.19.

Table 3.19

Wind Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Home and landowners throughout the state are at risk to impacts from a high wind event. Impacts to the public include potential for injury or loss of life, and destruction of property due to high winds. Flying debris, downed power lines, unsafe buildings & components, contaminants, and power loss impact the health & safety of the public. In St. Mary's County, over 5,000 residential structures could be impacted by wind events due to being constructed prior to the modern building code – wind design speed.
Health and Safety of Responders	First responders, such as fire and police, would be called to the incident area(s) to evacuate people, close roads due to fallen trees and/or debris blockages, and attend to any injured. For a high wind event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. First responders in St. Mary's County could face the following hazards associated with wind events: <ul style="list-style-type: none"> ▪ Electrical hazards; ▪ Tree and debris removal; ▪ Carbon monoxide; ▪ Lifting injuries; ▪ Rodents, Snakes, and Insects; ▪ Chemical and biological hazards; ▪ Fire; and ▪ Exhaustion (from working extended shifts).
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations will be limited, unless a facility is directly adversely affected by a severe wind event. Delivery of services may be slowed or halted in affected areas due to momentary losses in power and communications. 58 critical and/or public facilities could be affected by wind events in St. Mary's County due to being constructed prior to the modern building code – wind design speed.
Property, facilities, and infrastructure	Home and landowners throughout the state may experience damage to property depending upon the severity of winds in the area. Infrastructure may experience impacts in the form of blowing debris, and interruptions to above ground power and communication systems.
Environment	High winds impact the environment by potentially spreading debris and pollution; damaging sewer and wastewater treatment plants; and disturbing wildlife and natural areas.
Economic condition	A major wind event would be costly for state and local governments due to the potential for damages associated with property, debris generation, and loss of power. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event. St. Mary's County fishing industry is at risk during high wind events due to damages that may occurred to fishing boats.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond

	<p>to a high wind event. The St. Mary's County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County. During high wind events, Department of Emergency Services and Technology coordinates with the Prince Frederick's SHA District in issuing press releases regarding the Thomas Johnson Bridge closures.</p>
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Source: *St. Mary's County Hazard Mitigation Planning Committee*

5.4 Wind Hazard Future Conditions

High winds accompany tropical cyclones, thunderstorms, and tornadoes. It is known that climate change will increase the intensity and frequency of tropical cyclones and thus the high wind associated with these events. However, it is not well known how climate change might impact the strength and frequency of high wind events. The St. Mary's County should prepare for potentially more severe and frequent non-convective high wind events due to climate change.

According to the Scientific American article [The World's Winds are Speeding Up](#), in less than a decade, the global average wind speed has increased from about 7 mph to about 7.4 mph. For the average wind turbine, which translates to a 17% increase in potential wind energy. Temperatures all over the Earth are steadily rising as a result of human-caused climate change. But within that larger, long-term warming pattern, temperatures in these regions also tend to naturally cycle back and forth between warmer and cooler periods, sometimes lasting decades at a time.

6.0 Tornado Hazard Risk & Vulnerability

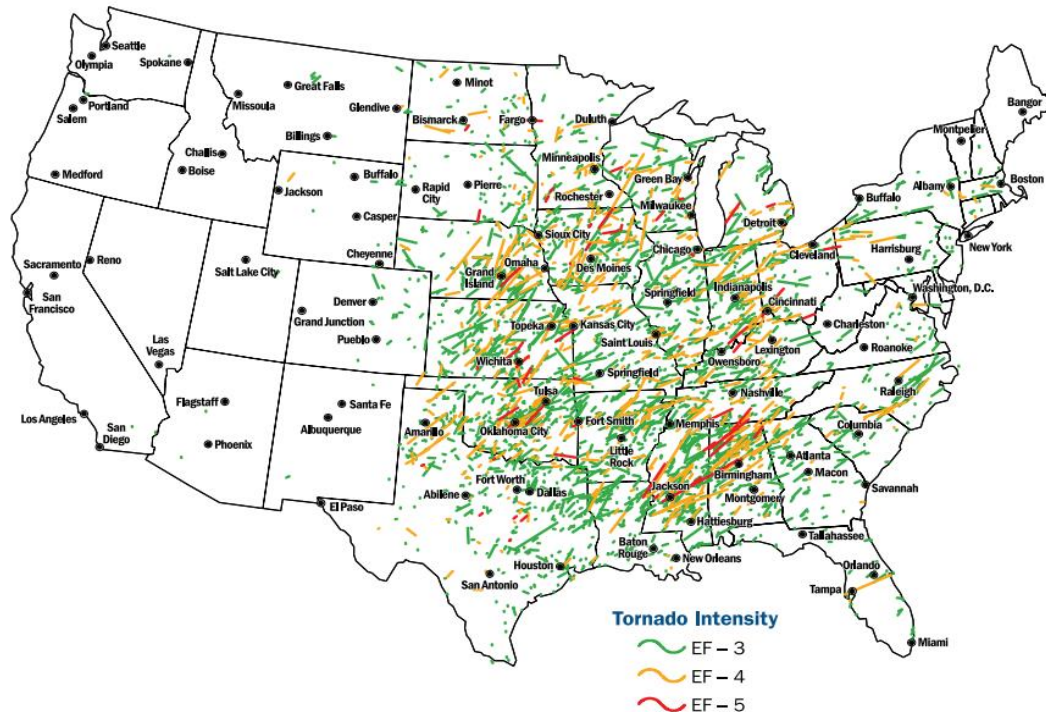
A tornado path averages 4 miles in length but may reach up to 300 miles in length. Widths average 300-400 yards (0.17 to 0.23 miles), but severe tornadoes have cut swaths a mile or more in width or have formed groups of two or three funnels traveling together. On the average, tornadoes move between 25 and 45 miles per hour (mph), but speeds over land of up to 70 mph have been reported. Tornadoes rarely last more than a couple of minutes over a spot for more than 15-20 minutes in a 10-mile area, but their short periods of existence do not limit their devastation of an area. The destructive power of a tornado results primarily from its high wind velocities and sudden changes in pressure. Damages from tornadoes result from extreme wind pressure and windborne debris. Because tornadoes are generally associated with severe storm systems, they are often accompanied by hail, torrential rain, and intense lightning. Depending on their intensity, tornadoes can uproot trees, bring down power lines, and destroy buildings. Flying debris is the main cause of serious injury and death.

Downbursts are characterized by straight line winds. Downburst damage is often highly localized and resembles that of tornadoes. There are significant interactions between tornadoes and downbursts and a tornado's path can be affected by downbursts. Because of this, the path of a tornado can be very unpredictable, including veering right and left or making a U-turn.

6.1 Tornado Hazard Vulnerability

FEMA's publication, [Safe Rooms for Tornadoes and Hurricanes Guidance for Community and Residential Safe Rooms, April 2021](#) describes tornado threats as a function of tornado severity, National Oceanic and Atmospheric Administration (NOAA) has developed maps to show areas historically subjected to the highest number of strong tornadoes. Figure 3.8 shows the recorded EF3, EF4, and EF5 tornadoes in the United States from 1950 to 2018.

Figure 3.8



Source: [FEMA P-361, Safe Rooms for Tornadoes and Hurricanes, Fourth Edition](#)

The number of tornadoes that have passed through St. Mary's County since 1950 is illustrated in Figure 3.9. Although St. Mary's County has not experienced an EF3-EF5 category tornado in its history, Charles County experienced a devastating tornado, an EF4, in LaPlata, Maryland in 2002.

Figure 3.9



*** Enhanced Fujita Scale describes the strength of the tornado based on the amount and type of damage caused by the tornado. The F-scale of damage will vary in the destruction area; therefore, the highest value of the F-scale is recorded for each event. EF0 – Light Damage (40 – 72 mph), EF1 – Moderate Damage (73 – 112 mph), EF2 – Significant damage (113 – 157 mph), EF3 – Severe Damage (158 – 206 mph), EF4 – Devastating Damage (207 – 260 mph), EF5 – Incredible Damage (261 – 318 mph)

Source: [Delmarva now - Tornado Archive A history of twisters: Tornadoes in Maryland since 1950](#)

Tornadoes have occurred in St. Mary's County in the past and are expected to occur in the future. Tornadoes often result in buildings with missing roofs, uprooted road signs, fallen powerlines and trees, destroyed homes and water towers, and damaged cars. The impact of tornadoes primarily depends upon their occurrence in developed areas – tornadoes in undeveloped areas may cause damage only to a few trees and may even go unreported. As development and population in the St. Mary's County increases, a larger number of structures and people may be subject to tornadoes.

In June of 2022, a strong storm Wednesday produced a brief “spin-up tornado” near Mechanicsville. The EF-0 tornado had an estimated wind speed of 85 mph, covering some 3.3 miles and a width of about 75 yards.

The tornado, which initially touched down in an area of residential houses, damaged approximately two dozen trees and large branches at the intersection of Maryland state Route 5/Point Lookout Road and Maryland state Route 235/Three Notch Road. One of the trees fell onto the roof of a residence, causing roof damage but no injuries.

Manufactured homes are highly susceptible to tornadoes particularly if the manufactured home is not properly installed or anchored. A total of 2,555 manufactured homes are located in St. Mary’s County. Note: During the planning process, data at the housing level was not available by the U.S. Census, therefore the 2010 Census data used for Table 3.20 is the most update to data.



Table 3.20

Manufactured Homes			
Census Tract	Manufactured Homes	Total Buildings	% of Total
24037995000	63	1,830	3.4%
24037995100	75	1,650	4.5%
24037995200	109	3,341	3.3%
24037995300	77	1,503	5.1%
24037995400	130	2,261	5.7%
24037995500	183	1,606	11.4%
24037995600	91	2,224	4.1%
24037995700	139	2,744	5.1%
24037995801	0	579	0.0%
24037995802	33	1,577	2.1%
24037995900	511	2,822	18.1%
24037996001	187	1,451	12.9%
24037996002	417	2,082	20.0%
24037996100	218	2,955	7.4%
24037996200	322	2,227	14.5%
Total	2,555	30,852	8.3%

Source: 2010 U.S. Census

6.2 Tornado Hazard Loss Estimations

There are no standard loss estimation models for tornadoes. As indicated in Hazus wind data Table 3.17, there are 2,555 manufactured homes out of a total of 30,852 structures (8.3%) that were built prior to 1940. The total dollar exposure of manufactured homes in St. Mary’s County is approximately \$130 million. Manufactured homes are particularly vulnerable to tornadoes and high-wind hazards. Census tracts 24037995500, 24037995900, 24037996001, 24037996002, and 24037996200, each have over 10 percent manufactured homes out of the total housing stock. Some of the older structures could also be more vulnerable to wind hazard events. In terms of calculating human losses, shelters throughout the community should be assessed for their locations, capacities, and strengths in order to ensure they are able to house residents and withstand the design wind speed. Since tornadoes are not location specific in terms of reoccurrence, it is difficult to anticipate where they could occur, based on past occurrences.

6.3 Tornado Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a tornado event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary's County, and public confidence in the local governance. The results of the consequence analysis are shown in the table.

Table 3.21

Tornado Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Home and landowners throughout the state are at risk to impacts from tornado events. Impacts to the public include potential for injury or loss of life, and destruction of property due to rotating vortex and/or straight-line winds, such as collapsed structures, flying debris, and downed power lines. In St. Mary's County, over 5,000 residential structures could be impacted by wind events due to being constructed prior to the modern wind speed loads. In addition, over 1,000 mobile homes are located within St. Mary's County. These structures are highly susceptible to tornadoes if not properly tied down.
Health and Safety of Responders	First responders, such as fire and police, would be called to the incident area(s) to evacuate people, close roads due to fallen trees and/or debris blockages, and attend to any injured. For a tornado event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. First responder hazards that could be encountered include: <ul style="list-style-type: none"> • Electrical hazards; • Carbon monoxide exposures; • Musculoskeletal hazards; • Heat stress; • Motor vehicle and large machinery accidents; • Hazardous materials; • Fire; and • Confined spaces and falls.
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations will be limited, unless a facility is directly within the path of destruction of a tornado, such as, wastewater plants, freshwater plants, bridges, hospitals, and ADOT. Delivery of services may be slowed or halted in affected areas due downed trees, blocked roadways, and/or momentary losses in power and communications. 58 critical and/or public facilities could be affected by wind events in St. Mary's County due to being constructed prior to the modern wind speed loads.
Property, facilities, and infrastructure	Home and landowners throughout the state may experience varying levels of damage to property depending upon the severity of winds in the area. Infrastructure may experience impacts in the form of blowing debris, and interruptions to above ground power and communication systems.
Environment	Tornados, much like other high wind events, impact the environment by potentially spreading debris and pollution; damaging sewer and wastewater treatment plants; and disturbing wildlife and natural areas.
Economic condition	A major tornado event would be costly for state and local governments due to the potential for damages associated with property, debris generation, and loss of power. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a

	<p>tornado event. The St. Mary's County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.</p>
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Source: *St. Mary's County Hazard Mitigation Planning Committee*

6.4 Tornado Hazard Future Conditions

National Geographic states that predicting whether climate change will influence the frequency and power of tornadoes is challenging.

According to the National Geographic Society [Tornadoes and Climate Change](#), tornadoes are small compared to other extreme weather events, such as hurricanes, which can span hundreds of miles. The largest tornado on record measured “only” 2.6 miles wide. Tornadoes are also very short lived, lasting from a few seconds to a few hours as opposed to days or weeks at a time. These two factors make them very difficult to model in the climate simulations that are used to project the effects of climate change.

Instead, scientists must attempt to predict how climate change may impact the individual weather components that support the development of supercell thunderstorms (the type that produce tornadoes). These weather components include:

- warm, moist air;
- an unstable atmosphere; and
- wind shear.

As global temperatures rise, the warmer atmosphere is able to hold more moisture. This increases atmospheric instability, a vital supercell component. However, as the planet warms, wind shear is likely to decrease. These two forces work against each other, so it is difficult to anticipate which might have a greater impact on tornado formation.

The fourth National Climate Assessment summarizes the complicated relationship between tornadoes and climate change: “Some types of extreme weather (e.g., Rainfall and extreme heat) can be directly attributed global warming. Other types of extreme weather, such as Tornadoes, are also exhibiting changes which may be linked to climate change, but scientific understanding isn’t detailed enough to project direction and magnitude of future change.”

7.0 Thunderstorm Hazard Risk & Vulnerability

The thunderstorm hazard includes wind, lightning and hail events. Lightning is a sudden and violent discharge of electricity from within a thunderstorm due to a difference in electrical charges and represents a flow of electrical current from cloud-to- cloud or cloud-to-ground. Nationally, lightning causes extensive damage to buildings and structures, kills or injures people and livestock, starts untold numbers of forest fires and wildfires, and disrupts electromagnetic transmissions. Lightning is extremely dangerous during dry lightning storms because people remain outside due to the lack of precipitation; however, lightning is still present during the storm.

Hailstorms are violent and spectacular phenomena of atmospheric convection, always associated with heavy rain, gusty winds, thunderstorms, and lightning. Hail is a product of strong convection and occurs only in connection with a thunderstorm where the high velocity updrafts carry large raindrops into the upper atmosphere (where the temperature is well below the freezing point of water).

Hailstones grow in size when the frozen droplet is repeatedly blown into the higher elevations. The hailstone ascends as long as the updraft velocity is high enough to hold the hailstone. As soon as the size and weight of the hailstone overcome the lifting capacity of updraft, it begins to fall freely under the influence of gravity. The falling of hailstones, under thunderstorm conditions, is accompanied with a cold downdraft of air.

7.1 Thunderstorm Hazard Vulnerability

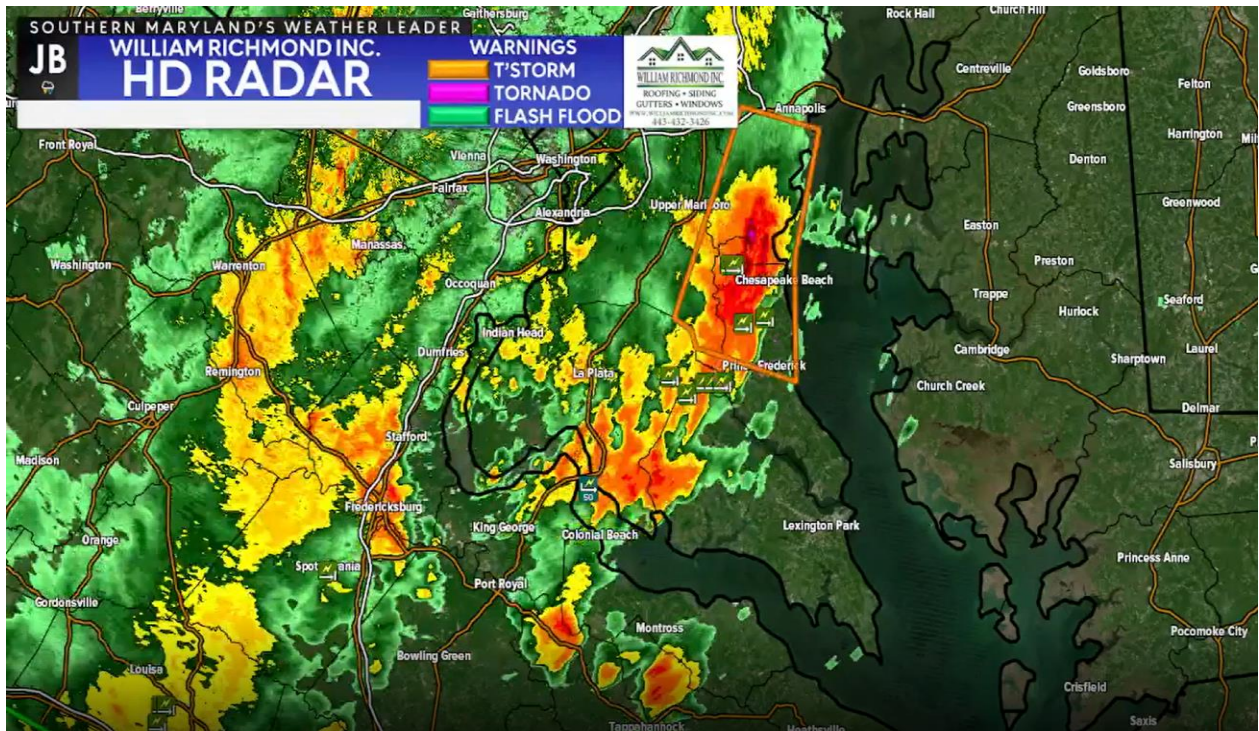
Severe storms can strike anywhere in the County; therefore, specific building counts are not practical to use to assess the vulnerability to this hazard. Impacts from severe storms have been moderate, with localized flooding occurring from severe thunderstorms, minor damages from high wind events, and power and transportation disruptions from winter storms. The impact from hail and lightning has been limited to minor damages at specific locations. Severe storms could have a major economic impact on St. Mary's County when utility systems, including electricity, are disrupted for an extended period.

All critical facilities in the county are vulnerable to the impacts from the thunderstorm hazard due to the potential disruption of services and transportation systems as well as structure damage. Critical and public facilities should be aware of the risks of such a hazard occurring, particularly power failure. Emergency backup generators should be installed at these facilities. An additional vulnerability to lightning strikes are communication towers. These structures are very tall, which increases the likelihood to be struck by lightning. Additionally, due to the prevalence and multitude of the various electronic equipment located on communication towers (i.e., antennae wires, etc.), static charge can build on the tower itself, which in turn can increase the probability of a lightning strike. It is important to evaluate and assess the potential impacts the loss of tower derived communications loss can have during a thunderstorm event. Mitigation measures may be implemented to protect these towers from a potential lightning strike, especially since many of our communications now rely on the wireless capabilities of these structures.

Nine (9) injuries were reported within data from the National Center for Environmental Information (NCEI), NOAA for thunderstorms, lightning, and hail.

7.2 Thunderstorm Hazard Loss Estimation

To date, property damage from thunderstorms, lightning, and hail exceed \$2.131 million according to the National Center for Environmental Information (NCEI), NOAA. Crop damages reported by NCEI data from thunderstorms, lightning, and hail total \$22.6 thousand.



Source: <https://jbweather.net/breaking-tornado-confirmed-from-friday-nights-storms/>. William Richmond Inc Radar archive between 7:05PM EDT and 9:43PM EDT. May 29, 2022.

7.3 Thunderstorm Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a thunderstorm event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County, and public confidence in the local governance. The results of the consequence analysis are shown in Table.

Table 3.22

Thunderstorm Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Home and landowners throughout the state are at risk to impacts from a thunderstorm event in the form of lightning and hail. Lightning is very dangerous, even observed at several miles away. As such, members of the public should seek shelter immediately. In addition, hail poses the threat of personal injury, particularly as hail stones reach larger sizes. Flying debris, downed power lines, unsafe buildings & components, contaminants, and power loss impact the health & safety of the public.
Health and Safety of Responders	First responders, such as fire and police, would be called to the incident area(s) to evacuate people, close roads due to fallen trees and/or debris blockages, and attend to any injured. For a high wind event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. First responders in St. Mary’s County could face the following hazards associated with thunderstorm events:

	<ul style="list-style-type: none"> ▪ Electrical hazards; ▪ Tree and debris removal; ▪ Carbon monoxide; ▪ Lifting injuries; ▪ Mold; ▪ Rodents, Snakes and Insects; ▪ Chemical and biological hazards; ▪ Fire; ▪ Drowning; ▪ Hypothermia (due to the cold weather and water exposure); ▪ Exhaustion (from working extended shifts); and heat.
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations will be limited, unless a facility is directly adversely affected by lightning or hail caused by a thunderstorm, such as debris blocking streets. Delivery of services may be slowed or halted in affected areas due to momentary losses in power and communications.
Property, facilities, and infrastructure	Home and landowners throughout the state may experience damage to property depending upon the amount of lightning strikes and severity of hail in the area. Infrastructure may experience impacts in the form of fire caused by lightning strikes, roof and crop damage from hail, loss of operations, and interruptions to above ground power and communication systems.
Environment	Lightning and hail impact the environment primarily from wildfire caused by lightning, and crop damage caused by hail. In addition, loss of natural resources and water quality may be impacted. Within the 2016 State of Maryland Hazard Mitigation Plan, St. Mary's County has a medium-high hazard ranking for Thunderstorms.
Economic condition	A major thunderstorm event would be costly for state and local governments due to the potential for damages associated with property, loss of operations (commercial, transportation), access to commercial areas, debris generation, loss of power, and overall cost of recovery from the event. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a severe thunderstorm event. The St. Mary's County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response and recovery through the Emergency Management Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.

Source: St. Mary's County Hazard Mitigation Planning Committee

7.4 Thunderstorm Hazard Future Conditions

The thunderstorm hazard is comprised of thunderstorm wind events and hail events. Combining the annualized averages for each of these events provides a potential probability of future occurrence for the thunderstorm hazard as a whole. Events gathered from the NCEI Storm Events Database indicate that, in total, 215 thunderstorm events have occurred since 1962. Therefore, the County can expect to experience approximately 3.58 thunderstorm events per year.

Climate modeling predicts that conditions conducive to severe thunderstorms will arise more often as the Earth warms. Modeling suggests that weather conditions which lead to severe storms will arise 5% to 20% more often per one degree Celsius of global temperature change, primarily due to increased atmospheric instability.

However, because severe storms do not always arise even in the most favorable conditions, any associated increase in severe thunderstorms is expected to be smaller. Compared with other regions, the Northern Hemisphere is predicted to experience the largest increase in convective environments (i.e., environments favorable to creating severe storms).

With that being said, the future annual average rate of thunderstorms can be estimated for St. Mary's County given two possible scenarios. The most conservative scenario – a 5% increase in severe weather conditions – would mean the County would average approximately 3.76 thunderstorm events per year. In the most extreme scenario – a 20% increase in severe weather conditions – Somerset County would average approximately 4.30 thunderstorm events per year.

As part of the online public survey, participants were asked what actions they have taken to reduce the risk of hazards to their residence or commercial property. Almost all the participants indicated that they have removed dead/dying trees and vegetation from around the home. This is beneficial in reducing property loss during thunderstorm events and proactive if these events increase in over the years.

8.0 Drought & Extreme Heat Hazard Risk & Vulnerability

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water and snow levels below the minimum necessary for sustaining plant, animal, and economic systems. The most commonly used drought definitions are based on meteorological, agricultural, hydrological, and socioeconomic effects:

- Meteorological drought is often defined by a period of substantially diminished precipitation duration and/or intensity. The commonly used definition of meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.
- Agricultural drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought, and can also affect livestock and other dry-land agricultural operations.
- Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, snowpack, and as lake, reservoir, and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurements tend to lag behind other drought indicators.
- Socioeconomic drought occurs when physical water shortages start to affect the health, well-being, and quality of life of the people, or when the drought starts to affect the supply and demand of an economic product.

NOAA's National Integrated Drought Information System (NIDIS), monitors droughts daily for the United States. NIDIS uses the U.S. Drought Monitor Classification Scheme (Figure 3.10) for drought monitoring. According to the site, St. Mary's County is currently not affected by drought. During the months of April, May, June and September 2022, the county was considered abnormally dry (Figure 3.11).

The NIDIS website provides [Drought Conditions for St. Mary's County](#) and is updated weekly. The site provides current conditions as well as streamflow and future conditions, and historical conditions for the County.

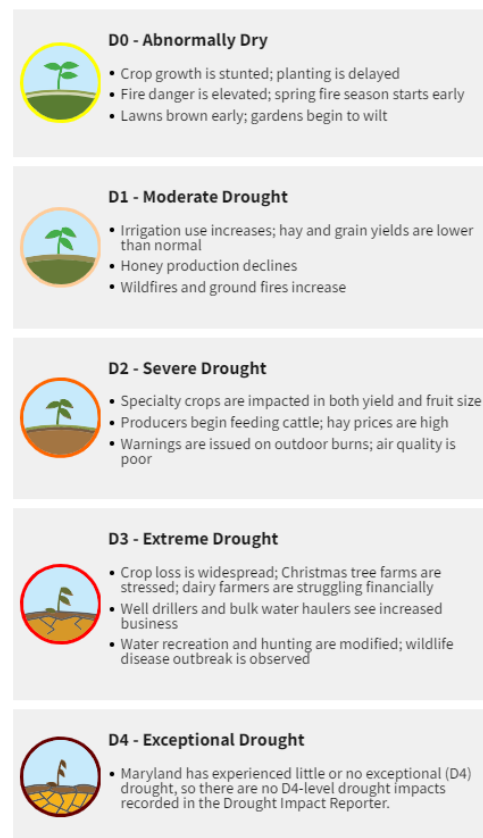
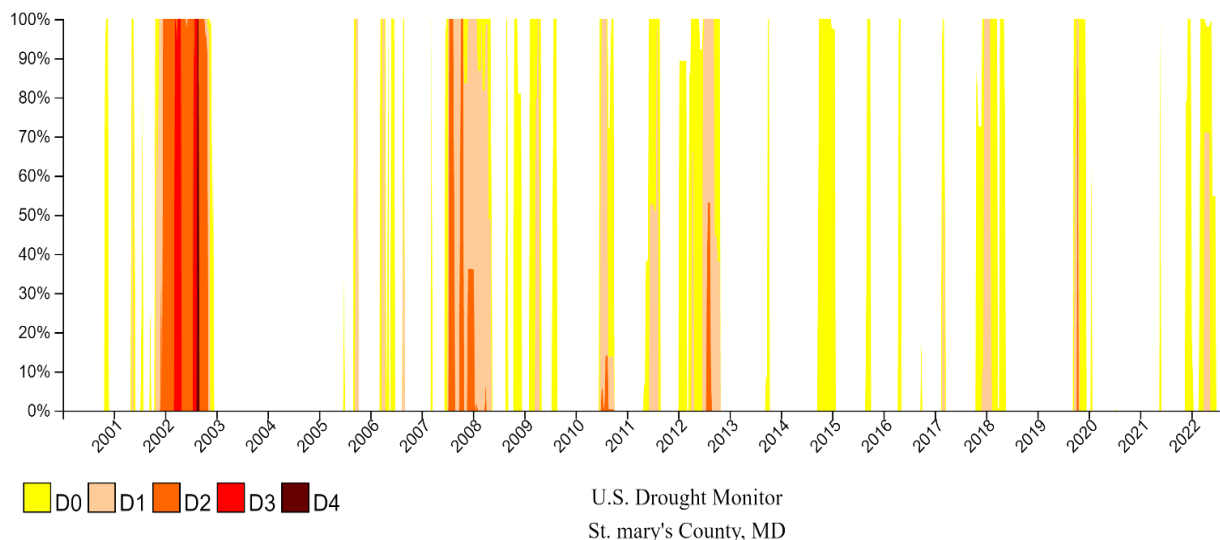


Figure 3.10

Source(s): NDMC, NOAA, USDA

Figure 3.11



According to the National Weather Service, when temperature and humidity together exceed certain levels (85°F and 100% humidity, 90°F and 70% humidity, or 110°F and 30% humidity) heatstroke is likely if exposure continues for many hours. Such conditions, which can create a heat index temperature of 105°F or greater, are encountered in Maryland virtually each summer.

NOAA defines extreme heat as ‘excessive heat occurring from a combination of high temperatures (significantly above normal) and high humidity. At certain levels, the human body cannot maintain proper internal temperatures and may experiences heat stroke. The “Heat Index” is a measure of the effect of the combined elements on the body.’

8.1 Drought & Extreme Heat Hazard Vulnerability

Problems of drought can affect St. Mary’s County with implications for the availability of water for agricultural, industrial, and household uses, as well as recreational purposes such as boating and fishing. Land uses, such as agricultural, are affected more by weather related problems than households considering agriculture often draws on more than one source of water; this complexity increases their vulnerability to extreme weather.

As the County’s 2010 Comprehensive Plan indicates, agriculture remains a leading and vital sector of St. Mary’s County’s economy. St. Mary’s County contains approximately 230,910 acres of land area. The Maryland Department of Planning – 2010 Generalized Land Use/Land Inventory, shows that 46 percent is in a forest use (including forest on large residential lots) and 22 percent is in an agricultural use (including agricultural lands on large residential lots). The 2012 Census of Agriculture counted 67,086 acres of land in farms (includes hay, pasture, crop, and forested lands) in St. Mary’s County, which was a slight decrease from 68,648 acres in 2007. The number of farms in 2012 is 632, an increase from 621 in 2007. According to the 2017 Census of Agriculture, the acres of land in farms decreased to 61,803 in St. Mary’s County. The number of farms in operation also slightly decreased to 615 farms.

In regard to extreme heat, the heat index is an important aspect to consider during the summer months. As mentioned in Table 3.20, the heat index refers to how hot it really feels outside. The heat index is based on air temperature and relative humidity. For example, an air temperature of 92°F with a humidity of 100% creates a heat index of 132°F, which is extremely dangerous. Two groups that are most vulnerable to these excessive heat conditions are the elderly population and the younger population. The following table details the heat disorders that may occur to these two groups.

Table 3.23

Heat Disorders on High-Risk Groups	
Heat Index	Possible Heat Disorders
130 or Higher	Heatstroke/sunstroke highly likely with continued exposure.
105-130	Sunstroke, heat cramps or heat exhaustion likely and heatstroke possible with prolonged exposure and/or physical activity.
90-105	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
80-90	Fatigue possible with prolonged exposure and/or physical activity.

Source: NOAA

8.2 Drought & Extreme Heat Hazard Loss Estimation

To date, crop damage from drought exceed \$1.670 million according to the National Center for Environmental Information (NCEI), NOAA. Twelve (12) drought events were included in the data, therefore on average crop damage from a drought event is approximately \$140 thousand.

While the National Center for Environmental Information (NCEI), NOAA data indicates that there were two (2) extreme heat events, no monetary damages, injuries, or deaths from extreme heat were reported.

8.3 Drought & Extreme Heat Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that drought and extreme heat events would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County, and public confidence in the local governance. The results of the consequence analysis are shown on the table.

Table 3.24

Drought & Extreme Heat Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Droughts can affect home and landowners in a local, regional, or statewide context. Typically, drought events take a long time to develop and may be either short-term or long-term events. Impacts to the public during a drought take the form of crop damage/failures, water rationing and other water source impacts, and wildfires.
Health and Safety of Responders	First responders, such as fire and police, would be most concerned with the secondary impacts of drought, such as wildfires. As such, first responders would be called to incident area(s) to evacuate people from the fire area, close roads, create fire breaks, and attend to any injured. During a wildfire event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. During a drought associated with extreme heat, common hazards faced on the fire line can include burn overs/entrapments, heat-related illnesses and injuries, smoke inhalation, vehicle-related injuries (including aircraft), slips, trips, and falls. In addition, due to prolonged intense physical exertion, Firefighters are at risk for heat related illness and rhabdomyolysis. Also, during a drought, first responders who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Burns may also occur because of accidental contact with hot surfaces or steam. Workers at greater risk of heat stress include those who are 65 years of age or

	older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations due to drought will be very limited. Generally, buildings and infrastructure, which are essential to continuity of operations and delivery of services, are not impacted by drought. In terms of continuity of operations, critical and/or public facilities are at risk due to electric transmission systems being impacted when power lines sag during an extreme temperature event. Extreme high temperatures can cause power lines to sag and possibly short out. Also, the combination of extreme heat and the added demand for electricity to run air conditioning causes transmission line temperatures to rise. These factors could affect the ability critical and/or public facilities ability to function properly in St. Mary’s County.
Property, facilities, and infrastructure	Property and infrastructure is typically not vulnerable to drought. However, the water supply infrastructure may be impacted by drought during a long-term event.
Environment	Droughts impact the environment by causing wildfires, overloading water, and wastewater treatment plants, creating dust storms, and disturbing wildlife and natural areas. In St. Mary’s County, drought can affect human health and energy. According to the Center for Climate and Energy Solutions, high humidity and elevated nighttime temperatures appear to be key ingredients in causing heat-related illness and mortality. Heat stress occurs in humans when the body is unable to cool itself effectively. Normally, the body can cool itself through sweating, but when humidity is high, sweat will not evaporate as quickly, potentially leading to heat stroke. Higher summer temperatures will increase electricity use, especially during heat waves. In addition, as rivers and lakes warm, their capacity for absorbing waste heat from power plants declines. This can reduce the thermal efficiency of power production, make it difficult for power plants to comply with environmental regulations regarding their cooling water, and can make it harder to get permits for new facilities.
Economic condition	Droughts impact on economic conditions increase due to increased fire potential and the increased cost of energy. A major land drought event would draw upon state, county, and local resources. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event.
Public confidence in governance	Public confidence will largely depend upon how effectively the state, county, or local government responds to the drought event. The St. Mary’s County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards and committees to enhance the quality of life in St. Mary’s County. The Maryland Department of the Environment has designated Drought Coordinators for the regions of the State. St. Mary’s County drought coordinator is: St. Mary’s – Southern Region Ms. Jaqueline V. Meiser 43990 Commerce Avenue Hollywood, MD20636 Phone: 301-373-4733, x235 Fax: 301-375-4822

Source: St. Mary’s County Hazard Mitigation Planning Committee

8.4 Drought & Extreme Heat Hazard Future Conditions

Increasingly frequent drought conditions have long been forecasted as a consequence of warming temperatures, but a study from the National Center for Atmospheric Research (NCAR) projects serious impacts as soon as the 2030's. Impacts by century's end could go beyond anything in the historical record.

Scientists use a measure called the Palmer Drought Severity Index (PDSI) to measure drought as introduced in Figure 3.6. A positive score indicates wetter conditions, and a negative score indicates drier conditions; a score of zero is neither overly wet nor dry.

According to the [NCAR](#) study, the most severe drought in recent history, in the Sahel region of western Africa in the 1970s, had a PDSI of -3 or -4. By contrast, the study indicates that by 2100 some parts of the U.S. could see -8 to -10 PDSI. By the 2030's, the central and western U.S. could see average readings dropping to -4 to -6, the study projected.

At present, most of the Northeast (including Maryland and St. Mary's County) is expected to see only slightly drier conditions by the end of the 2030's, that is, a decreasing PDSI of -0.5 to -1.0. Short-term drought forecasting (e.g., daily, weekly, and up to 3 months) is completed by NOAA via the National Integrated Drought Information System (NIDIS) and is available at www.Drought.gov.

9.0 Wildfire Hazard Risk & Vulnerability

Wildfires can occur at any time of day, during any month of the year, and the season length and peak months may vary appreciably from year to year. Land use, vegetation, amount of combustible materials present, and weather conditions such as wind, low humidity, and lack of precipitation are the chief factors influencing the number of fires and acreage burned. Generally, fires are more likely when vegetation is dry from a winter with modest snow and/or a spring and summer with sparse rainfall. Wildfires can cause significant injury, death, and damage to property. The potential for property damage from fire increases each year as more recreational properties are developed on wooded land and increased numbers of people use these areas. Fires can extensively impact the economy of an affected area, especially the logging, recreation and tourism industries. Major direct costs associated with wildfires are the salvage and removal of downed timber and debris and the restoration of the burned area. If burned-out woodlands and grasslands are not replanted quickly to prevent widespread soil erosion, landslides, mudflows, and floods could result, compounding the damage.

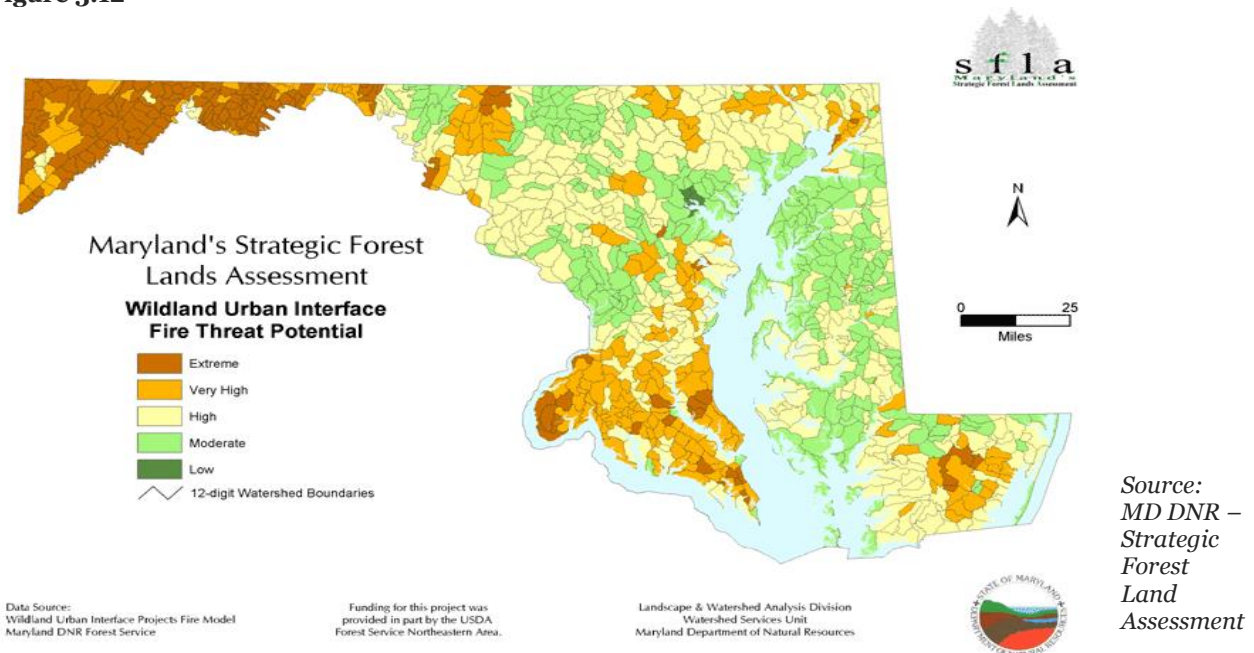
Excerpt from [Spreading like Wildfire: The Rising Threat of Extraordinary Landscape Fires](#)

“The U.N. report urges governments to become more proactive about fire hazards. Of every dollar spent in the United States on managing wildfires, almost 60 cents goes toward immediate firefighting responses, according to research cited in the report. Much less is spent on reducing fire risks in advance and helping communities recover in ways that could make them more resilient.”

9.1 Wildfire Hazard Vulnerability

As of November 2021, a total of 52,729 fires occurred in the United States totaling 6,631,430 acres burned since January 2021. The 10-year average between 2001 and 2020 for the United States is 53,675 wildfires burning 7,122,253 acres. Maryland’s Strategic Forest Lands Assessment was conducted by the Maryland Department of Natural Resources with financial assistance from the United States Department of Agriculture Forest Service and is composed of many types of vulnerability studies applying to the forests of Maryland. Figure 3.12, depicted below, shows one of the studies conducted on wildland/urban interface fire threat potential.

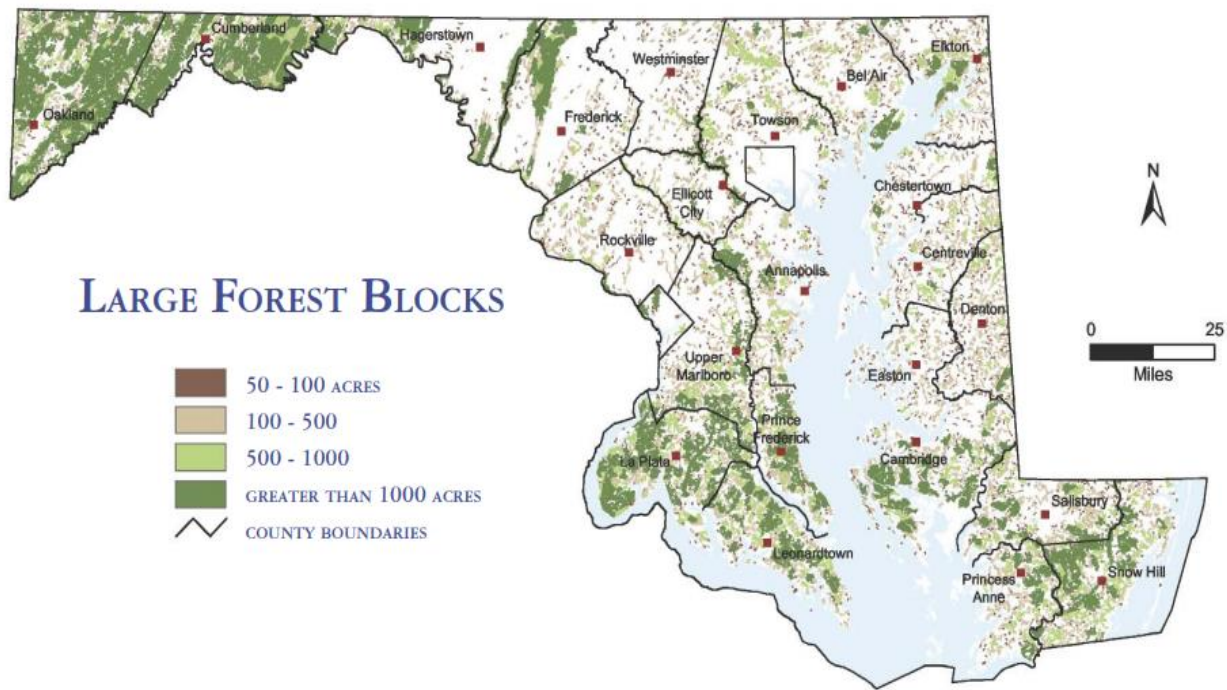
Figure 3.12



According to the assessment, the urban- wildland interface fire threat potential to the St. Mary's County forestlands is considered very high, due to the pressure to develop large tracts of open land. The probability of wildfires in St. Mary's County would also be tied to periods of prolonged drought when forests are more vulnerable to ignite from lightning strikes or human carelessness or arson. Other contributing factors would include the buildup of dead underbrush from fallen trees and limbs following severe storms, hurricanes, ice storms, or tornadoes.

The graphic in Figure 3.13 indicates that St. Mary's County contains numerous forest blocks that are greater than 1,000 acres. Although Maryland averages 5,000 wildfires a year, which consume 8,000 to 9,000 acres of forest, marsh, and grasslands, St. Mary's County has experienced fewer wildfire events in the past few years; partly attributed to the Open-Air burning regulations and public education on preventing wildfires.

Figure 3.13



MARYLAND'S STRATEGIC FOREST LANDS ASSESSMENT



WATERSHED SERVICES UNIT
LANDSCAPE AND WATERSHED ANALYSIS DIVISION

DATA SOURCE: NATIONAL LAND COVER DATA (NLCD)

FUNDING FOR THIS PROJECT WAS PROVIDED IN PART
BY THE USDA FOREST SERVICE NORTHEASTERN AREA

Source: MD DNR – Strategic Forest Land Assessment

9.2 Wildfire Hazard Loss Estimation

Future wildfires could cause substantial loss of property along with direct and indirect economic effects for residents and community businesses. In recent years, St. Mary's County has experienced an increase in population in the urban and rural areas. As more development is planned in the more rural areas and on forested or agricultural lands, the occurrence of human-caused fires and the number of people and property at risk due to wildfires will likely increase. Land supply will not be a deterrent to future population growth in the urban- wildland interface areas.

Data from the Maryland Department of Natural Resources Fire Service, Southern Region Fire Center indicates a total of 893 fires occurred in the county between 1990 and 2020, damaging approximately 749.2 acres. The largest number of fires occurred in 1995, 79 fires, which damaged over 100 acres of land within St. Mary's County. Each year there has been property damage including outbuildings, automobiles, boats, propane tanks, fences, and porch decks. Houses have been threatened by these wildfires, but none have been destroyed.

Table: 3.25

Wildfire Events		
Year	Number of Fires	Acres Burned
1990	11	11.3
1991	45	59.9
1992	64	34.2
1993	35	19.5
1994	45	72
1995	79	104.1
1996	22	10.2
1997	35	21.8
1998	40	30.9
1999	61	52.8
2000	17	10.6
2001	59	40.4
2002	57	32.8
2003	9	4.5
2004	23	23.8
2005	25	9.9
2006	55	12.7
2007	71	66.7
2008	36	12.8
2009	35	18.5
2010	7	5.8
2011	5	0.7
2012	16	20.6
2013	4	3.5
2014	5	7.2
2015	14	3.5
2016	2	0.3
2017	3	7.0
2018	1	1.5
2019	8	4.1
2020	4	55.6
Total	893	749.2

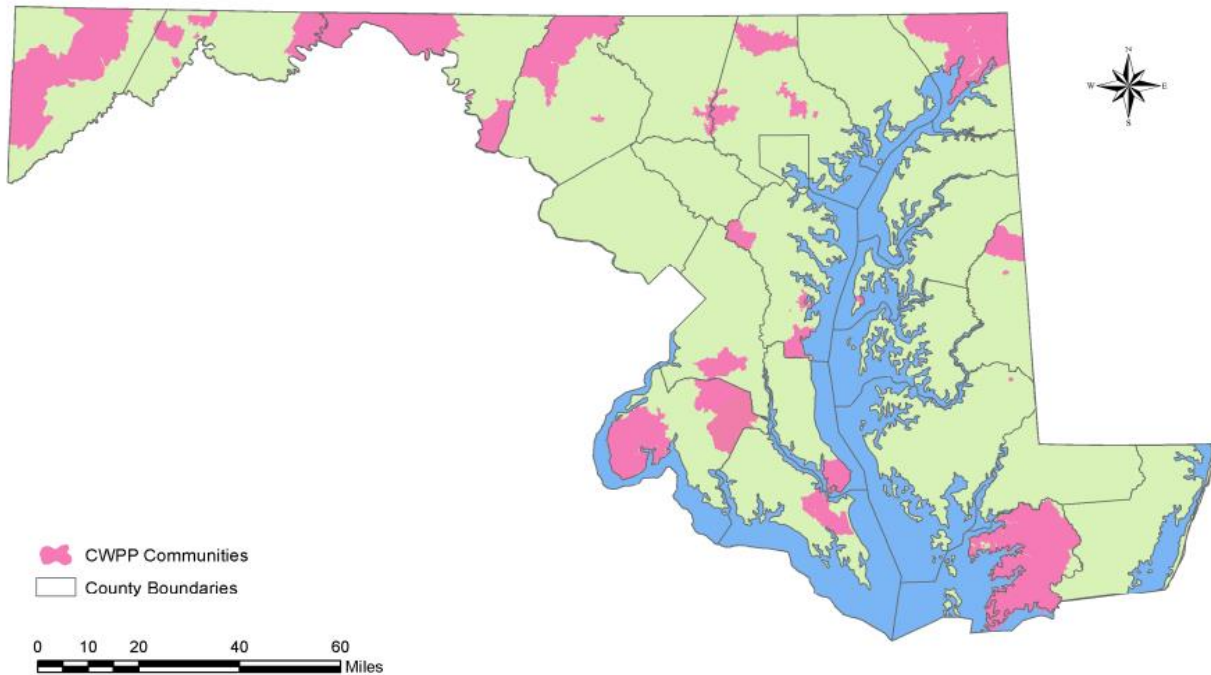
Source: Maryland Forest Service

Based on the data provided by the Maryland Fire Service on the table above, the average acres burned per year from 1990-2020 is 25 acres.

The [2020 Forest Action Plan Part I: Forest Resource Assessment](#) indicates that St. Mary's County is one of several areas in Maryland with a Community Wildfire Protection Plan (Figure 3.14). A Community Wildfire Protection Plan (CWPP) analyzes the wildfire risk in a community, and helps guide the efforts of the community residents, homeowner's associations, developers, and the local fire department in mitigating their wildfire risk.

Figure 3.14

Areas in Maryland with Community Wildfire Protection Plans



This plan is an important step in raising awareness and coordinating community efforts. There are currently 81 CWPPs covering 1,180 rural communities, communities located in the Wildland Urban Interface, and government properties across the State. These plans have been focused in areas identified in the Maryland Wildland Fire Assessment Atlas as having elevated fire risk. More information about community wildfire protection planning is available at the [DNR's Firewise](#) website.

9.3 Wildfire Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a wildfire event would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary's County, and public confidence in the local governance. The results of the consequence analysis are shown in Table 3.26.

Table 3.26

Wildfire Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Home and landowners in high wildfire risk zones in the state are most vulnerable to impacts from a wildfire event. Impacts to the public include destruction of property, injuries related to burns and smoke inhalation, and road closures. According to the Maryland Forest Service – 2011 to 2015 Wildfire Management Annual Reports, 62 acres were burned including marsh, grass, slash/logging debris.
Health and Safety of Responders	First responders, such as fire and police, would be called to the incident area(s) to evacuate people from the fire area, close roads, create fire breaks, and attend to any injured. During a wildfire event, as with all disaster events, responders face the risk of personal injury while performing necessary job functions. During a wildfire in St. Mary’s County, common hazards faced on the fire line can include burn overs/entrapments, heat-related illnesses and injuries, smoke inhalation, vehicle-related injuries (including aircraft), slips, trips, and falls. In addition, due to prolonged intense physical exertion, fire fighters are at risk for heat related illness and rhabdomyolysis.
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations will be limited unless a facility is directly within the path of destruction of a wildfire. Delivery of services may be slowed or halted in affected areas due to blocked roadways, and/or momentary losses in power and communications caused by destroyed infrastructure.
Property, facilities, and infrastructure	Home and landowners within a wildfire area may experience varying levels of damage to property depending upon the severity of the fire and the amount of decline in air quality within the hazard area. Infrastructure may experience impacts in the form of interruptions to above ground power and communication systems, and road detours and closures.
Environment	Wildfires impact the environment by spreading pollution, creating health problems by reducing air quality from the spread of ash and smoke, and disturbing or destroying wildlife and natural areas.
Economic condition	A major wildfire event would be costly for state and local governments due to the potential for damages associated with property, infrastructure, and impacts to health and air quality. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a wildfire event. The St. Mary's County Department of Emergency Services and Technology is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.

Source: St. Mary’s County Hazard Mitigation Planning Committee

9.4 Wildfire Hazard Future Conditions

The Maryland DNR indicates that wildfires are a common occurrence in the State. During a typical year the Maryland Forest Service responds to an average of 123 wildfires that burn more than 1,780 acres of forest, brush, and grasses. Fire departments respond to over 5,000 wildfire incidents per year.

While wildfires occur in every month in the State, they peak in the spring and fall seasons. During these seasons the leaves from deciduous trees have fallen to the ground, which allows sunlight and wind to reach the forest floor and dry out the fuel (i.e., leaves). Additionally, relative humidity tends to be drier during the spring and fall, which when combined with wind can create the conditions that allow a wildfire to spread quickly.

Climate change is also expected to play a role in increasing the frequency and intensity of wildfires across the United States and in Maryland. An article written for the New York Times, in which the [article](#) references a United Nations report, suggests the following:

“In a moderate scenario for global warming, the likelihood of extreme, catastrophic fires could increase by up to a third by 2050 and up to 52 percent by 2100, the report estimates. If emissions are not curbed and the planet heats up more, wildfire risks could rise by up to 57 percent by the end of the century.”

As determined in Wildfire Hazard Loss Estimation section, St. Mary’s County experiences 29.77 wildfire events annually. Based on the moderate scenario for global warming, which predicts an increase in major wildfires of up to a third by 2050, the County’s total annual wildfires could increase by 98 events per year, for a total of 39.57 wildfires annually.

The [U.N. report](#) urges governments to become even more proactive about wildfire hazards. Of every dollar spent in the United States on managing wildfires, almost 60 cents goes toward immediate firefighting responses, according to research cited in the report. Much less is spent on reducing fire risks in advance and helping communities recover in ways that could make them more resilient.

10.0 Dam Failure Hazard Risk & Vulnerability

Dams present flood risks, but they also provide many benefits, including irrigation, flood control, and recreation. Dams have been identified as a key resource of our national infrastructure that is vulnerable to terrorist attack. States have the primary responsibility for protecting their populations from dam failure. Of the approximately 94,400 dams in the United States, State governments regulate about 70 percent. About 27,000 dams throughout the U.S. could incur damage or fail, resulting in significant property damage, lifeline disruption (utilities), business disruption, displacement of families from their homes, and environmental damage.

According to the Maryland Department of the Environment [Maryland Dam Safety Update](#), over the past 20 years there have been over 40 incidents at dams in Maryland that could have resulted in failure, with seven incidents in 2018 alone. For Maryland, this indicates a probability of at least two (2) dam incidents occurring per year.

According to FEMA [Be Aware of Potential Risk of Dam Failure in Your Community](#), dams can fail for several reasons, including overtopping caused by floods, acts of sabotage, upstream dam failure (i.e., the failure of another nearby dam), structural failure of materials used in dam construction, or earthquakes.² FEMA acknowledges three primary types of risk associated with high hazard potential dams, which include the following:

- **Incremental Risk:** The risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or after overtopping, or undergo component malfunction or misoperation, where the consequences considered are over and above those that would occur without dam breach. The consequences typically are due to downstream inundation, but loss of the pool can result in significant consequences in the pool area upstream of the dam.
- **Non-Breach Risk:** The risk in the reservoir pool area and affected downstream floodplain due to ‘normal’ dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or ‘overtopping of the dam without breaching’ scenarios.
- **Residual Risk:** The risk that remains after all mitigation actions and risk reduction actions have been completed. With respect to dams, FEMA defines residual risk as “risk remaining at any time” (FEMA, 2015, p A-2). It is the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue.

According to the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE) National Inventory of Dams, St. Mary’s County currently has eleven (11) dams within its jurisdiction. MDE provides dam ratings based on an analysis of potential impacts in the event of a dam failure. The Dam Ratings are defined by MDE as follows:

- **High Hazard:** Failure would likely result in loss of human life, extensive property damage to homes and other structures, or cause flooding of major highways such as State roads or interstates. There are 102 high hazard dams in Maryland.
- **Significant Hazard:** Failure could possibly result in loss of life or increase flood risks to roads and buildings, with no more than 2 houses impacted and less than six lives in jeopardy. There are 148 significant hazard dams in Maryland.
- **Low Hazard Dam:** Failure is unlikely to result in loss of life and only minor increases to existing flood levels at roads and buildings is expected. There are more than 240 low hazard dams in Maryland.

According to the National Inventory of Dams, St. Mary's County contains 1 high hazard, 3 significant hazard, and 4 low hazard dams. Information on each dam is provided in Table 3.27, while Map 3.11 provides their locations.

Table 3.27

National Inventory of Dams - St. Mary's County								
Dam Name	Dam Rating	Owner Type	Distance to Nearest City (Miles)	River or Stream Name	Primary Use	Drainage Area (Sq Miles)	EAP Prepared / Date	Inspections Condition Assessment
St Mary's River State Park Dam	High	State	3	Western Branch - St. Mary's River	Flood Risk Reduction, Recreation	8.8	Yes – 4/18/2022	Poor
Ledford Pond Dam	Significant	Private	1	St. Clement Creek-TR	Fish and Wildlife Pond, Fire Protection, Stock, Or Small Fishpond	0.99	Almost Complete EAP as of 7/28/2022 – 6/14/21	Poor
Breton Bay Golf and Country Club Dam	Significant	Private	1.4	Cherry Cove Creek	--	0.11	Yes – 4/29/2020	Unsatisfactory
Tower Hill Community Pond Dam (Tower Hill Road)	Significant	Private	3.4	Poplar Creek	Recreation; Water Supply	2.9	No	Fair
Wildewood Community Dam	Low	Private	0.32	Potomac River-TR-St. Mary's River	Flood Risk Reduction	0.94	Not Required	Not Rated
Norris Dam	Low	Private	1.2	St. Mary's River-TR	Fish and Wildlife Pond; Fire Protection, Stock, Or Small Fishpond; Other	0.02	Not Required	Not Rated
Holton Pond Dam	Low	Federal	0	Pine Hill Run	Recreation	0.9	Not Required	Fair
Clair Peake Dam (Md 235)	Low	State	1.9	Tom Swamp Run	Irrigation; Fish and Wildlife Pond; Recreation	8.8	Not Required	Poor

Source: [USACE National Inventory of Dams](#)

During the review process, the Maryland Department of the Environment Dam Safety Division provided an additional three (3) dams that were not included on the National Inventory of Dams, Table 3.28.

Table 3.28

Maryland Dam Inventory - St. Mary's County						
Dam Name	Dam Rating	Owner Type	River or Stream Name	Primary Use	Drainage Area (Sq Miles)	Inspections Condition Assessment
Claude Johnson Dam	Low	County	St. Mary's River	Recreation	3.3	Unsafe
Mill Pond	Low	Private	Mill Creek	Recreation	1.37	Breached
Wildewood Dam on St. Mary's River	Low	Unknown	St. Mary's River	Stormwater Management	1	Very Poor

Source: [MDE-Maryland Dam Inventory](#)

Map 3.11



10.1 Dam Failure Hazard Vulnerability

According to FEMA [Emergency Operations Planning: Dam Incident Planning Guide](#), dam incidents can occur for several reasons, including as a result of natural hazards, such as floods earthquakes, excessive rainfall, or man-made hazards such as deliberate or negligent human actions. The Planning Guide explains that dams can fail for one, or a combination of, the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam;
- Structural failure of a dam or of materials used in dam construction;
- Spillway deficiency;
- Movement and/or failure of the foundation supporting the dam;
- Settlement and cracking of concrete or embankment dams; and,
- Piping and internal erosion of soil in embankment dams.

Flood/Excessive Rainfall

The occurrence of a Probable Maximum Flood (PMF), which is the most severe storm that can theoretically occur, is one scenario that could cause dam failure. This failure would result in a peak dam breach flow. In certain instances, a condition of uplift could occur at the heel of a dam which would not necessarily create a situation where overturning would occur. Failure of the Breton Bay Golf and Country Club Dam, significant hazard dam, would impact several commercial buildings, residential structures, and roads. A failure would cause the possible loss of life in the populated area downstream. Society Hill Road could be impacted during a dam breach, which is the ingress and egress to the residential community located on Fairway Drive. Dam failure at this site would cause a definite traffic and possible public safety issue. The inspection condition assessment for this dam were documented as unsatisfactory and the drainage area is 0.11 square miles.

Currently, insufficient information is available to conduct a substantive analysis of incremental, non-breach and residual risk relative to St. Mary's County's significant hazard potential dams. However, it is acknowledged that incremental risk is "the risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or undergo component malfunction or mis-operation, where the consequences considered are over and above those that would occur without dam breach;" non-breach risk is "the risk in the reservoir pool area and affected downstream floodplain due to 'normal' dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or 'overtopping of the dam without breaching' scenarios;" and residual risk is "the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue" (FEMA, 2020 Rehabilitation of High Hazard Potential Dams Grant Program Guidance).

The average dam age in the United States is 60 years. Many older dams were not built to any particular standard and thus may not withstand extreme rainfall events. Older dams are made from an assortment of materials. These structures may not have any capacity to release water and could be overtopped, which could result in catastrophic failure. The Holton Pond Dam is an earthen dam constructed in 1958 and has an 8-foot uncontrolled spillway. An earthen dam is constructed out of materials such as gravel, weathered rock, sand, silt, or soil.

In addition, dams may not always be regulated, given that the downstream risk may have changed since the dam was constructed or since the hazard classification was determined. For instances, years after a dam is built, a house, subdivision, or other development may be constructed downstream from the dam itself. Growth areas identified in St. Mary's County were included on

Map 3.4 and depicted in light orange. As shown on the map, the Wildewood Community Dam and Norris Dam are located within Lexington Park Development District.

The drainage areas for each dam located in St. Mary's County is listed below. The dam breach zone has been mapped for St. Mary's River State Park Dam, a high hazard dam, and is depicted on Map 3.5. However, inundation areas for all other dams have not mapped (MDE is currently mapping inundation areas with possible population at risk data). Not having knowledge of these risk areas could lead to unprotected development in these zones.

- St Mary's River State Park Dam - 8.8 sq miles
- Ledford Pond Dam - 0.99 sq miles
- Breton Bay Golf and Country Club Dam - 0.11 sq miles
- Tower Hill Community Pond Dam (Tower Hill Road) - 2.9 sq miles
- Wildewood Community Dam - 0.94 sq miles
- Norris Dam - 0.02 sq miles
- Holton Pond Dam - 0.9 sq miles
- Clair Peake Dam (Md 235) - 8.8 sq miles

Dam owners should consider regularly evaluating their dams for conformance to current engineering standards and dam safety requirements. The dam risk reduction evaluation might consider:

- Changes in watershed hydrology (upstream and downstream conditions)
- Downstream development (hazard creep)
- Updated hydrologic guidance for extreme storms
- Dam stability and performance
- Seismic stability and performance as prescribed for the dam's seismic zone

Response from the online public survey regarding concerns for other hazards:

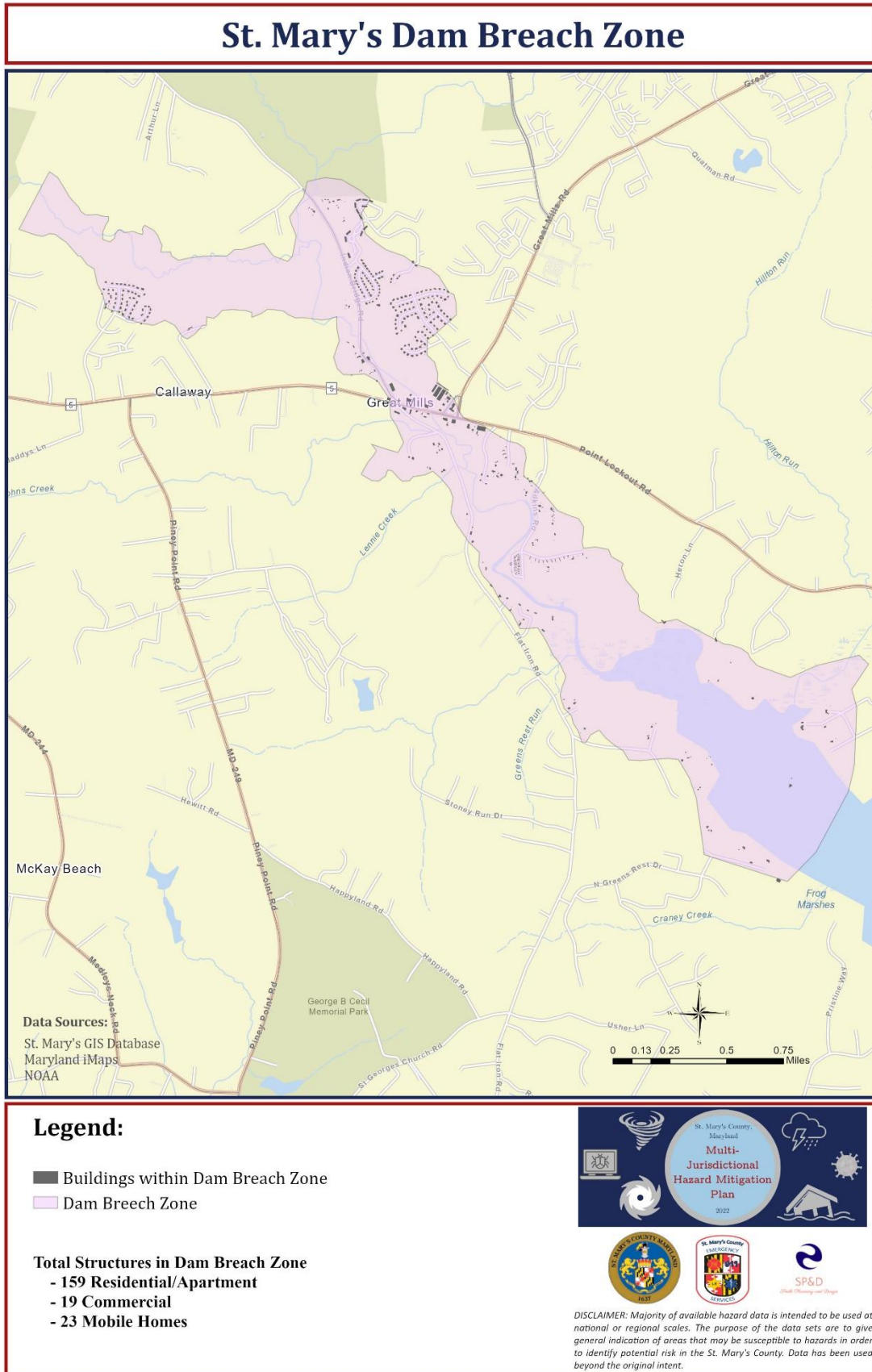
Breton Bay Golf Course has a dam that is failing. When it collapses, and it is imminent, somewhere around 6,000,000 gallons of water will be released and will wash down through various ravines and end in Cherry Cove where all of that debris will be deposited PERMANENTLY damage and silt over a very large part of that cove. The bridge going over McIntosh Run in Leonardtown is going to be washed out VERY SOON by one of these flooding events/storms. That will mean all of Breton Bay, St. Clements Shores, and most of Compton will have to take a longer way around. This means fire trucks, police and ambulances will need to take the longer drive increasing response times GREATLY and endangering lives. You are talking about over 2200 homes being affected if they need emergency services.

Note: this dam was identified as "unsatisfactory" in the last dam safety inspection conducted, see Table 3.27.

In terms of vulnerability to St. Mary's River State Park Dam, as shown on Map 3.12, a total of 203 structures are located within the dam breach zone.

- 159 Residential/Apartment
- 19 Commercial
- 23 Mobile Homes

Map 3.12



Critical and public facilities vulnerability to a dam breach were assessed as well. As a result of the assessment, a total of eight (8) facilities were located within the St. Mary's Dam breach zone, Table 3.29.

Table 3.29

St. Mary's Dam Breach Zone - Critical & Public Facilities			
Facility	Facility Type	Facility Name	Address
Fuel	Fueling Station	Sheetz	20760 Old Great Mills Road
Utility	Wastewater Station	Wastewater Station	20208 Point Lookout Road
Utility	Pumpstation	Great Mills	20208 Point Lookout Road
Utility	Wastewater Station	Wastewater Station	45585 Pleasant Mill Drive
Utility	Wastewater Station	Wastewater Station	44919 Widgeon Place
Utility	Pumpstation	Widgeon	44919 Widgeon Place
Utility	Pumpstation	Cecil's Mill	45585 Pleasant Mill Drive
Utility	Pumpstation	Elizabeth Hills	45563 Foxfield Lane

Source: 2022 Critical and Public Facilities Database

10.2 Dam Failure Hazard Loss Estimation

Loss estimations for at-risk structures located within the dam breach zone were calculated. A total of 201 structures were at-risk to a dam breach at the St. Mary's Dam with an estimated loss of \$52,628,800.

Table 3.30

Dam Breach Zone – At-Risk Structures Loss Estimations		
Structure Type	# of Facilities	Loss Estimation
Residential/Apartment	159	\$34,965,600
Commercial	19	\$16,543,200
Mobile Homes	23	\$1,120,000
Total	201	\$52,628,800

Source: St. Mary's County GIS Data

In addition, loss estimations for critical and public facilities located in the St. Mary's Dam breach zone were determined. Using the assessment value, the total loss was estimated to be \$4,775,500.

Table 3.31

Dam Breach Zone - Critical & Public Facilities Loss Estimations		
Facility Type	# of Facilities	Loss Estimation
Fuel	1	\$3,375,500
Utility	7	\$1,400,000
Total	8	\$4,775,500

Source: 2022 Critical and Public Facilities Database

10.3 Dam Failure Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that a dam failure would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary's County, and public confidence in the local governance. The results of the consequence analysis are shown in the Table.

Table 3.32

Dam Failure Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	<p>Home and property owners within the St. Mary’s Dam Breach Zone are most at risk to impacts from a dam failure event. Impacts to the public include potential for injury or loss of life, destruction and/or loss of land and property, and contamination of water due to flood. In St. Mary’s County 159 residences, 19 commercial and 23 mobile homes are within the breach zone with an estimated potential loss of \$52.628 million. Other potential flood impacts to the health and safety of the public:</p> <ul style="list-style-type: none"> ▪ Sewer back-ups; ▪ Gridlock & residents trapped in structures; ▪ Evacuation bottle neck outside jurisdiction; ▪ Communication breakdown; and ▪ Biohazard from standing water – obtain contracts with Biohazard Cleanup and Restoration (ServPro).
Health and Safety of Responders	<p>First responders, such as fire and police, would be called to the breach zone to evacuate people, close roads, and attend to any injured. For a dam failure event, as with all disaster events, responders face the risk of personal injury while performing necessary job. First responders in St. Mary’s County could face the following impacts associated with flood events:</p> <ul style="list-style-type: none"> ▪ Electrical hazards; ▪ Tree and debris removal; ▪ Carbon monoxide; ▪ Lifting injuries; ▪ Mold; ▪ Rodents, Snakes, and Insects; ▪ Chemical and biological hazards; ▪ Fire; ▪ Drowning; ▪ Hypothermia (due to the cold weather and water exposure); ▪ Unanchored propane tanks; and ▪ Exhaustion (from working extended shifts). <p>Other potential impacts to the health and safety of first responders:</p> <ul style="list-style-type: none"> ▪ Gridlock & residents trapped in structures; ▪ Evacuation bottle neck outside jurisdiction; ▪ Communication breakdown; and ▪ Biohazard from standing water – Possible contracts with Biohazard Cleanup and Restoration (ServPro).
Continuity of Operations (incl. delivery of services)	<p>The impacts on continuity of operations will be limited unless a facility is within the breach zone during a dam failure event. Delivery of services may be slowed or halted in these areas if key roadways become impassable due to flooding, power outages, or loss of pumping station(s). In addition, COOP plans need to be identified and exercised to ensure county preparedness and mitigation activity inspections and flood proofing to pumping stations. The following critical and/or public facilities in St. Mary’s County are within the 100-year floodplain:</p> <ul style="list-style-type: none"> • (1) Fueling Stations; • (3) Wastewater Stations; and • (4) Pump Stations.
Property, facilities, and infrastructure	<p>Home and landowners within St. Mary’s Dam Breach Zone may experience damage to or loss of property and lengthy displacement depending upon the severity of flooding in the area. Infrastructure may experience impacts in the form of damages from flooding, debris blockages, temporary closure of transportation routes, and the potential inability of the stormwater system to handle floodwaters in a severe event.</p>
Environment	<p>Dam failures impact the environment by spreading pollution; overloading</p>

	water and wastewater treatment plants; carrying silt and debris; and disturbing wildlife and the natural area. Stormwater runoff is one of the most significant threats to ecosystems along the coastal areas of the U.S. As the water runs over and through the watershed it picks up and carries contaminants and soil. The blotches of leaked motor oil on parking lots, plastic grocery bags, pesticides, fertilizers, detergents, and sediments are known as non-point source pollutants. These contaminants can infiltrate groundwater and concentrate in streams and rivers and can be carried down the watershed and into the ocean. Non-point source pollution is linked to the creation of large dead-zones (areas with minimal oxygen) in the ocean and threatens coral reef ecosystem health around the world.
Economic condition	A dam failure event would be costly for state and local governments in terms of emergency response, delivery of services, disaster cleanup, and future mitigation projects. Some of the costs could be recouped through federal grant reimbursements, but local governments would still feel the fiscal impact of a major event. In addition, potential loss of economic image could have direct impact to economic conditions.
Public confidence in governance	Public confidence will largely depend upon how effectively the State of Maryland, and county and local governments prepare for and respond to a dam failure event. The St. Mary's County Department of Emergency Services is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response, and recovery through the Emergency Management Division; The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.

Source: St. Mary's County Hazard Mitigation Planning Committee

10.4 Dam Failure Hazard Future Conditions

According to the [State of Maryland 2021 Hazard Mitigation Plan](#), primary causes of dam failure include overtopping, piping, foundation defects, cracking, and inadequate maintenance. Between 2010 and 2019, overtopping was the most common primary incident mechanism of dam failure nationwide (of dam failure incidents included in the Association of State Dam Safety Officials *Dam Incident Database*). Overtopping happens when water flows over the top of a dam and can be caused by poor spillway design, blocked spillways, or settling of the crest of the dam. Piping refers to internal erosion as a result of seepage. This erosion happens frequently near pipes and spillways, vegetation roots, and cracks in the dam.

The average age of dams in Maryland is over 60 years. Dams are complex systems, and the long-term safe performance of a dam embankment depends on careful design, construction, and maintenance by qualified persons. Poor designs, inadequate construction quality control, and lack of regular inspections and preventative maintenance have resulted in an increasing number of dams in Maryland that are in distress. This distress may manifest as embankment slumping, sloughing, or cracking; sinkholes over deteriorated spillway pipes; excessive seepage or wet areas; clogged trash racks; and even failure of the embankment.

The intense amount of rainfall experienced across Maryland in 2018 added another stress to dams and led to several dam incidents and failures. Continued climate change impacts, particularly related to precipitation projections, are likely to further impact dams. The NCA4 projects various major trends over the next 25 to 100 years that may pose risks for Maryland's dams. The strongest hurricanes are expected to "become both more frequent and more intense," and result in more rainfall.

11.0 Pandemic & Emerging Infectious Disease Hazard Risk & Vulnerability

Epidemic

when the amount of disease in a community rises above the expected level, this is known as an epidemic. Epidemics are characterized by an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area. While some diseases are so rare in each population that a single case warrants an epidemiologic investigation (e.g., rabies, plague, polio), other diseases occur more commonly so that only deviations from the norm warrant investigation.

According to the Center for Disease Control (CDC), epidemics may commonly result from:

- A recent increase in amount or virulence of the agent;
- The recent introduction of the agent into a setting where it has not been before;
- An enhanced mode of transmission so that more susceptible persons are exposed;
- A change in the susceptibility of the host response to the agent, and/or;
- Factors that increase host exposure or involve introduction through new portals of entry.

Epidemics may also take the form of large-scale incidents of food or water contamination, infestations of disease bearing insects or rodents, or extended periods without adequate water or sewer service. An epidemic may also be a secondary effect from other disasters such as flooding, tornadoes, hurricanes, or hazmat incidents.

Pandemic

The CDC defines a pandemic as “an epidemic that has spread over several countries or continents, usually affecting a large number of people.” Similarly, according to the World Health Organization (WHO) a pandemic is defined as “the worldwide spread of a new disease.” A pandemic occurs when a new strain of a virus appears for which people have little or no immunity. As a result, it spreads easily from person to person around the world, causing widespread illness and death. Individuals, families, caregivers, healthcare workers, and teachers can all take steps to prepare for a pandemic before it happens.

Emerging Infectious Disease

According to the CDC, emerging infectious diseases are those whose incidence in humans has increased in the past two decades or threaten to increase soon. These diseases, which respect no national boundaries, can challenge efforts to protect workers as prevention and control recommendations may not be immediately available. These diseases include:

- New infections resulting from changes or evolution of existing organisms
- Known infections spreading to new geographic areas or populations
- Previously unrecognized infections appearing in areas undergoing ecologic transformation
- Old infections reemerging because of antimicrobial resistance in known agents or breakdowns in public health measures.

Pandemic refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. **Epidemics** occur when an agent and susceptible hosts are present in adequate numbers, and the agent can be effectively conveyed from a source to the susceptible hosts.

Source: Centers for Disease Control and Prevention CDC.gov

Contributing Factors to Pandemic & Emerging Infectious Disease

Evidence suggests that the likelihood of pandemics has increased over the past century because of increased global travel and integration, urbanization, changes in land use, and greater exploitation of the natural environment. These trends likely will continue and will intensify. Significant policy attention has focused on the need to identify and limit emerging outbreaks that might lead to pandemics and to expand and sustain investment to build preparedness and health capacity.

The most common risk factors related to pandemics and infectious diseases include the following:

- Pandemics have occurred throughout history and appear to be increasing in frequency, particularly because of the increasing emergence of viral disease from animals.
- Pandemic risk is driven by the combined effects of spark risk (where a pandemic is likely to arise) and spread risk (how likely it is to diffuse broadly through human populations).
- Some geographic regions with high spark risk, including Central and West Africa, lag behind the rest of the globe in pandemic preparedness.
- Probabilistic modeling and analytical tools such as exceedance probability (EP) curves are valuable for assessing pandemic risk and estimating the potential burden of pandemics.
- Influenza is the most likely pathogen to cause a severe pandemic. EP analysis indicates that in any given year, a 1 percent probability exists of an influenza pandemic that causes nearly 6 million pneumonia and influenza deaths or more globally.

History of Pandemic & Emerging Infectious Diseases

The following section provides historical context and narrative for some of the worst epidemics, disease outbreaks, and pandemics to ever occur within the United States. This section discusses the following: COVID-19 pandemic, smallpox pandemic, yellow fever epidemic, cholera pandemic, scarlet fever epidemic, typhoid fever epidemic, H1N1 pandemic, and diphtheria epidemic. Note: this is not an all-inclusive historical account of pandemics, epidemics, and emerging infectious diseases that have occurred in the United States.

Novel COVID-19: 2019 – Present

The Novel COVID-19 pandemic has exploded since cases were first reported in Wuhan, Hubei Province, China in December 2019. As of January 15, 2021, the CDC estimates that 83.1 million total infections occurred between February and December of 2020. Of those cases, 70.4 million are estimated to have been symptomatic, and an estimated 4.1 million led to hospitalizations.

Individuals of all ages are at risk for infection and severe disease. However, the probability of fatal disease is highest in people aged over 65 years and those living in a nursing home or long-term care facility. Others at highest risk for COVID-19 are people of any age with certain underlying conditions, especially when not well-controlled. In addition, COVID-19 can spread between people who are in close contact with one another (within about 6 feet), via respiratory droplets produced when an infected person coughs, sneezes, or talks, and by persons who are asymptomatic. Symptoms, or a combination of symptoms, can appear 2-14 days after exposure. Note: COVID-19 is an evolving pandemic. As such, symptoms, and best practices to manage the spread of the virus are still being updated and adjusted by health professionals.

Smallpox: 1633-1634

Smallpox came to North America in the 1600s. Symptoms included high fever, chills, severe back pain, and rashes. It began in the Northeast and the Native American population was ravaged by it as it spread westward.

In 1721, more than 6,000 cases were reported out of a Boston population of 11,000. Around 850

people died from the disease.

In 1770, Edward Jenner developed a vaccine from cow pox. It helps the body become immune to smallpox without causing the disease.

Yellow Fever: 1793

During the humid summer of 1793, refugees fleeing a [yellow fever](#) epidemic in the Caribbean Islands sailed into Philadelphia, carrying the virus with them.

Yellow fever causes yellowing of the skin, fever, and bloody vomiting. During the 1793 outbreak, it is estimated that the [10 percent](#) of the Philadelphia's population died and many others fled the city to avoid the illness.

A vaccine was developed and then licensed in 1953. One vaccine is enough for life and is mostly recommended for those nine months and older, particularly if one lives or travels to high-risk areas.

The Centers for Disease Control and Prevention (CDC) provides a list of countries where the vaccine is recommended for travel on their [website](#).

Present: Mosquitoes are the key to how this disease spreads, particularly in areas such as Central America, South America, and Africa. Eliminating mosquitoes has been successful in controlling yellow fever. While yellow fever has no cure, someone who does recover from the illness becomes immune for the rest of their life.

Cholera (three waves): 1832-1866

The United States had three (3) serious waves of cholera, which is an infection of the intestines, between 1832 and 1866. The pandemic began in India and swiftly spread across the globe through trade routes.

New York City was the first U.S. city to feel the impact. Between 5 and 10 percent of the total population died in large cities. It is unclear what ended the pandemic, but it may have been the change in climate or the use of quarantine measures. By the early 1900s, cholera outbreaks had ended.

Present: Cholera is responsible for nearly 95,000 deaths a year worldwide, according to the CDC. Modern sewage and water treatment have helped eradicate cholera in some countries, but the virus is still present elsewhere.

Vaccinations for cholera are available for those planning to travel to high-risk areas. The best way to prevent cholera is to wash your hands regularly with soap and water and avoid drinking contaminated water.

Scarlet Fever: 1858

Scarlet fever is a bacterial infection that can occur after strep throat. Like cholera, scarlet fever epidemics came in waves. Scarlet fever most commonly affects children ages 5 to 15; it is rare in children under 3. Adults who are in contact with sick children have an increased risk. Studies once indicated that scarlet fever declined due to improved nutrition, but new research suggests that improvements in public health were more likely the cause.

Present: There is no vaccine to prevent strep throat or scarlet fever. It is important for those with strep throat symptoms to seek treatment quickly. Your doctor will typically treat scarlet fever with antibiotics.

“Typhoid Mary”: 1906-1907

One of the biggest [typhoid fever](#) epidemics of all time broke out between 1906 and 1907 in New York City. Mary Mallon, often referred to as “Typhoid Mary,” spread the virus to about 122 New

Yorkers during her time as a cook on an estate and in a hospital unit.

About [5 of the 122](#) New Yorkers who contracted the virus by Mary Mallon died. The CDC [cites](#) a total of 13,160 deaths in 1906 and 12,670 deaths in 1907. Typhoid fever can cause sickness and red spots to form on the chest and abdomen.

A vaccine was developed in 1911, and an antibiotic treatment for typhoid fever became available in 1948.

Present: It is rare to contract typhoid fever today, but it can spread through direct contact with people who have the virus, as well as consumption of contaminated food or water.

H1N1 Flu: 1918

H1N1 is a strain of flu that still circulates the globe annually. In 1918, it was the type of flu behind the [influenza pandemic](#), sometimes called the Spanish flu (though it did not actually come from Spain).

After World War I, cases of the flu slowly declined. None of the suggestions provided at the time (wearing masks, drinking coal oil) were effective cures. Today's treatments include bed rest, fluids, and antiviral medications.

Present: Influenza strains mutate every year, making last it is important to receive an annual vaccination to decrease the personal risk for the flu.

Diphtheria Epidemic: 1921-1925

[Diphtheria](#) peaked in 1921, with [206,000 cases](#). It causes swelling of the mucous membranes, including in your throat, which can obstruct breathing and swallowing. Sometimes a bacterial toxin can enter the bloodstream and cause fatal heart and nerve damage.

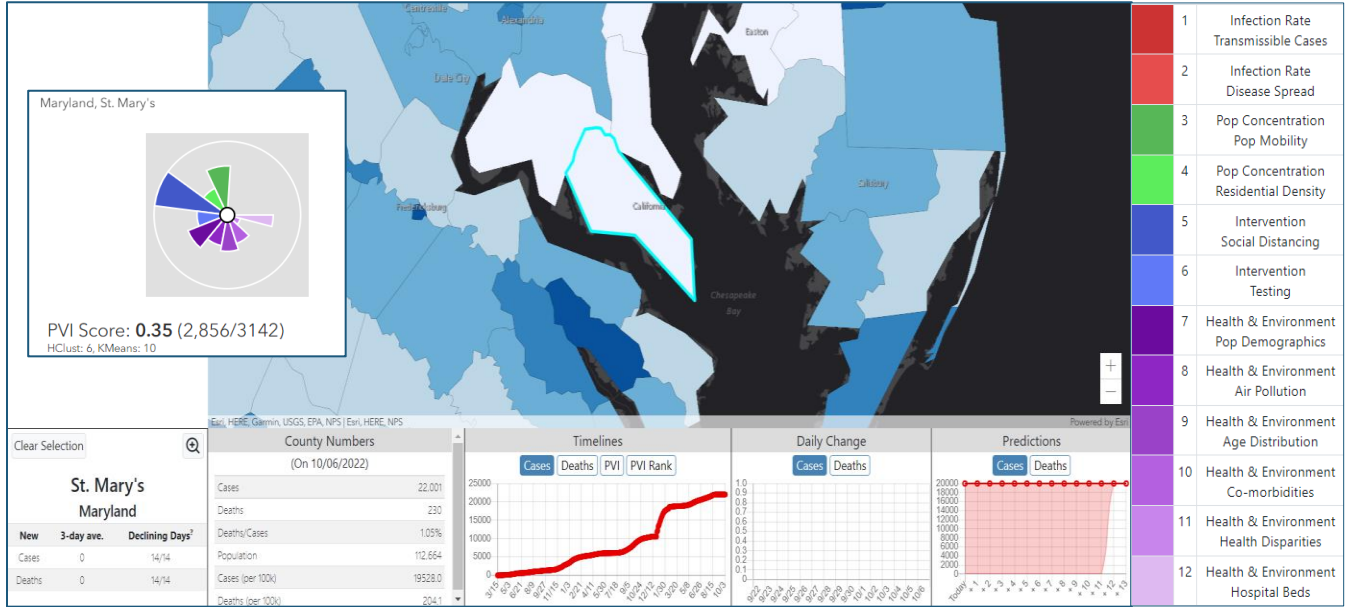
A vaccine was produced by researchers in the mid-1920's, which led to a sharp decline in infection rates in the United States.

Present: Today more than [80 percent](#) of children in the United States are vaccinated, according to the CDC. Those who contract the disease are treated with antibiotics.

11.1 Pandemic & Emerging Infectious Disease Hazard Vulnerability

The National Institute for Environmental Health Services (NIEHS) provides a COVID-19 Pandemic Vulnerability Index (PVI) to be utilized in assessing vulnerability at the county-level for the entire country. According to the source, the dashboard creates risk profiles, called PVI scorecards, for every county in the United States. It is continuously updated with the latest data. The PVI summarizes and visualizes overall risk in a special version of a pie chart, called a radar chart, where different data sources make up pieces of the pie, Figure 15. Infection rates, depicted in red slices, are labeled 1 and 2. Intervention rates, noted in blue slices 5 and 6, are highly variable and are updated daily. Population concentration and density are fixed values describing general demographic information, and these are shown in green slices 3 and 4. Health and Environmental variables are shown in the purple slices on 7-14.

Figure 3.15



Source: <https://covid19pvi.niehs.nih.gov/>

The Maryland Department of Health compiles and publishes [annual reports](#) for selected notifiable diseases for each of Maryland’s 23 counties and Baltimore City. The disease count statistics for St. Mary’s County were presented in Chapter 2 on Table 2.27. The most recent published data is from the year 2019. Reported occurrences of specific infectious diseases from the period of 2015 to 2019 within the County increased from a total of 809 reported conditions to 1,286.

11.2 Pandemic & Emerging Infectious Disease Hazard Consequence Analysis

A consequence analysis, derived from the Emergency Management Accreditation Program (EMAP) has been performed to better understand and outline the impacts that emerging infectious disease hazards would have on the public; responders; continuity of operations including delivery of services; property, facilities, and infrastructure; the environment; the economic condition of the St. Mary’s County, and public confidence in the local governance. The results of the consequence analysis are shown on the table.

Table 3.33

Pandemic & Emerging Infectious Disease Hazard Consequence Analysis	
Subject	Impacts
Healthy and Safety of the Public	Individuals in St. Mary’s County are at risk to impacts from pandemic and emerging infectious diseases. Impacts to the public include potential for injury or loss of life.
Health and Safety of Responders	First responders, such as fire and police, would be called to support specific incident area(s) across the state, attend to sick, and respond to normal emergency requests. For a public health emergency event, as with all disaster events, responders would face the risk of personal injury while performing necessary job functions.
Continuity of Operations (incl. delivery of services)	The impacts on continuity of operations could range from minimal to severe, depending on the impacts to critical personnel and redundancy in staff for continuity of operations. Delivery of services may be slowed or halted in adjacent areas if significant populations of government personnel are sickened.
Property, facilities, and infrastructure	Business facilities and infrastructure may experience impacts in the form of damage to response measures required to be put in place for public health precautions during a pandemic and/or emerging infectious disease outbreak.

Environment	Secondary impacts to the environment would be anticipated from a pandemic and/or emerging infectious disease outbreak, ranging from increased pollution from new personnel protective equipment to accidental spills of decontamination products.
Economic condition	A pandemic and/or emerging infectious disease outbreak would be costly for the county because of the potential for business and government shutdowns. Some of the costs could be recouped through federal grant reimbursements, but the local government would still feel the fiscal impact of a major event.
Public confidence in governance	Public confidence would largely depend upon how effectively the St. Mary's County government and the local Health Department respond to a pandemic and/or emerging infectious disease outbreak.

Source: [State of Maryland 2021 Hazard Mitigation Plan](#)

11.3 Emerging Infectious Disease Hazard Future Conditions

Progress has been made in preventing deaths from infectious diseases, however looking forward, focus needs to be on pandemic preparedness, including detecting and containing emerging infectious disease threats while they are localized and manageable. These threats may differ widely in terms of severity and probability and have varying consequences for morbidity and mortality, as well as for a complex set of social and economic outcomes.

[Infectious Disease In An Era Of Global Change](#)

In recent decades, declines in mortality and morbidity, particularly childhood mortality, have been one of the great triumphs of public health. Greater access to care, such as therapeutics (including antibiotics), improved sanitation and the development of vaccines have been core drivers of this progress. Even as medical advances in the twenty-first century have spurred advances in population health, inequalities in access to these advances remain widespread. Reducing inequities in access to health care and improving surveillance and monitoring for infectious diseases in low-income and middle-income populations, and in underserved populations, should be a priority in tackling pathogen emergence and spread in the future.

Climate change, rapid urbanization and changing land-use patterns will increase the risk of disease emergence in the coming decades. Climate change, in particular, may alter the range of global pathogens, allowing infections, particularly vector-borne infections, to expand into new locations. A continued uptick in global travel, trade and mobility will transport pathogens rapidly, following emergence.

A changing world requires changing science to evaluate future risks from infectious disease. Future work needs to explicitly address concurrent changes: how shifting patterns of demographic, climatic and technological factors may collectively affect the risk of pathogen emergence, alterations to dynamics and global spread. At the same time, new technologies, including advances in data collection and surveillance, need to be harnessed.

Source: *Nature Reviews Microbiology - Infectious Disease In An Era Of Global Change. October 2021*

12.0 Social Vulnerability

In the sphere of social science and public health science, policy, and practice, the terms vulnerable, at risk, and special are used in different contexts to describe overlapping segments of the U.S. population. In social science literature, vulnerability has been defined as “the potential for loss”; county-level socioeconomic and demographic data can be used to construct an index of social vulnerability to environmental hazards to guide research and interventions. Other researchers have published comprehensive models of vulnerability that are based on likely inequities in health and health care for use in health services research and public health practice.

The Maryland Department of the Environment (MDE) released the [Environmental Protection Justice Screen Tool](#) in June 2022. The Maryland Environmental Justice Screen Tool (MD EJSCREEN) was developed to allow users to explore layers of environmental justice concern, determine the overall ‘EJ Score’ for census tracts in the state, and view additional context layers.

The MD EJSCREEN provides a score for each county. MDE’s Socioeconomic EJ Score was calculated using three (3) key indicators as follows:

1. Minority Population - % of individuals who do not identify as non-Hispanic white
2. Poverty - % of households whose income is less than 200% of the federal poverty threshold (i.e., income less than twice the poverty level)
3. Limited English Proficiency - % of limited English-speaking households (i.e., one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulties with English)

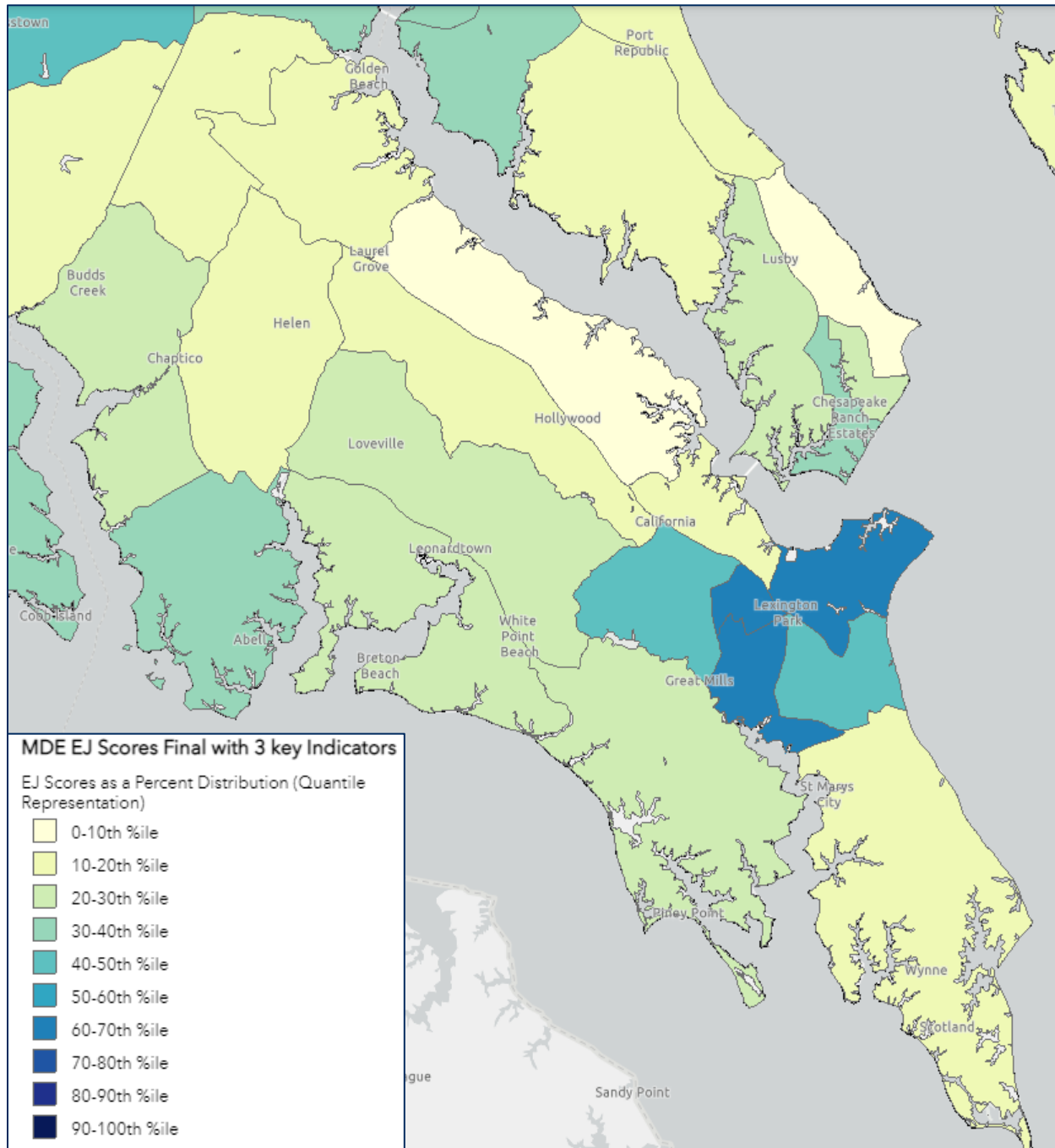
The 2019 5-year estimates data from the American Community Survey (ACS) (currently the best available data, when this map service was created) to create scores for each indicator and aid in determining our final Socioeconomic Score. All sub-layers use percentiles for a more accurate representation of the distribution of data across the entire State of Maryland.

The Commission on Environmental Justice and Sustainable Communities (CEJSC) defines environmental justice (EJ) as follows:

“Environmental justice seeks equal protection from environmental and public health hazards for all people regardless of race, income, culture, and social class. Additionally, environmental justice means that no group of people including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, land-use planning and zoning, municipal and commercial operations, or the execution of federal, state, local and municipal program, and policies.”

Source: [MDE Environmental Justice in Maryland](#)

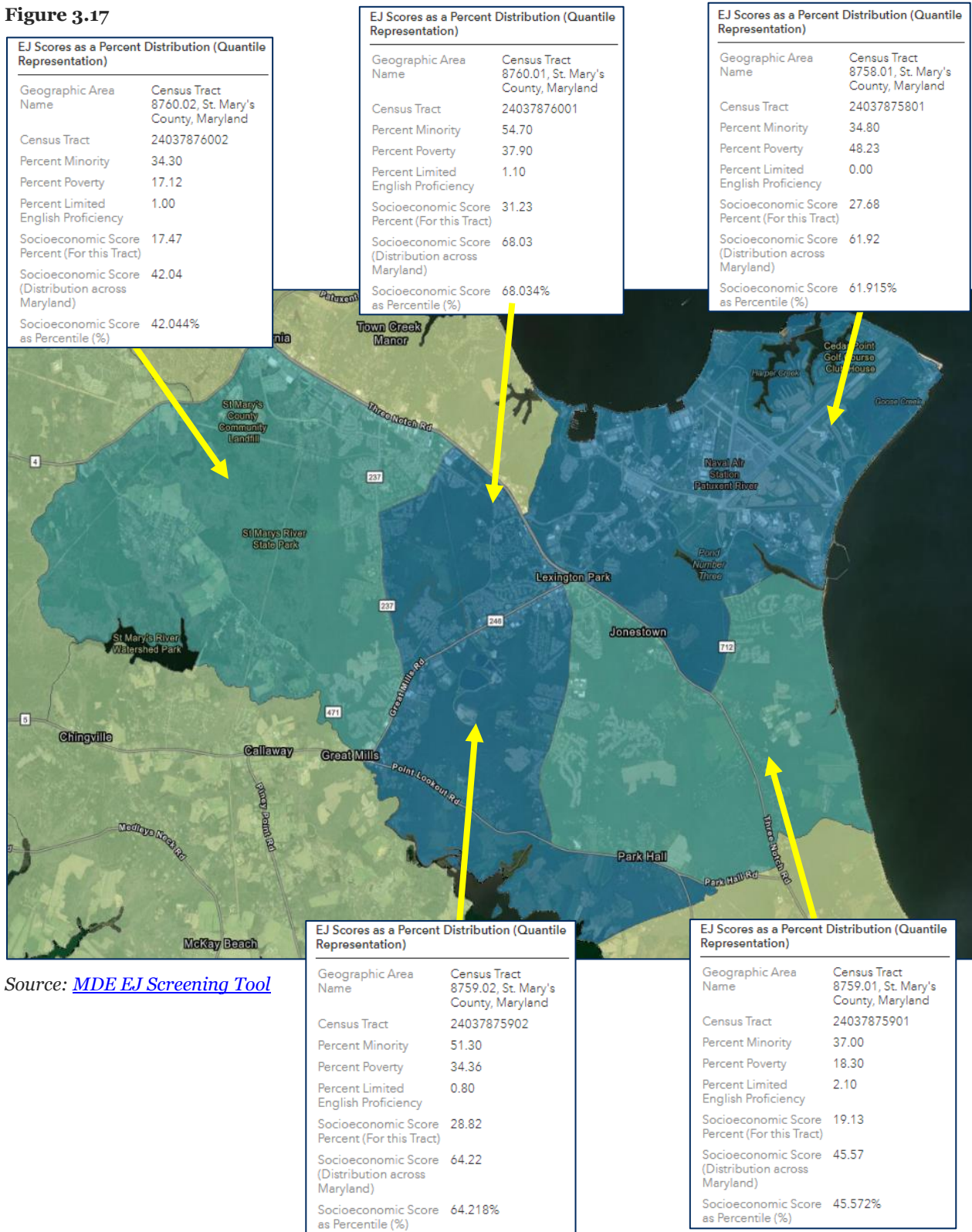
Figure 3.16



Source: [MDE EJ Screening Tool](#)

The area with the higher percentiles area, the Lexington Park area, is depicted below with corresponding EJ scores for each census tract. The census tract with the highest EJ score of 68.03 contains Patuxent Park. This census tract has a high minority population and poverty households.

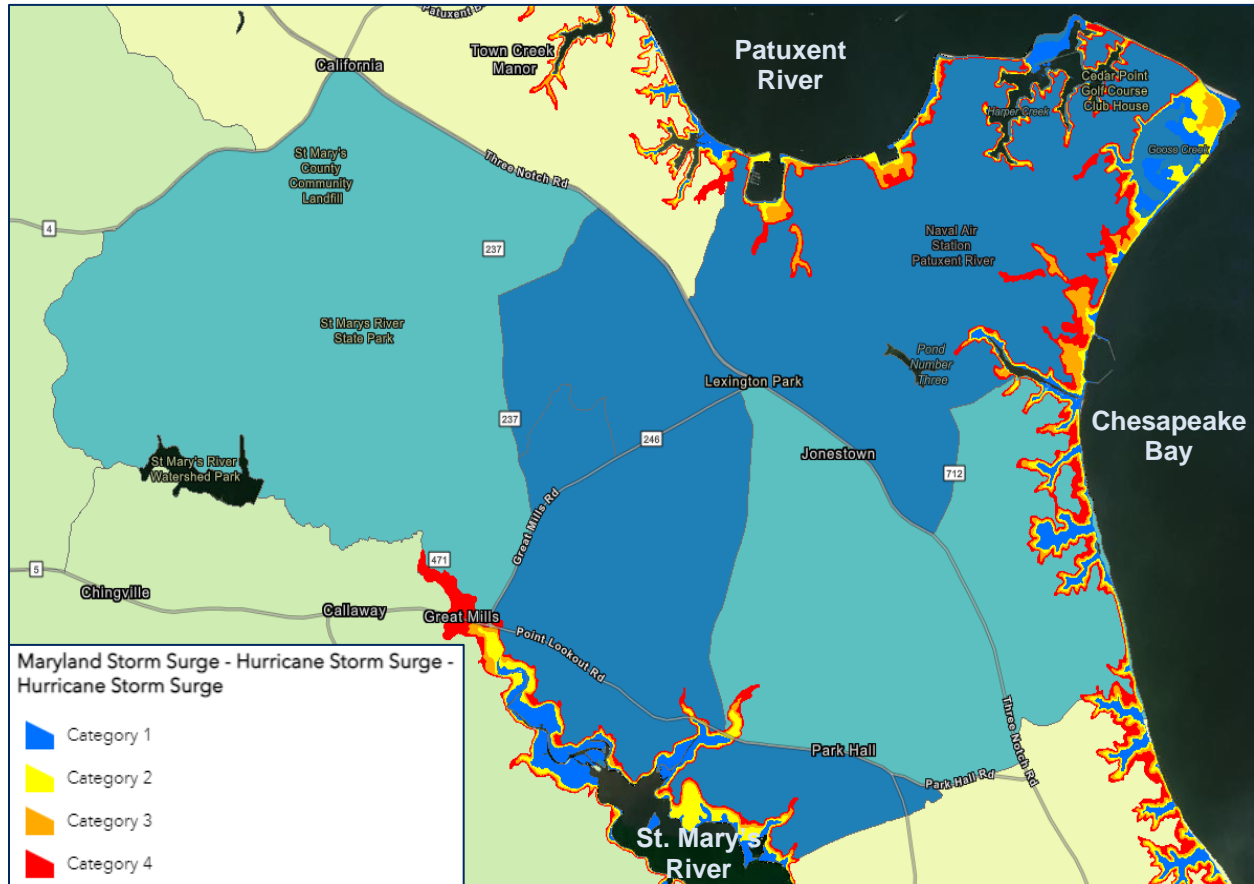
Figure 3.17



Source: [MDE EJ Screening Tool](#)

In terms of vulnerability to the identify hazards within this chapter, the area depicted in Figure 3.11 is the most vulnerable. Hazards with a geographic extent were reviewed in conjunction with the census tracts with the highest EJ scores. Figure 3.18 depicts where the hurricane storm surge inundation area intersects with these census tracts. The areas around St. Mary’s River, Naval Air Station, and the Cedar Point Golf Course are vulnerable to hurricane storm surge.

Figure 3.18



Considering the occurrence and severity of natural hazards cannot be reduced, reducing vulnerability is one of the main opportunities for reducing disaster risk. Therefore, communities identified should be targeted for outreach on preparedness activities. [Ready.gov](https://www.ready.gov) is a FEMA Ready Program developed to educate community members on how to prepare for and respond to emergencies caused by natural and man-made hazards. Information is provided for hurricanes and floods. The site also offers preparedness materials for business owners.

Source:
<https://www.ready.gov/hurricanes>

Prepare for Hurricanes

Know your Hurricane Risk

Hurricanes are not just a coastal problem. Find out how rain, wind, water, even tornadoes could happen far inland from where a hurricane or tropical storm makes landfall. [Start preparing now.](#)

Make an Emergency Plan

Make sure everyone in your household knows and understands [your hurricane plan](#). In your hurricane plans include the [office, kids' daycare, and anywhere you frequent](#). Ensure your business has a [continuity plan](#) to continue operating when disaster strikes.

Discuss the latest [Centers for Disease Control \(CDC\) guidance on Coronavirus \(COVID-19\)](#) and how it may affect your hurricane planning.

Know your Evacuation Zone

You may have to evacuate quickly due to a hurricane if you live in an evacuation zone. [Learn your evacuation routes](#), practice with household, pets, and identify where you will stay.

Those with Disabilities

If you or anyone in your household is an [individual with a disability](#) identify if you may need additional help during an emergency.

Review Important Documents

Make sure your [insurance policies and personal documents](#) like ID are up to date. Make copies and keep them in a secure password protected digital space.

Strengthen your Home

De-clutter drains and gutters, bring in outside furniture, consider hurricane shutters.

Get Tech Ready

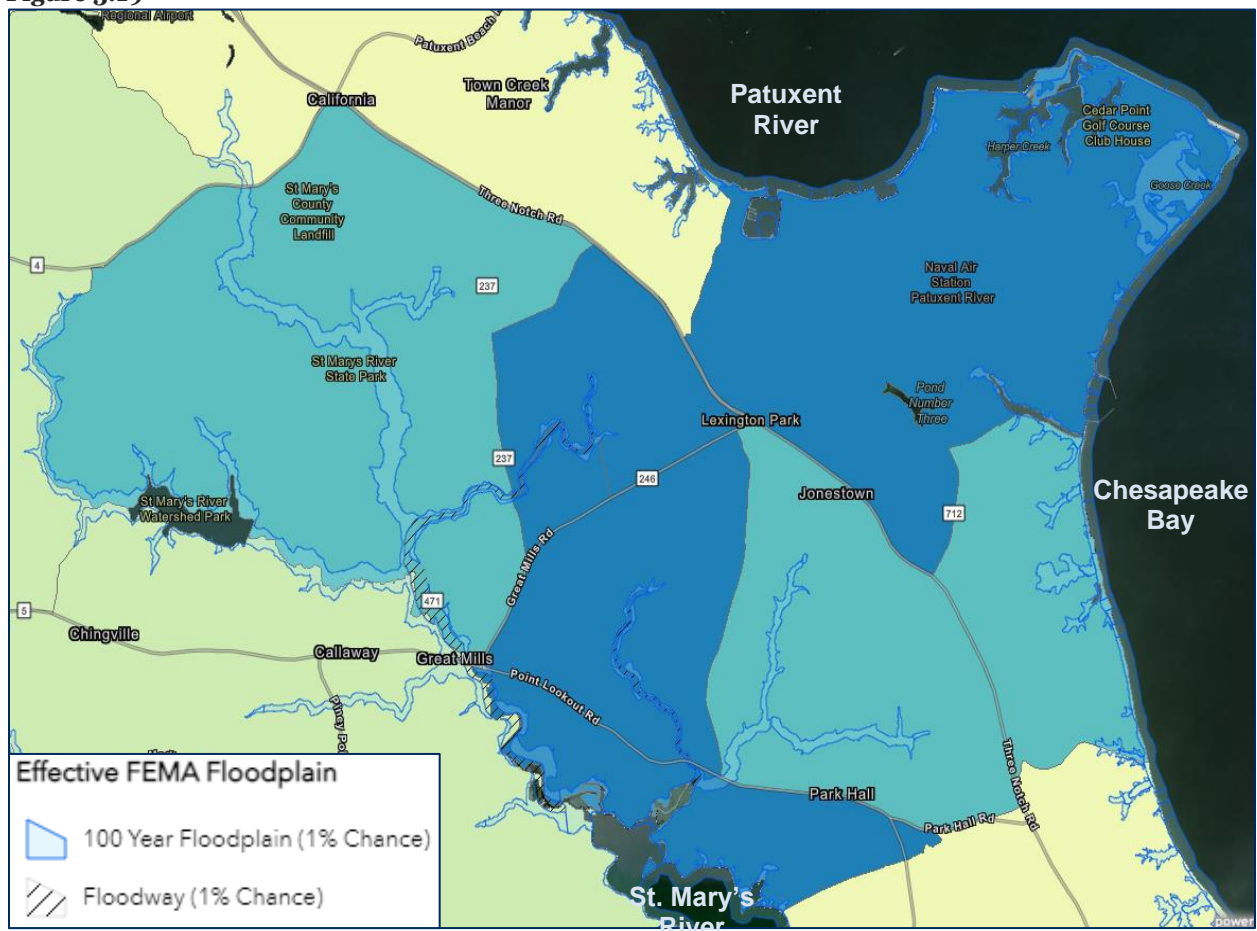
[Keep your cell phone charged](#) when you know a hurricane is in the forecast and purchase backup charging devices to power electronics.

Help your Neighborhood

In reviewing Figure 3.19, the 1% annual chance flood hazard area crosses through each of the census tracts with high EJ scores. These areas should be further reviewed to target public outreach on floodproofing techniques may protect certain structures from flood damage. Outreach could include floodproofing techniques such as:

- Wet floodproofing in a basement, which may be preferable to attempting to keep water out completely because it allows for controlled flooding to balance exterior and interior wall forces and discourages structural collapse.
- Encouraging wet floodproofing of areas above base flood elevation.
- Using water resistant paints or other materials to allow for easy cleanup after floodwater exposure in accessory structures or in a garage area below an elevated residential structure.
- Dry floodproofing non-residential structures by strengthening walls, sealing openings, or using waterproof compounds or plastic sheeting on walls to keep water out.

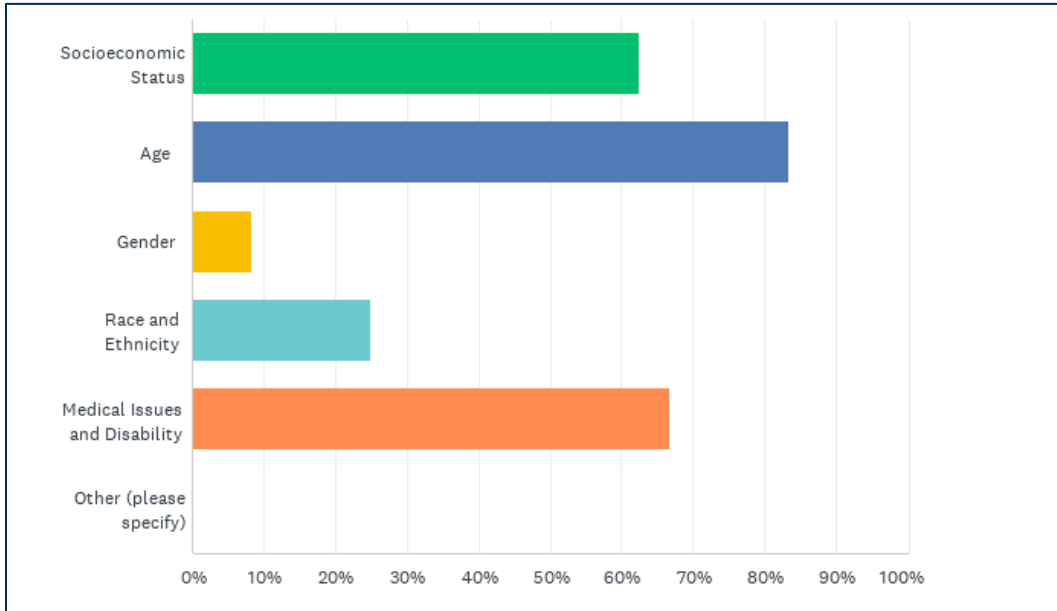
Figure 3.19



Source: [MDE EJ Screening Tool](#)

In addition, the public survey asked the community which specific group or groups in the County are particularly at risk for, or could be harmed, by any of the identified hazard events. Socially vulnerable groups provided as options include socioeconomic status, age, gender, race and ethnicity, and medical issues and disabilities. Eighty-three percent of the participants indicated that the “Age” group (65 & older) is particularly at risk to hazards.

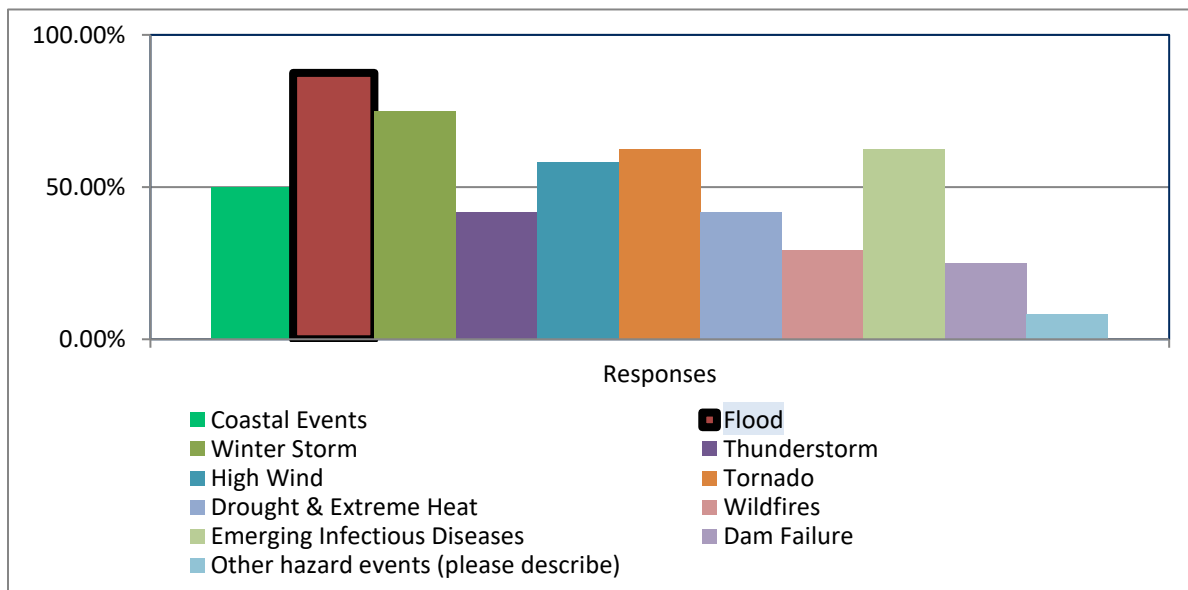
Figure 3.20



Source: Screenshot from St. Mary’s County HMP Public Survey

The next question on the survey asked participants “Based on the group(s) you have selected in the previous question; please select which hazard events you feel may particularly affect those group?” Over 88% percent of the participants indicated that the “Age” group (65 & older) is particularly at risk to the 1% annual chance flood hazard, Figure 3.21.

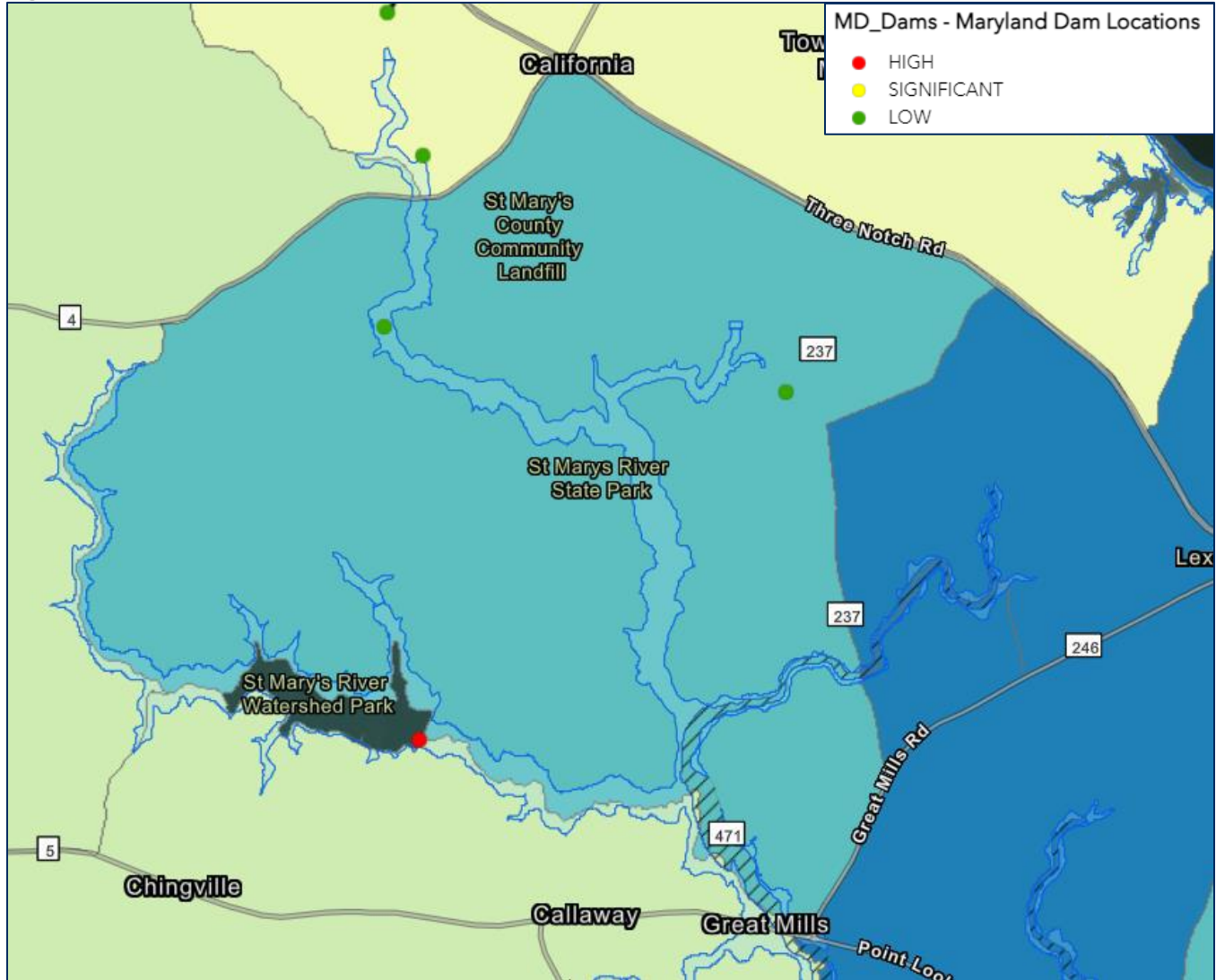
Figure 3.21



Source: Screenshot from St. Mary’s County HMP Public Survey

As depicted in the figure below, several dams are located within census tracts with the highest EJ scores, including the high hazard dam, St. Mary's Dam. The breach zone is also located in these census tracks. Currently, properties have been identified within the dam breach zone and receive notifications regarding the dam.

Figure 3.22

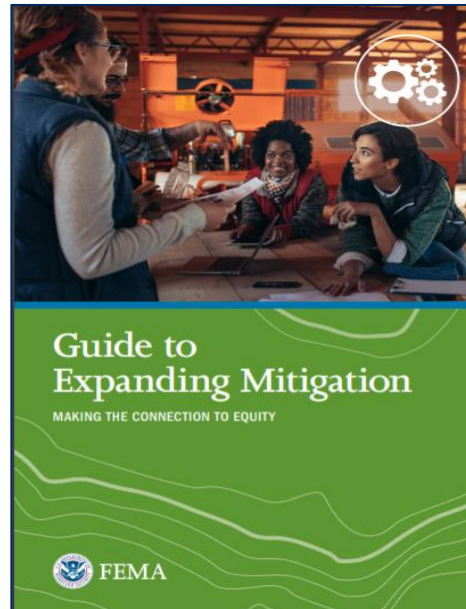
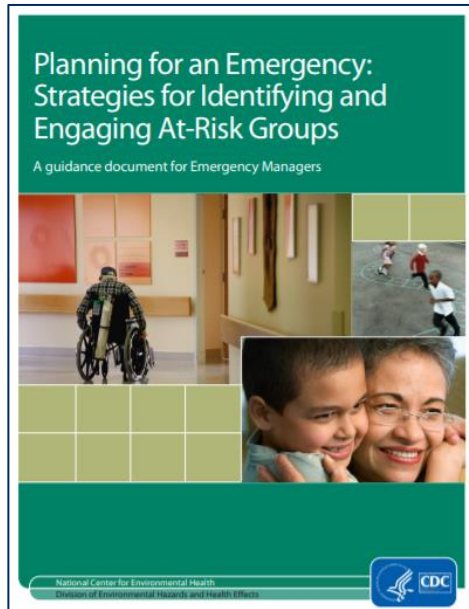


Source: [MDE EJ Screening Tool](#)

When discussing vulnerability in terms of Pandemic & Emerging Infectious Disease, vulnerability may be defined as “increased exposure to infection; increased susceptibility to severe disease, including complications, hospitalizations, and death; and lack of access to health care.” With these definitions in mind, St. Mary’s County should consider the following four questions – developed by the CDC – when addressing the needs of vulnerable populations during a pandemic, epidemic, or disease outbreak:

1. Why is the population considered vulnerable?
2. What are the unique issues, concerns, and needs of each vulnerable population?
3. What strategies can protect these populations?
4. What specific approaches are needed for vulnerable populations, their families, and their health care and service providers to ensure their protection?

Refer to *Planning for an Emergency: Strategies for Identifying and Engaging At-Risk Groups* published by CDC as a resource about characteristics that influence vulnerability and FEMA’s *Guide to Expanding Mitigation: Making the Connection to Equity*.



St. Mary’s county current social equity and public health capabilities include:

- Hub in Lexington Park
- St. Mary’s County Health Department Website and Health Equity
- Mobile Outreach – St. Mary’s & Charles Counties
- Health Assessments
- Library and Behavioral Health Partnership

Detail information about each are include in Chapter 4 Capabilities and Plan Integration under Section 1.4 Social Equity and Public Health Capabilities.

CHAPTER 4 – CAPABILITIES AND PLAN INTEGRATION

1.0 Community Capabilities Overview

A review of the community's capabilities, both St. Mary's County and the Town of Leonardtown was conducted for this plan update. Understanding current capabilities and identifying capability gaps that may exist informs mitigation initiatives going forward. The *Hazard Mitigation Plan Guidance: Community Capability Assessment Worksheets* were used as reference and expanded upon to create a comprehensive capability and plan integration chapter. Capabilities have been labeled using the four (4) categories from FEMA's *Hazard Mitigation Plan Guidance: Community Capability Assessment Worksheets*.



Administrative and Technical - Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.



Financial - Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.



Education and Outreach - Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.



Planning and Regulatory - Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

1.1 Department of Emergency Services

The St. Mary's County Department of Emergency Services is a multifaceted agency that provides 9-1-1 call taking and dispatching through the Emergency Communications Division; disaster preparedness, mitigation, response and recovery through the Emergency Management Division; enforcement of animal regulations through the Animal Control Division; assistance and liaison with volunteer agencies through the Emergency Services Division; and computer, networking, and telecommunications support through the Information Technology Division. The Department works with county, state, and federal public agencies, volunteer entities, boards, and committees to enhance the quality of life in St. Mary's County.

MISSION STATEMENT

The mission of the St. Mary's County Department of Emergency Services is to connect people in need of assistance to first responders that provide necessary services.

"Connecting people in need ... to people with solutions"

VALUE STATEMENT SERVICE

We serve as the central point of contact for services, provide communications solutions to first responding firefighters, police officers, emergency medical personnel and public safety officials.

We coordinate emergency management efforts to protect life and property.

We provide these services with a staff of highly competent and efficient personnel working in the areas of communications, emergency management, animal control and administrative support.

INTEGRITY

We pledge to uphold the public trust by maintaining the highest standards of ethical and moral standards.

RESPECT

We will treat all persons respectfully, courteously and equally, without regard for race, color, sex, gender, age, marital status, Sexual orientation, pregnancy, ancestry, national origin, religion or belief, political affiliation or opinion, physical or mental disability or any other non-merit factor.

Animal Control

The Animal Control Division enforces the State and County Code dealing with Animal Regulations that ensure the humane care and treatment of animals and to encourage responsible pet ownership. This includes, but is not limited to nuisance wildlife, the apprehension of unlicensed dogs, unwanted or injured domestic animals, in addition to performing cruelty and animal bite investigations. Animal Control works closely with several county and state public agencies, the Animal Resource and Adoption Center, and other humane animal groups to appropriately respond to animal related issues.

According to the St. Mary's County Emergency Operations Plan, Animal Control is responsible for animal protection issues and planning before, during, and after an actual or potential hazard situation.



FEMA Capability: Administrative and Technical

Emergency Services

The Emergency Services Division is the primary liaison between St. Mary's County Government, Fire Departments and Rescue Squads, St. Mary's County Sheriff's Office, and the Maryland State Police.

St. Mary's County offers a Fire & EMS Cadet Program. The program is available to high school juniors and seniors who are at least 16 years old. Students must have at least a 2.0 GPA to enroll in the program and must maintain at least a 2.0 GPA during the program. Students are required to obtain and maintain membership at a volunteer fire department or rescue squad while enrolled in the program. The program is held at Hollywood Volunteer Fire Department.

In addition, St. Mary's County offers a Fire/EMS Scholarship administered through the Department of Emergency Services.



FEMA Capability: Administrative and Technical

Emergency Communications

The Division of Emergency Communications is responsible for the daily operations of the county's 911 center and the 800 MHz 10 channel P-25 Phase I Public Safety radio system. Our 24-7 operations provide emergency and routine communications for Fire, EMS, Sheriff, MSP and many other critical county services.

Communications Dispatchers in the Emergency Communications Division receive emergency 911 calls and dispatch the appropriate departments or agencies in accordance with established national standard and county specific dispatching protocols. Our Dispatchers are Emergency Communications professionals trained through the Maryland State Emergency Numbers System board (ENSB) and the Maryland Institute of Emergency Medical Services Systems (MIEMSS).



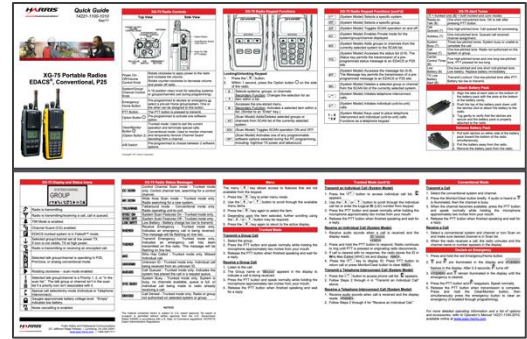
FEMA Capability: Education and Outreach

NextGen Radio Project

In June of 2012 St. Mary's County awarded a contract to enhance 9-1-1 radio communications throughout the county with a three phase NextGen P-25 Radio System. Phase I of the project was completed and the acceptance of Phase I was finalized on December 30, 2013. Phase I included two additional tower sites, the replacement of all subscriber radios, the expansion and upgrade of our backup dispatch center, upgrades to our main dispatch center, and the addition of a backup network control site. Work being performed as part of the FY-15 budget process includes a consolidation of the remaining two phases of the contract which will expand the current 6 tower site configuration to the planned 13 tower configuration as specified in the contract.

The St. Mary's County Radio System supports an extensive user base which includes all county agencies in addition to interoperability with neighboring counties, and MarylandFirst (Maryland Statewide Interoperable Communications System). End user radio support is provided by two county Radio Technicians supplemented by a factory certified Senior Field Technician who is responsible for the radio system infrastructure and operation.

Two Quick Guides have been developed to assist end-users the Portable M7300 and the Mobile XG-75. Both are available on the Department of Emergency Services website page. Finally, St. Mary's County purchased the Scan Version of the XG-75 for Fire\EMS\Police.



Fire and Rescue Squads

Fire and Emergency Medical Services are provided to the citizens of St. Mary's County by committed and highly trained volunteers. This valuable service to our community depends upon caring individuals who are willing to help their neighbors.

The Town of Leonardtown contains both a Volunteer Fire Department, Company 1 and a Rescue Squad, Company 19. Additional Fire and Rescue Squads include:

- Mechanicsville Volunteer Fire Department (Company 2)
- Mechanicsville Volunteer Rescue Squad (Company 29)
- Bay District Volunteer Fire Department (Company 9)
- Lexington Park Volunteer Rescue Squad (Station 38)
- Bay District Volunteer Fire Department (Company 3)
- Lexington Park Volunteer Rescue Squad (Company 39)
- Ridge Volunteer Fire Department (Company 4)
- Ridge Volunteer Rescue Squad (Company 49)
- Seventh District Volunteer Fire Department (Company 5)
- Seventh District Volunteer Rescue Squad (Company 59)
- Second District Volunteer Fire Dept. & Rescue Squad (Company 6)
- Hollywood Volunteer Rescue Squad (Company 79)
- Hollywood Volunteer Fire Department (Company 7)
- Advanced Life Support Unit

Emergency Management

The Emergency Management Division is responsible to develop, coordinate and promote the emergency management program incorporating planning, preparedness, response, and recovery activities relative to emergencies or disasters for St. Mary's County.

Preparedness, disaster, and hazard information is included on the Emergency Management Website. The [Hazard Mitigation Annual Report](#) and the link to the [2023 County Multi-Jurisdictional Plan Update](#) is included, as well.

As discussed in Chapter 1 Introduction, the Commissioners of St. Mary's County officially established the St. Mary's County Hazard Mitigation Planning Committee (HMPC) to institutionalize hazard mitigation planning and resiliency. Furthermore, the Department of Emergency Services (DES) is the lead agency for hazard mitigation planning efforts in St. Mary's County.

St. Mary's County
Hazard Mitigation
Planning Committee



The Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to prepare and adopt hazard mitigation plans as a condition for receiving Pre- Disaster Mitigation (PDM) grant assistance and Hazard Mitigation Grant Program (HMGP) assistance. St. Mary's Hazard Mitigation Plan was adopted in 2006, updated **May 27, 2011 – Resolution No. 2006-35**. The Committee shall serve in an advisory capacity to the Commissioners of St. Mary's County by addressing all matters related to planning and mitigation due to natural hazards, community outreach, coordination of resources and agencies, and any other issues relating to hazard mitigation that the Commissioners of St. Mary's County deem appropriate.

The membership of the Hazard Mitigation Planning Committee consists of ten (10) members who meet quarterly.

Emergency CodeRed



The St. Mary's County Government CodeRED Emergency Notification System is an ultra-high-speed telephone communication service used to quickly contact citizens. This system is used to make calls to all or targeted areas of the County when important information needs to be immediately relayed to our

citizens. The system is capable of dialing 60,000 phone numbers per hour. It then delivers a recorded message describing the situation in the affected area which may include instructions requiring action on the part of the recipient.

Emergency Management has been recently working with the Maryland Silver Jackets to develop a statistical data study for McIntosh Run. The purpose of the study is to determine mitigation measures to prevent flooding to the roadways and homes along Point Lookout Road/Maypole Road/Newtowne Neck Road. Additional planning partners for this project includes Town of Leonardtown, Maryland Department of Environment (MDE), US Army Corps of Engineers (USACE), National Weather Service (NWS), Maryland Department of Natural Resources (DNR), Southern Maryland Resource Conservation & Development, State Highway Administration (MDOT-SHA). This project is in the initial phase of planning; however, it is anticipated that funding will be sought from the collaborating agencies. Potential mitigation recommendations are dependent upon findings from the study. Recommendations then determine which potential funding source is pursued.

In addition, two (2) property owners are seeking to elevate their homes after the flooding event in December 2022. These properties are located in close proximity the Potomac River. Flood Mitigation Assistance (FMA) Grant Funding will be sought to fund these projects.



FEMA Capability: Administrative and Technical, Financial, and Education and Outreach

1.2 Department of Information Technology

Information Technology

It is the mission of the Information Technology Department to provide leadership and support that facilitates the identification, implementation, and use of technology to support the citizens of St. Mary's County, while enhancing the mission and the business requirements of St. Mary's County Government.

St. Mary's County government has undertaken a strategic approach to improving the county broadband infrastructure by leveraging available grants and marketing the availability of these opportunities to households and employers. St. Mary's County will continue to work to ensure options for affordable, ultra-high capacity, high-speed broadband; and expanded cable offerings are available to county residents and businesses.

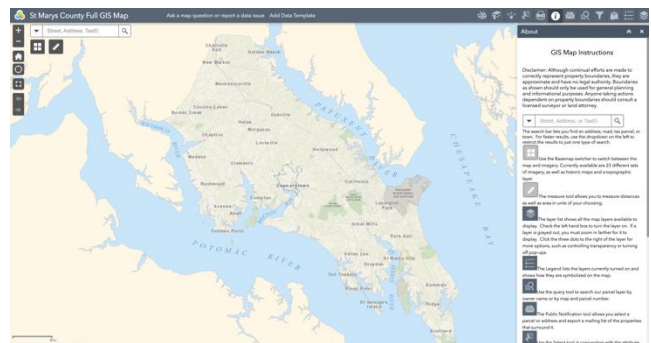
The February 16, 2022 Departmental Plan of Action- Information Technology included the following summary.

In recent years, St. Mary's County has invested in the expansion of existing commercial Cable Providers networks to allow service to be extended to areas which may not be economically feasible for commercial vendors to expand. The infusion of government grant funding has expanded the Middle Mile service in many underserved areas in our county. By funding the construction of these plant expansions, the county offsets the capital improvement costs of the vendor without assuming any maintenance and/or support costs associated with the services already being provided by the vendor. In 2021, the St. Mary's County Public Schools (SMCPS) requested assistance from the county in identifying and resolving the connectivity limitations for students without broadband; in response to the Covid-19 assembly restrictions.

To meet the challenge, a collaborative effort between the county, SMCPs, the State of Maryland, the Federal Government of the United States, and Service Providers have been working to identify the county addresses where wired broadband service is not currently available. Analysis is nearly complete which will determine the actual construction costs for connecting the remaining unserved addresses within the county.

The investment to date has provided wired broadband connectivity to 98.5% of SMCPS students and 94.7% connectivity for all registered addresses in the county. Building on our previous successes and methodologies and leveraging as much grant funding possible, staff recommends the following Plan of Action to achieve the Maryland Legislator's goal of providing 98% broadband connectivity by 2026.

Information Technology Division offers County Web Map Viewer which is a public Geographic Information Systems (GIS) tool allowing users to visualize data. Downloadable layers are available and include: 2014 Contour Lines, 2020 Planimetric, Centerlines, St Mary's Address Points, St Mary's County Outline, St Mary's Property Boundary, and Zoning.



FEMA Capability: Education and Outreach and Financial

1.3 Department of Land Use and Growth Management

The Department of Land Use and Growth Management ensures the protection of the natural environment by balancing growth through guidance and effective land use regulations. Land Use and Growth Management is responsible for implementing the following ordinances: building code, subdivision and zoning.

St. Mary's County Comprehensive Planning Division

The Comprehensive Planning Division maintains and updates the [St. Mary's County Comprehensive Plan](#) adopted in 2010 and the [Lexington Park Development District Master Plan](#) effective February 2016. The division assists the Planning Commission in preparing its Annual Report.

The St. Mary's County Comprehensive is currently being updated. At this time, trends summary and implications for Chapter 1 is available as follows:

[May 10, 2021 Planning Commission Meeting Presentation, Excerpt from Presentation below.](#)

Slow Population Growth due to low migration and low birth rates. Age group patterns indicate decreasing trend except for the 65+. Gradual loss of Agriculture and Forestry land. Residential Land Use Cover had a greater increase. High number of residents working in the County. High number of commuters travel to work in the County. High number of Vacant Housing in 2019. Unemployment rates lower than State and National. Public school enrollment is decreasing.

According to the 2020 U.S. Census the occupancy rate for St. Mary's County is 90 percent which is consistent with that of the State of Maryland at 91 percent.

As indicated by the development trend summary and implications, St. Mary's County is not currently have nor are they forecasting for any projected development pressure.

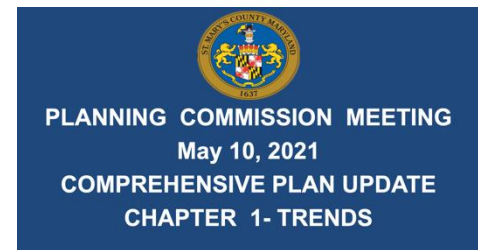
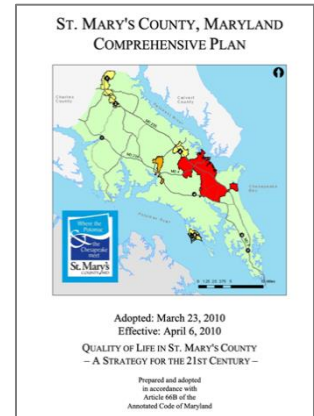
Historic Resources

The historic preservation program implements the plan adopted by the Commissioners of St. Mary's County in March of 2000, entitled "[Painting a Self Portrait: A Historic Preservation Plan for St. Mary's County](#)", which is available on the County's Department of Land Use and Growth Management website at www.stmarysmd.com/lugm/comprehensiveplanning.com. The [Historic Preservation Commission](#) provides oversight of on-going programs.

[Historic Preservation Guidelines](#) were prepared in 2003. The St. Mary's County Historic Preservation Guidelines have been created, in part, to fulfill Section 42.8.3.a of the County's Comprehensive Zoning Ordinance. They are intended to assist owners and tenants of historic buildings and landscapes in maintaining, preserving and enhancing the character of their properties. The guidelines are also intended to assist architects, engineers, contractors and others involved in the maintenance, enhancement, or alteration of these buildings, open spaces and landscapes to plan and implement projects that preserve and enhance the character of those places. In addition, the guidelines are intended to assist anyone undertaking new construction - additions to existing buildings as well as entirely new buildings within historic districts.

Critical Area

The County's Critical Area Program consists of three land development classifications within the Critical Area. Classifications are based on existing development and public services available as of December 1, 1985, the effective date of the State's Critical Area program.



The Buffer Management Overlay (BMO) zone is a zone that may be placed over lands within the IDA, LDA, or RCA. Lands with a BMO designation include shoreline areas where it has been demonstrated that the existing pattern of development in the Critical Area prevents the Buffer from fulfilling the functions for water quality and habitat protection. Specific regulations guiding development on lands labeled BMO can be found in the Ordinance.

Maps delineating the Critical Area and its specific overlay zones have been formally approved as part of the County's Critical Area program and are available on the County's website and by contacting staff members in the Department of Land Use and Growth Management.

Critical Area Buffer & Mitigation

The Critical Area Buffer (Buffer) is an area of natural vegetation established a minimum of 100 feet measured landward from the mean high-water line of tidal waters, tidal wetlands, and tributary streams. The 100-foot Buffer is expanded to include contiguous steep slopes, hydric soils, and highly erodible soils. Soil types for the County are identified and mapped by the United States Department of Agriculture Soil Conservation Service in cooperation with the Maryland Agricultural Experiment Station. Hydric and highly erodible soils specific to the County are provided and shown as layers on the County's GIS website.

New subdivisions or site plans proposed in the RCA require a minimum 200-foot Buffer as measured from tidal waters or a tidal wetland.

Any development or redevelopment activity that occurs on a lot or parcel that includes a Buffer must be mitigated through a Buffer Management Plan approved by the Department of Land Use and Growth Management

St. Mary's County Comprehensive Zoning Ordinance

The current Comprehensive Zoning Ordinance, effective effect on September 14, 2010, last amended on December 28, 2016, is the primary tool for regulating how development or redevelopment is accomplished in the County. It is also one of the tools for implementing the goals, objectives, policies, and actions recommended in the Comprehensive Plan.

Chapter 41 Zoning Ordinance

Chesapeake Bay Critical Area (IDA, LDA, RCA)

Establishes overlay district regulations that apply to all water of and lands under the Chesapeake Bay and its tributaries to the head of tide, all State and private wetlands, and all land and water areas within 1,000 feet beyond the landward boundaries of State or private wetlands and the heads of tide. The regulations limit density and impervious cover, assure adequate water quality and quantity measures are implemented to manage runoff, measures to assure no net loss of forest cover, and to establish criteria for resource protection. Particular attention is given to limiting development and disturbances in a "Critical Area Buffer" at least 100 feet landward of mean high water or the top of stream banks and expanded for sensitive resources (non-tidal wetlands, hydric and highly erodible soils and steep slopes). The regulations have the effect of reducing the overall amount of development in close proximity of tidal waters and tributary stream and reducing the impacts of development that does occur. In addition to significant habitat benefits, the regulations also reduce risk from hazards such as storm surge and tidal flooding, and damage and property loss due to shoreline erosion.

Chapter 70 Zoning Ordinance

Adequate Public Facilities

- Storm Drainage:

The proposed development shall be served by an adequate storm drainage system. A storm drainage system shall be considered adequate if 1)The on-site drainage system installed by the developer will be capable of conveying through and from the property the design flow of storm

water runoff originating in the development during a 2-, 10-, and 100-year flood as determined in accordance with criteria specified in the Storm water Management, Grading, Erosion and Sediment Control Ordinance, in addition to flows from undeveloped land upstream in the natural watershed of the proposed development, flows from existing upstream developments, and design flows from developments for which plats and plans have been approved, without resulting in erosion, sedimentation or flooding of the receiving channel and downstream properties; and 2) The off-site downstream drainage systems are capable of conveying to an acceptable outfall the design flow of storm water runoff originating in the development, as determined in accordance with criteria specified in the Stormwater Management, Grading, Erosion and Sediment Control Ordinance, in addition to flows from undeveloped land up-stream in the natural watershed of the proposed development, flows from existing upstream developments, and design flows from developments for which plats have been recorded, without resulting in erosion, sedimentation, or flooding of the receiving channel and down-stream properties.

- **Fire Prevention and Suppression:**

Adequate Public Facility (APF) provisions are administered in conjunction with the St. Mary's County Metropolitan Commission and County Fire Board. A proposed development shall be considered to be adequately served by fire suppression facilities if 1) developments on public water are served at the time of issuance of the first occupancy permit by an approved public (central) water supply system or multi-user water supply system capable of providing fire flow in accordance with the relevant St. Mary's County agency standards; or 2) development on private wells have fire flow and storage capabilities installed in accordance with NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire-fighting. The water source shall be provided, unless specific exemption is given for the installation of a sprinkler system by the fire department in whose area the premises lie, or the amount of water carried on fire apparatus responding on the first alarm is greater than required by the standard. When a static water source is approved a dry hydrant with all-weather access shall be provided to facilitate the fire department taking draft from the source. Water for fire suppression shall be available within 1,000 feet of all single buildings under 12,000 sq. ft. area and on site for all single buildings over 12,000 sq. ft. area.

Chapter 71 Zoning Ordinance

Resource Protection Standards

The purposes of Chapter 71 are to:

- 1) Protect the public health, safety, and welfare by maintaining the water and land resources that provide natural functions to prevent loss of land and topsoil to erosion, to filter pollution, nutrient, and sediment runoff and to mitigate effects of flooding;
- 2) minimize the impacts of surface land use on water resources and conserve fish, wildlife, and plant habitats while accommodating continued growth;
- 3) Protect the County's most sensitive and diverse ecosystems;
- 4) Respect natural constraints and limitations as a primary component of development design;
- 5) Enhance and protect the quality of the County's water resources by controlling soil erosion and runoff to the maximum extent practicable. Reduce sources of pollution to meet Chesapeake Bay water quality standards; and
- 6) Protect the County's ground-water recharge areas and potential surface water impoundment sites.

Applicants are required to identify and put in place measures to protect streams and their buffers, non-tidal wetlands, the 100-year floodplain, floodway and coastal high hazard, hydric soils, highly erodible soils, slopes of 15 to 25% and greater, the Chesapeake Bay Critical Area, defined habitat protection areas,

natural heritage areas and forest and woodland cover. The development standards are designed to implement the Comprehensive Plan criteria for resource protection discussed above. These standards of Chapter 71 serve to protect sensitive resources from the impacts of development and allow the resources to retain their value for hazard mitigation and to protect people, property, structures and infrastructure from the hazards associated with location within, or in close proximity to, sensitive areas.

Chapter 75 Zoning Ordinance

Forest Conservation

The purpose of Chapter 75 is to implement a program for forest conservation that regulates the cutting and clearing of certain forests; and to require forest stand delineations and forest conservation plans for many development activities. The regulations require identification and the protection of priority forest areas (as defined in the ordinance) on planned development sites. Of particular importance for hazard mitigation is the priority placed on the protection of trees, shrubs and herbaceous plants associated with intermittent and perennial streams and their buffers, with slopes over 25 percent; with slopes with highly erodible soils; and with 100-year floodplain and drainage way buffers. Retention of forests, mitigation for permissible cutting of forests, and afforestation to plant forest on sites that have insufficient forest coverage are required by the regulations.

Chapter 76 Zoning Ordinance

Floodplain Regulations

Chapter 76 establishes standards and regulations for development in the floodplain to manage and in some cases, prevent development in areas subject to flooding; to require appropriate construction practices to minimize future damage; and to provide for the review of all activities proposed within identified floodplains and, by the issuance of permits for those activities that comply with the objectives of this Ordinance.

The county floodplain ordinance closely follows Maryland's model ordinance with some additional provisions to implement Comprehensive Plan policies to eliminate or reduce risk to people and property from flooding in the tidal floodplain and by requiring new and replacement development to be outside of the floodplain (50-foot setback) when alternative sites are available.

The Digital Flood Insurance Rate Map (DFIRM) database depicts flood risk information and supporting data used to develop the risk data. The primary risk classifications used are the 1-percent-annual-chance flood event, the 0.2-percent-annual-chance flood event, and areas of minimal flood risk. The DFIRM Database is derived from Flood Insurance Studies (FISs), previously published Flood Insurance Rate Maps (FIRMs), flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data. Digital Flood Insurance Rate Map (DFIRM) for St. Mary's County and Incorporated Areas became effective on October 19, 2004, and November 19, 2014. Interactive GIS mapping, with floodplain areas/boundary layers, are available on the County's GIS website at www.stmarysmd.com/it/gis.

Base Flood Elevation (BFEs) is water surface elevation of the base flood in relation to the datum specified on the community's Flood Insurance Rate Map. In areas of shallow flooding, the lowest floor (including basement) shall be elevated at least as high above the highest adjacent grade as the depth number specified in feet (BFE) on the FIRM plus two (2) feet, or at least four (4) feet if a depth number is not specified.

The St. Mary's County Floodplain Regulations require permits to be obtained for any person to begin any development or construction which is wholly within, partially within, or in contact with any flood hazard area established in Section 76.1.5, including but not limited to: filling; grading; construction of new structures; the substantial improvement of buildings or structures, including repair of substantial damage; placement or replacement of manufactured homes, including substantial improvement or repair of substantial damage of manufactured homes; erecting or installing a temporary structure, or alteration of a watercourse.

Furthermore, new buildings and structures (including the placement and replacement of manufactured homes) and substantial improvement of existing structures (including manufactured homes) that are located, in whole or in part, in any special flood hazard area shall:

- Be designed (or modified) and constructed to safely support flood loads.
- Be constructed by methods and practices that minimize flood damage.
- Use flood damage-resistant materials below the elevation of the lowest floor required in Section 76.5.4.a or Section 76.5.5.a (for A Zones) or Section 76.6.3.b (for V Zones and Coastal A Zones).
- Have electrical systems, equipment and components, and mechanical, heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems, and other service equipment located at or above the elevation of the lowest floor required in Section 76.5.4.a or Section 76.5.5.a (A Zones) or Section 76.6.3.b (V Zones and Coastal A Zones).
- Have the electric panelboard elevated at least three (3) feet above the BFE.

Building Codes

Chapter 203 – Building Codes for St. Mary’s County are pursuant to the Public Safety Annotated Code of Maryland, the State of Maryland adopted, effective as of March 25, 2019, of Building Performance Standards. In Chapter 203, the following were incorporated by reference:

- 2018 International Building Code International Code Council;
- 2018 International Residential Code for One- and Two-Family Dwellings; and,
- 2018 International Energy Conservation Code (IECC).

Table 4.1

2015 Building Codes		
Wind Design	Snow Load	Floodplain Development Above Base Flood Elevation
100 mph	25 psf	4 feet

Source: Ordinance No. 2015-26, Chapter 203 Amendment

The amendment also enforces:

- **R313.2 One- and two-family dwellings automatic fire systems:** an automatic residential fire sprinkler system shall be installed in one and two-family dwellings.
- **R403.1.6 Foundation anchorage:** Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section. Interior bearing wall sole plates on monolithic slab foundations that are not part of a braced wall panel shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R3 17 and R3 18.
- **R40G.2 Concrete and masonry foundation waterproofing:** All exterior foundation walls that retain earth and enclose interior spaces and floors below grade shall be waterproofed from the top of the footing to the finished grade. Walls shall be waterproofed in accordance with one of the following:
 - Two-ply hot-mopped felts;
 - Fifty-five-pound (25 kg) roll roofing;
 - Six-mil (0.15 mm) polyvinyl chloride;
 - Six-mil (0.15 mm) polyethylene;
 - Forty-mil (1 mm) polymer-modified asphalt;
 - Sixty-mil (1.5 mm) flexible polymer cement;
 - One-eighth inch (3 mm) cement-based, fiber-reinforced, waterproof coating; or
 - Sixty-mil (0.22 mm) solvent-free liquid-applied synthetic rubber.

- Exception: Organic-solvent-based products such as hydrocarbons, chlorinated hydrocarbons, ketones and esters shall not be used for ICF walls with expanded polystyrene form material. Use of plastic roofing cements, acrylic coatings, latex coatings, mortars and parings to seal ICF walls is permitted. Cold-setting asphalt or hot asphalt shall conform to type C of ASTM D 449. Hot asphalt shall be applied at a temperature of less than 200°F (93°C).



FEMA Capability: Planning and Regulatory

1.4 Department of Public Works and Transportation

The Department of Public Works and Transportation serves St. Mary's County by ensuring transportation/facilities management, development review, solid waste and recycling programs are properly planned, implemented, and maintained. Divisions included as part of the Department include Airport Operations, Building Services, Construction and Inspections, County Highways, Development Review, Engineering Services, Recycling and Solid Waste, STS Transit, and Transportation Services.

A new capability added to the county website during this past planning cycle is the posting of road closures in real-time.

Date	Street Name	Intersections
9/1/2021	212440095	BUSY CORNER RD RD
		Between COLTON POINT RD and POINT LOOKOUT RD



FEMA Capability: Administration and Technical and Education and Outreach

1.5 Social Equity and Public Health Capabilities

During this planning cycle various partnerships and collaborative projects have been initiated.

Hub in Lexington Park

The “St. Mary's County Hub: Advancing Equity and Wellness” (Hub) project seeks to implement behavioral health (BH) crisis management and primary care (PC) services for residents of the 20634, 20653, and 20667 ZIP codes of St. Mary's County (SMC). These ZIP codes have all previously hosted Health Enterprise Zones. These ZIP codes were selected because of the disparities in access to BH care and PC and the social risk factors that these communities face. The Hub, its services, and its community partners (the Hub Alliance) will work in close coordination, resulting in emergency department (ED) diversions and thus, a reduction in ED admissions for chronic conditions and mental health and substance use disorders.

The Hub Alliance will implement the PC and BH services to increase access, support primary and secondary prevention, address SDOH, and reduce health costs associated with ED visits and hospitalization. It builds on the momentum of local partnerships - government agencies, nonprofits, practitioners, and citizen stakeholders. A mixed-methods evaluation strategy will involve metrics on

patient volume, MedStar St. Mary's Hospital (MSMH) ED volume, data from the Health Services Cost Review Commission (HSCRC), community partners, population statistics, as well as qualitative data from patients, clinicians, and partners. This evaluation mix will provide measures of progress on reducing disparities based on race, socioeconomic status, location, and mental health; improving health outcomes; improving access to PC and BH; promoting primary and secondary prevention; and reducing healthcare costs and hospital readmissions. Pathways funding will lead to a capacity-building foundation for a sustainable health equity.

St. Mary's County Health Department (SMCHD) will serve as the lead organization for this proposal and will lead the Hub Alliance. SMCHD will provide grant and fiscal management, integrated BH, PC, education, and social support services at the Hub. SMCHD will work closely with the Hub Alliance to implement a continuum of community services designed to promote Health Equity and improve access to health care. SMCHD is a local health department, serves a population of approximately 115,000 and provides a variety of health and human services. It has a long history of successful community health leadership, management of grant funding, and addressing systemic barriers to healthcare access and health equity for its community members. As the county's local public health authority, SMCHD convenes with multiple public and private partners from different sectors to achieve improved population health outcomes. This includes coordinating community task forces and partnerships, such as the Healthy St. Mary's Partnership (a local health improvement coalition); assessing community health needs; implementing collaborative plans to address those needs; and providing the expertise needed to optimize these efforts. The SMCHD organizational structure aligns with its leadership role, covering an array of key public health topics and having dedicated staffing to assist with data analysis, communications, policy advocacy, and addressing the social determinants of health. SMCHD also has successfully managed a multimillion-dollar budget of federal, state, and local public dollars as well as private dollars. Its organizational capacity allows for management of multiple grants and contracts involved in delivering outcomes. SMCHD has also demonstrated the capacity to address barriers to healthcare access and health equity through initiatives such as the first school-based health centers in the county, as well as a St. Mary's County Equity Task Force in partnership with the St. Mary's County Sheriff's Office (SMCSO) and St. Mary's County Public Schools (SMCPS).

The Hub Alliance, the body of public-private partners that will guide the Hub facility, requires the support and work of 22 local partners to fulfill its mission. The primary goal of the Hub Alliance is to collaborate across sectors to promote equity in health, public safety, and education. Each member has a role in improving service delivery, conducting outreach and education, and supporting community development. Core operating partners include Commissioners of St. Mary's County; Minority Outreach Coalition; PNC Bank, Inc.; and an evaluator. PC, BH, and medical respite partners include St. Mary's County Health Department, SMCSO, Pyramid Walden, Project Chesapeake, Pathways, Outlook Recovery, MedStar St. Mary's Hospital, Greater Baden Medical Services, and Three Oaks Center. Partners that will work to address SDOH and health equity include Housing Authority of St. Mary's County; Williams, McClernan, and Stack, LLC; NAACP Branch #7025, St. Mary's County Chapter; St. Mary's County Department of Social Services; the Tri-County Council for Southern Maryland; Community Mediation Center of St. Mary's County; SMCPS; St. Mary's County Libraries; the Literacy Council of St. Mary's; and a local nonprofit organization. Hub Alliance partners will regularly reach out to community members to request feedback and to provide opportunities for becoming involved in the Hub Alliance.

The project site was the former PNC Bank branch located on Great Mills Road, was donated by PNC Bank to HASMC to be used by the health department for COVID-19 pandemic response, behavioral health crisis stabilization services, and other programs to promote wellness. In addition, the St. Mary's County Health Department was awarded \$1.6 million in grant funding through the Maryland Community Health Resources Commission (CHRC) Pathways to Health Equity program, which aims to address health disparities, expand access to health services, and improve health outcomes in underserved communities. Furthermore, the St. Mary's County Commissioners designated \$2.37 million in Federal American Rescue Plan Act funds for facility renovations.

[St. Mary's County Health Department Website and Health Equity](#)

The [St. Mary's County Health Department website](#) provides the public with various information and resources. In addition to public health and disease related information, emergency preparedness and health equity are also featured.

The St. Mary's County Health Department is dedicated to promoting health equity by:

- Identifying health disparities through data analysis
- Collaborating with local community partners and leaders to address health disparities and contributing social and systemic factors
- Developing and carrying out solutions that are respectful of community differences, and provide safe spaces for everyone
- Engaging in community outreach and providing community members with the resources and health information needed to advance their own health

The St. Mary's County Health Department (SMCHD) hosted a three-part webinar series to explore the topics of health equity, health disparities, and community action to eliminate social and systemic barriers to equity.

- Health Equity & Health Disparities Overview
- COVID-19 and Health Disparities
- Community Efforts to Advance Equity

[Mobile Outreach – St. Mary's & Charles Counties](#)

Both St. Mary's County and Charles Counties are working together to implement mobile outreach using the [Maryland's Strategic Vision For Comprehensive Mobile Response & Stabilization Services For Children, Youth, Young Adults & Families](#), Issued by the Maryland Department of Health, Behavioral Health Administration Fall 2021.

[Health Assessments](#)

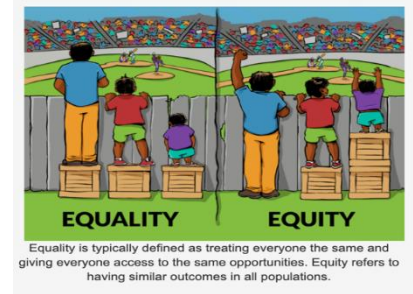
[St. Mary's County Community Health Assessment](#) completed in 2020 is a local health assessment process that that used quantitative and qualitative methods to systematically collect and analyze data to understand health. Community health assessment data inform community decision-making, the prioritization of health problems, and the development, implementation, and evaluation of community health improvement plans.

[Healthy St. Mary's 2026](#), the Community Health Improvement Plan (CHIP) for St. Mary's County, was created after analyzing both state and local health data. The CHIP provides a community blueprint for improving the health of local residents from 2021- 2026. The plan provides insight into health solutions for the long-term and presents a road map for achieving optimal health for all. The CHIP is a living document which is updated annually to reflect current needs of St. Mary's County.



Finally, the [MedStar St. Mary's Hospital Assessment](#) was completed in 2021.

[Library and Behavioral Health Partnership](#)

In doing a community mapping project, including feedback from the community on access to health, the Behavioral Health Action Team (BHAT) and its corresponding subcommittees worked on solutions to afford local residents more accessibility to primary care (to include MAT appointments), specialist and behavioral health treatment appointments. Virtual medicine has been a lifeline to individuals needing specialty and behavioral health services that are limited in rural areas of the county. The libraries, which are situated in 3 major parts of the county and coincidentally on the bus routes, agreed to assist in housing virtual telehealth sites for our community residents. In order to keep the appointment confidential, it was




vital to purchase private spaces, (booths), that would serve as private areas for the appointments to be conducted. Telehealth ADA compliant booths are a budget item under our current approved grant funds for this fiscal year under the category of Computer Equipment. They were custom designed to be ADA compliant, the first in the country, with a company called TalkBox. We anticipate delivery of the booths to the two pilot sites, Charlotte Hall Library and Lexington Park Library, later this month.


   *FEMA Capability: Financial, Education and Outreach, and Planning and Regulatory*

1.6 Additional Capabilities Added During 2018-2022 Planning Process

- Department of Public Works and Transportation employed the 3-1-1 Reporting System- a non-emergency service that citizens can use to request county services, make complaints, or report problems like road damage, trees down and flooding issues. It provides a map to allow for a specific location to be identified with the problems being reported. The system also has the ability to capture the complaint information by category and location for later data analysis. This is the primary data collection tool for both tidal and non-tidal flooding impacts.

 *FEMA Capability: Education and Outreach*



- The Town of Leonardtown uses a hard copy reporting system. Residents' calls are received, and their concerns are forwarded to the Town's Capital Projects Manager for assessment. Confirmed Nuisance Flooding issues are evaluated for possible action and, If the issue is a town responsibility, the location will be added to the Town's Listing and included in the next cycle's reporting.

  *FEMA Capability: Planning and Regulatory and Education and Outreach*


- The Department of Emergency Services completed the St. Mary's County Nuisance Flood Plan in December of 2020.

 *FEMA Capability: Planning and Regulatory*


- Partial work has been completed on the MD Route 5 Point Lookout Road. Intersection safety improvements have been partially complete. This is a Maryland State Highway Administration (SHA) Project.
- The Town of Leonardtown uses a hard copy system for reporting roadway flood conditions. Residents' calls are received, and their concerns are forwarded to the Town's Capital Projects Manager for assessment.

  *FEMA Capability: Education and Outreach and Financial*

- The County uses local Program Open Space (POS) funding for the acquisition of property as identified in the 2012 and 2017 Land Preservation, Parks, and Recreation Plans. Some of this property is flood prone and is used for preservation and/or recreation purposes only.

 *FEMA Capability: Financial*

- Shore erosion projects have been identified and are included in the 2023 Capital Improvement Budget Request.

 *FEMA Capability: Financial*

2.0 Plan Integration

Integrating hazard mitigation planning and implementation actions into existing St. Mary's County planning mechanisms (comprehensive plan, capital budget, ordinances, etc.) and vice versa is essential to building a safer and more resilient community. Integration of planning documents results in consistency and collaborative ideas within the local planning structure.

2.1 Safe Growth Audit

During the preparation of the *2017 St. Mary's County Hazard Mitigation Plan*, a Safe Growth Audit was conducted. Performing a Safe Growth Audit is a way to assess how well the existing planning tools address hazard risks and community resiliency. Safe Growth Audit questions provide a systematic way to review local planning tools and identify the presence of, or need for, hazard-related actions.

As part of the plan update process the Safe Growth Audit performed in 2017 was reviewed and updated, as applicable. Several planning documents have been updated, amended, or revised during this past planning cycle.

Plan Integration

Generally described as the routine consideration and management of hazard risks in your community's existing planning framework – plan integration is the collection of plans, policies, codes, and programs that guide development in your community, how those are maintained and implemented, and the roles of people, agencies, and departments in evaluating and updating them. Effective integration of hazard mitigation occurs when your community's planning framework leads to develop patterns that do not increase risks from known hazards or leads to redevelopment that reduces risk from known hazards.

The goal of the SAFE GROWTH AUDIT is to build environments that are safe for current and future generations and to protect building, transportation, utilities, and the natural environment from damage.

Safe Growth Audit Recommendations

Local documents reviewed during the Safe Growth Audit include:

- 2010 Comprehensive Plan - Adopted August 31, 2010; Most Recent Amendment November 18, 2014;
- 2010 Town of Leonardtown Comprehensive Master Plan
- 2016 Lexington Park Development District Master Plan;
- 2010 Zoning Ordinance; Effective September 14, 2010; Recent Amendments are posted on the planning department website at www.stmarysmd.com/lugm/comprehensiveplanning, and the County Attorney's website at www.stmarysmd.com/countyattorney.
- 2010 Subdivision Ordinance; Most Recent Amendment December 31, 2013;
- Chapter 203 of the Code of St. Mary's, Maryland - Building Construction Codes – Most Recent Amendment Effective March 10, 2020;
- FY2023 Budget & FY2024-FY2028 Capital Improvement Plan; and
- 2006 Transportation Plan

The following Safe Growth Audit questions were used to identify gaps in existing growth planning and mechanisms within the County and to identify areas for improvement that could be made to reduce vulnerability to future development.

Table 4.2

Safe Growth Audit	
Plan	Location
COMPREHENSIVE PLAN	
LAND USE	
<p>Does the future land-use map clearly identify natural hazard areas?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan Chapter 4: Land Use and Growth Management Element</p> <p>Concept Land Use Maps – Pgs. 4-11 through 4-22 In addition, Figure 5-7 (pg. 5-16) shows the extent of steep slopes, tidal floodplains, nontidal floodplains, and floodways. Interactive GIS maps are available on the County’s GIS website at www.stmarysmd.com/it/gis/.</p> <p>2010 Town of Leonardtown Comprehensive Plan 100-year floodplain depicted on Critical Areas Program Map Pg. 13-1 Streams and their Buffers</p> <p>2010 Town of Leonardtown Comprehensive Plan Pg. 11-11 Any future Town development that is proposed within 1,000 feet of tidal waters and is currently designated a Resource Conservation Area (RCA) under the terms of the Chesapeake Bay Critical Area Program will require the award of growth allocation to permit development exceeding a density of one residential unit per 20 acres.</p>
<p>Do the land use policies discourage development or redevelopment within hazard areas?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan Chapter 4: Land Use and Growth Management Element</p> <p>The Land Use chapter of this Plan includes goals, objectives, policies, and implementation strategies. 4.4 Rural Preservation Goals, Objectives, and Policies Pg. 4-9 through 4-10</p> <p>2010 Town of Leonardtown Comprehensive Master Plan The 100-year floodplain is the land area along a stream that is susceptible to inundation by a flood of a magnitude that would be expected to occur on average only once every 100 years as a result of rainfall and runoff from upland areas. The 100-year floodplains of streams in Leonardtown are shown on the Leonardtown Critical Areas Program maps.</p> <p>Pg. 11-13 Protection of Sensitive Areas and Water Resources Element Critical Areas Map Program Pgs. 13-2 and 13-3 Pg. 13-6 Objectives Restrict development in sensitive areas. Direct growth away from such areas. Prohibit extensive alteration to major drainage courses. Protect vegetation in and around steep slopes, floodplains, and stream buffers. Prioritize these areas for preservation when open space dedication is required as part of the subdivision or development process.</p>
<p>Does the Plan provide adequate space for expected future growth in areas located outside natural hazard areas?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan Chapter 4: Land Use and Growth Management Element 4.5 Development Guidelines 4.5.1 Growth Area Land Use Concepts. Included in the development guidelines:</p>

	<p>Residential Areas, Commercial Areas, Mixed Use Areas, Rural Land Use Concepts, General Land Use Concepts, Lexington Park Planning and Design Recommendations, Leonardtown Development District Planning and Design Recommendations, Town Center Guidelines, and Village Center Guidelines. Pg. 4-23 through 4-32</p> <p>2016 Lexington Park Development District Master Plan Housing Recommendation- Pg. 7-6 Assure adequate privacy and comfort, safety from fire, flood and other hazards, and protection from health threats while maintaining home affordability.</p> <p>2016 Lexington Park Development District Master Plan Pg. 10-11 References the Hazard Mitigation.</p>
TRANSPORTATION	
<p>Does the transportation plan limit access to hazard areas?</p> <p>Does the transportation plan limit access to hazard areas? Cont.</p>	<p>Yes 2006 St. Mary’s County Transportation Plan VI. Bicycles D. Implementation Strategies 1. Adopt Design Standards b) Off-Street Trails Design Standards Natural surface trails are primarily for mountain bike use. Natural trails have dirt or gravel surface and vary in width. Specific standards for natural trail are not provided. The design of these trails is dependent upon the topography, vegetation, restrictions and the proximity to environmental features. Multi-use trails are specifically designed to accommodate several different users at the same time. The surface material used on multi-use trails includes either a compacted crushed stone or asphalt. The width of the trail varies from 8 feet to 12 feet. Within the more developed areas a 10-foot width should be the minimum. Since many of the trail corridors are proposed along environmentally sensitive areas special consideration should be taken to minimize any adverse impacts. Issues relating to the environmental impacts from trails would be addressed as part of a more detailed study of the individual corridor. Pg. 65</p> <p>II. Roadways B. Roadway Improvements Extend Pegg Road from MD 237 to Indian Bridge Road An alternative to extending Pegg Road from Indian Bridge Road to MD 5, is to only extend Pegg Road from MD 237 to Indian Bridge Road and upgrade Indian Bridge Road and MD 5. This alternative may be more cost effective by using more of the existing right-of-way. It will reduce the amount of impacts of crossing floodplain/wetland areas west of Indian Bridge Road. Pg. 14</p>
<p>Is the transportation policy used to guide growth to safe locations?</p>	<p>Yes 2006 St. Mary’s County Transportation Plan II. Roadways C. Streetscape Projects Streetscape projects provide for a safe and beautiful public environment for the urban community. Instead of large, paved areas that are unfriendly to the pedestrians, streetscapes provide a visually appealing sense of place. Trees are planted to provide shade. Lighting is placed to meet the character of the historic community while providing elements of safety. Sidewalks are defined to encourage pedestrian usage. Two locations within St. Mary’s County are recommended for streetscape projects: 1. MD 5 Business Leonardtown</p>

	<p>The County Seat of St. Mary’s County is in Leonardtown. The relocation of MD 5 to the north side of town allows the central portion of the town to experience reduced traffic volumes. This allows for a more pedestrian friendly environment to occur through town. In order to continue to encourage persons to come to the downtown area and feel safe to walk streetscape improvements should be implemented. This could involve a variety of measures that include landscaping, brick pavers and street lighting. A future project could be to expand the limits along MD 245 toward the Government Center.</p> <p>2. MD 246 (Great Mills Road) from Saratoga Drive to MD 235 Various commercial establishments are located along MD 246. They were constructed over a long period of time utilizing many different types of architecture. The roadway mirrors this, making the area less appealing. A streetscape project is needed along MD 246 to address the numerous curb cuts, lack of sidewalks, crosswalks and landscaping. The discontinuity in the area lends itself to the potential for accidents. It also discourages nonmotorized travel throughout the area. This project would provide an upgrade to the Town Center area by making the area more attractive and would provide an incentive for businesses to upgrade their storefronts and continue to encourage a viable community center. Both sides of MD 246 should have a continuous sidewalk. Crosswalks should be provided at all signalized intersections. Pg. 20</p> <p>2016 Lexington Park Development District Master Plan defines classification of transportation improvements. Second class improvements 1) to provide an incentive for infill, redevelopment, and revitalization; 2) are necessary for traffic calming; or 3) for improving management of stormwater.</p>
<p>Are movement systems designed to function under disaster conditions (e.g., evacuation)?</p>	<p>Yes 2006 St. Mary’s County Transportation Plan</p> <p>II. Roadways J. Emergency Evacuation Routes St. Mary’s County residents face challenges from the weather from time to time. Hurricane Isabel caused significant damage in September 2003 to many low-lying areas in St. Mary’s County. The County has identified four major roadways for people to use in case of the need to evacuate the area. The major evacuation routes will be along MD 5/235, MD 4, and MD 234. Improvements such as signage on all major evacuation routes should be discussed with Maryland SHA. This would improve the effectiveness and public awareness of the evacuation routes in case of emergency. In addition, the extension of Pegg Road from MD 237 to MD 5 will improve the evacuation time from the Naval Air Station. Pg. 26</p> <p>2016 Lexington Park Development District Master Plan Pg. 10-17 Carver School Boulevard improvements included design and installation of a traffic signal; installation of advanced hazard identification beacons, video detection and an Opticom system; and construction of a right-hand turn lane on the Carver School Boulevard approach to Great Mills Road (MD 246).</p>

ENVIRONMENTAL MANAGEMENT	
<p>Are environmental systems that protect development from hazard identified and mapped?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan</p> <p>Chapter 7: Water Resource Element Map 7.1.b – St. Mary’s County Areas and Habitats Subject to State and Federal Regulatory Review Pg. 7-9</p> <p>Chapter 5: Sensitive Areas Protection Element 5.3 Adherence to the Visions of the Planning Act This Sensitive Areas Element outlines the County’s adherence to the “Smart, Green and Growing” visions of State statutes. The element identifies areas to be protected and contains goals, objectives, principles, and standards designed to protect these areas from the adverse effects of development.</p> <p>5.4 Sensitive Areas - Goals, Objectives, Policies, Actions and Measures for Success 5.4.1 Goal: Identify and protect sensitive areas from the adverse impacts of development and human activity. A. Objective: Map natural landscape features and resources including streams, tidal and nontidal wetlands, hydric soils, steep slopes, erodible soils, floodplains, important forest habitats and significant natural habitats. Pg. 5-8 ii. Objective: Conserve fish, wildlife, and plant habitats through implementation of Federal, State and local resource protection policies which integrate resource protection measures into development activities. Figure 7.1.b. in Chapter 7 shows resource areas and habitats specifically identified for additional regulatory review by State and Federal agencies to assure protection of the resources. Pg. 5-9</p> <p>2010 Town of Leonardtown Comprehensive Plan The Town will continue to prohibit new development within stream buffers and will prohibit alteration of streambeds or stream banks, except for Best Management Practices (BMPs) to reduce erosion or stabilization. Pg. 12-1</p>
<p>Do environmental policies maintain and restore protective ecosystems?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan</p> <p>Chapter 3: A Growth Management Strategy Any successful plan will include sensible growth management strategies that will protect private property rights. During two years of plan preparation, the citizens of St. Mary’s County, the Planning Commission and the Board of County Commissioners have consistently recognized the benefits that occur in a setting that provides for a full range of growth options. Strategies must necessarily include regulations but can be coupled with incentives to encourage compliance. Decisions to invest in public facilities and services need to be made to support shared objectives. Organized pursuant to the visions that grew out of Maryland’s “Smart, Green, and Growing” legislation, the County’s community vision represents its desired future as an expression of policy made by all who participated in its preparation. Vision 1. Quality of life and sustainability: a high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable communities and protection of the environment. C. Ecosystems are protected, preserved, and enhanced by independent actions of individual citizens. Pg. 3-1</p> <p>Chapter 5: Sensitive Areas Protection Element Pg. 5-1 through 5-30</p>

<p>Do environmental policies maintain and restore protective ecosystems? Cont.</p>	<p>This Sensitive Areas Element outlines the County’s adherence to the “Smart, Green and Growing” visions of State statutes. The element identifies areas to be protected and contains goals, objectives, principles, and standards designed to protect these areas from the adverse effects of development.</p> <p>5.3.1 Resource conservation: waterways, forests, agricultural areas, open space, natural systems, and scenic areas are conserved. The County has established objectives, policies, and actions to assure identification and protection of the following sensitive areas and resources: streams and their buffers; 100-year floodplains; habitats of threatened and endangered species; and steep slopes and other areas in need of special protection including tidal wetlands, submerged aquatic vegetation (SAV), waterfowl areas, colonial bird nesting sites, shorelines, tidal and nontidal floodplains, nontidal wetlands and their buffers, anadromous fish spawning areas, groundwater and mineral resources, and wildlife corridors. As required by the State legislature in 2006, agricultural land (green infrastructure gaps, buffers, open space, forest conservation mitigation) and forest lands (green infrastructure and forest interior dwelling species habitat) intended for resource protection and conservation are now specifically included in this element. (See the Priority Preservation Area Element for agricultural and forest lands that are intended to be used for production).</p> <p>5.3.2 Environmental protection: land and water resources, including the Chesapeake and coastal bays, are carefully managed to restore and maintain healthy air and water, natural systems, and living resources. The County will continue to use regulatory programs (such as the Critical Area Program, Forest Conservation regulations, Stormwater regulations, requirements for open space conservation and clustering etc.), tax and funding incentive programs such as Agricultural Districts.</p> <p>5.3.3 Stewardship: government, business entities, and residents are responsible for the creation of sustainable communities by collaborating to balance efficient growth with resource protection. The County has established objectives, policies, and actions based primarily on avoiding loss, minimizing unavoidable loss and mitigating to offset the impacts associated with the loss. Based on this the County has and will continue to develop ordinances and programs to effectively protect sensitive areas, to set and measure progress in meeting goals for preservation, to set limits on the allowable loss of resources, and to assure that mitigation for unavoidable impacts is the responsibility and duty of those who benefit from the impact.</p> <p>5.3.4 Implementation: strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, State, and interstate levels to achieve these visions. Sensitive areas are inherently valuable to the entire community for the ecosystem functions they provide (mitigation of flooding, filtering for improvement of water quality, for their economic value (farm, fishery, forest, mineral products, recreational use) and for the reduction in service costs (reduced stormwater management, water supply). The County’s primary mechanism to maintain these values is via regulations that require environmentally sensitive designs and place the responsibility for protection, conservation and stewardship, and mitigation for losses predominately on the landowner in exchange for the value added from development. The County also participates in available State and Federal programs and has developed local programs funded primarily through taxes and fees associated with development to provide compensation to landowners so that conservation and stewardship of resources lands is a financially viable alternative to the development of resource lands in targeted areas.</p> <p>5.3.5 Quality of life and sustainability: a high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable</p>
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<p>Do environmental policies maintain and restore protective ecosystems? Cont.</p>	<p>communities and protection of the environment. Maintaining, enhancing and avoiding disruption of the natural functions of wetlands, forests, and floodplains, and preventing development impacts that overwhelming the service capacity provided by natural systems are necessary to providing sustainable communities that maintain a high quality of life enriched by the benefits of the environment and as free as possible from the disruptions associated with losses and damages which increase risks of environmental hazards and man-made disasters. To assure that St. Mary’s County develops in a sustainable manner that balances growth and resource protection, it is necessary to assure that hazard avoidance and mitigation is integrated into the planning and development process. Protection of and avoidance of development in sensitive areas is one important component of hazard avoidance. Another component is assuring that development is located to reduce exposure to risk associated with identified hazards, is constructed to minimize damage and disruptions from unavoidable risks and that development occurs in a manner that will not result in creating or increasing community exposure to hazards and adverse impacts. Of the twelve hazards identified as posing significant risks to the County, the highest risks are associated with 1) coastal/shoreline erosion, 2) extreme weather due to severe winter storms, 3) flood, 4) high wind due to hurricanes, 5) high wind due to tornado, 6) thunderstorm and lightning, and 7) wildfire. Also of concern are moderate risks associated with 8) hailstorms, 9) extreme summer heat and 10) drought. Risk of 11) earthquakes is considered to be low but the localized risk of 12) land failure of the steep slopes and cliffs, particularly in the Patuxent watershed is of increasing concern. Pg. 5-7 through 5-8.</p>
<p>Do environmental policies provide incentives to development that is located outside of protective ecosystems?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan Chapter 5: Sensitive Areas Protection Element 5.16 Compliance with State and Federal Programs - Goals, Objectives, Policies, Actions and Measures for Success 5.16.1 Goal: Adopt and implement programs in compliance with State and Federal programs necessary to meet State mandated goals and to maintain eligibility for and participation in State or Federal funding and programs. Pg. 5-29 through 5-30.</p>

<p>PUBLIC SAFETY</p>	
<p>Are the goals and policies of the comprehensive plan related to the FEMA Local Hazard Mitigation Plan?</p>	<p>Yes 2010 St. Mary’s County Comprehensive Plan Chapter 11: Transportation 11.7 Hazard Mitigation The firm of Greenhorne and O’Mara, Inc. was contracted to help develop a plan to mitigate natural hazards (i.e., coastal/shoreline erosion, drought, earthquakes, extreme weather, flooding, high winds, land failure and wildfire) and recommend measures that will reduce losses to life and property affected by the natural hazards that face the County. The result was issuance of the Multi-Jurisdictional Hazard Mitigation Plan of April 11, 2006. 11.7.1 Hazard Mitigation Plan A. Goal: Minimize damage to County maintained roadways caused by flooding and shoreline erosion. B. Goal: Reduce or eliminate long-term risks to people and their property from the effects of natural hazards. i. Objective: Ensure adequate land management measures in shoreline erosion hazard areas.</p>

	<p>ii. Objective: Minimize damage to repetitive loss properties through proactive mitigation efforts.</p> <p>a. Policy: Reduce the inventory of flooded conditions and number of roadway closures on County maintained roadways.</p> <p>b. Policy: Utilize the prior Shoreline Conditions Assessment to evaluate areas requiring higher levels of protection.</p> <p>c. Policy: Address existing storm conveyance systems and bridge structures that are inadequate to handle the runoff, which results in localized flooding, roadway closures, pavement failures and other potential safety concerns.</p> <p>i) Action: Develop capital improvement programs that leverage local, State and federal funds to construct shoreline protection systems (bulkheads, revetments, jetties, etc.) to protect County maintained roadway.</p> <p>ii) Action: Fund the appropriate mitigation measures, systematically replace, repair and / or upgrade them to handle the 10-year and 25-year storm events and safely pass the 100-year storm.</p> <p>iii. Objective: Ensure that building codes and standards follow FEMA’s basic guidelines and are properly implemented and enforced.</p> <p>Pg. 11-12 through 11-13</p>
<p>Is safety explicitly included in the plan’s growth and development policies?</p>	<p>The overarching role of planning is predicated on the concepts of protecting and promoting public health, safety, and general welfare. Therefore, the St. Mary’s Comprehensive Plan was developed in accordance with those principles that resonate throughout the various chapters of the Comprehensive Plan.</p> <p>2010 St. Mary’s County Comprehensive Plan Chapter 10: Public Facilities Element 10.2 The Plan for Public Facilities 10.2.2 Goal: Concentrate development in suitable areas.</p> <p>A. Objective: Provide the infrastructure to ensure adequate capacity to accommodate concentrated development in growth areas and address adequate facilities and services outside the growth areas.</p> <p>vi. Policy: Meet increasing health and public safety needs of the population per national standards.</p> <p>a. Law Enforcement:</p> <p>i) Achieve and maintain adequate staffing levels to provide a level of service of officers per the International Association of Chiefs of Police Standards.</p> <p>ii) Achieve and maintain an average response time of 4 minutes.</p> <p>iii) Provide adequate satellite office space in growth areas for the efficient operation of the department as necessary to accommodate the current and future public safety needs. iv) Encourage and support neighborhood watch programs.</p> <p>b. Health Care: ensure adequate facilities and services to meet the immediate and future needs of a growing population and encourage quality medical facilities to attract and retain physicians.</p> <p>c. Rescue and Emergency Preparedness:</p> <p>i) Maintain an adequate level of staffing and appropriate equipment to fully respond to emergency calls.</p> <p>ii) Achieve and maintain an average response time of 6 minutes.</p> <p>iii) Assure that remote areas of the County have adequate coverage. iv) Assure availability of fire and rescue companies to report to multiple or high value alarms.</p> <p>d. Fire Protection and Prevention:</p> <p>i) Provide adequate and fairly financed fire protection.</p>

<p>Is safety explicitly included in the plan's growth and development policies? Cont.</p>	<p>a) Require adequate fire suppression for approval of major subdivisions and major site plans. b) Require contributions from developers for firehouses, firefighting equipment, etc. when the development can be directly linked to the need for additional capital improvements. ii) Ensure adequacy of water supplies to provide fire protection. a) Ensure that adequate water supplies are available to support fire protection. b) Use central supply systems in growth areas. c) In rural areas where water service is from small central systems or individual wells, provide standpipes or other infrastructure to draw on existing water impoundment areas such as lakes and farm ponds.</p> <p>e. Animal Control: i) Support adequate facilities and services to collect, house, and care for stray, abandoned, abused and/or nuisance animals. ii) Encourage programs for animal adoption, spaying and neutering to control population growth, and the humane disposal of injured and unwanted animals.</p> <p>f. Hazard Mitigation: i) The adopted Multi-Jurisdictional Hazard Mitigation Plan is hereby incorporated by reference. Pg. 10-2 through 10-3</p>
<p>Does the monitoring and implementation section of the plan cover safe growth objectives?</p>	<p>Yes 2010 St. Mary's County Comprehensive Plan</p> <p>Chapter 3: A Growth Management Strategy Vision 12. Implementation: strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, state, and interstate levels to achieve these visions.</p> <p>A. Building codes and ordinances require energy and resource efficient construction materials and methods. The use of low flow plumbing fixtures, energy efficient insulation, windows, heating, air conditioning and appliances for renovation and new construction is required. B. Permits and inspections are required only where necessary to uphold local zoning and building codes. Regulations are adopted only when required to implement valid public policy. Overly restrictive, inflexible, and redundant regulation has been eliminated. C. Public facilities and infrastructure are funded and constructed to keep pace with growth. D. Revenue enhancements are charged most equitably to the direct beneficiaries of public services and facilities. County resources are matched with other revenue sources to build the capacity to resolve local needs through innovative project and program development. E. Resources to revitalize existing neighborhoods and communities are obtained and focused. F. Central geographic information systems (GIS) are utilized to maximize efficiency in planning and provision of government facilities. Utilization of the County's GIS data by the private sector helps to defray costs of planning and facilitating growth. G. The private sector is provided economic incentives when required to participate in funding major infrastructure upgrades. Pg. 3-4 through 3-5</p>

ZONING ORDINANCE	
<p>Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?</p>	<p>Yes St. Mary’s County Zoning Ordinance Chapter 155: Zoning</p> <p>Chapter 75: Forest Conservation Of particular importance for hazard mitigation is the priority placed on the protection of trees, shrubs and herbaceous plants associated with intermittent and perennial streams and their buffers, with slopes over 25 percent; with slopes with highly erodible soils; and with 100-year floodplain and drainage way buffers.</p> <p>Chapter 76: Floodplain Regulations The county floodplain ordinance closely follows Maryland’s model ordinance with some additional provisions to implement Comprehensive Plan policies to eliminate or reduce risk to people and property from flooding in the tidal floodplain and by requiring new and replacement development to be well outside of the floodplain (50-foot setback) when alternative sites are available.</p>
<p>Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?</p>	<p>Yes St. Mary’s County Zoning Ordinance Chapter 155: Zoning Leonardtwn - 155-75 Stormwater Management Plans Following concept plan approval by the Town of Leonardtown, the owner/developer shall submit site development plans that reflect comments received during the previous review phase. Plans submitted for site development approval shall be of sufficient detail to allow site development to be reviewed and shall include but not be limited to: A proposed erosion and sediment control plan that contains the construction sequence, any phasing necessary to limit earth disturbances and impacts to natural resources and an overlay plan showing the types and locations of ESD and erosion and sediment control practices to be used. 155-34.6 Development Standards Findings required. The Town Council may approve the Planned Infill or Redevelopment District as a floating zone which may be brought to land upon finding that: The plan accomplishes the purposes, objectives and minimum standards and requirements of the overlay district.</p>
<p>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density use?</p>	<p>Yes St. Mary’s County Zoning Ordinance Chapter 155: Zoning</p> <p>St. Mary’s County Ordinance No. 2020-04 Amends Chapter 203 of the Code of St. Mary’s County, Maryland, regarding building construction codes, effective March 10, 2020. Section R301-Design Criteria, page 49, provides minimum design specifications for buildings. Snow Load – 25 lb./s.f.; Wind Design – 115 mph; Frost Line – 20”; Winter Design Temp. – 18 deg.F.</p> <p>Town of Leonardtown Ordinance No. 172 Amends Chapter 48 of the Code of the Town of Leonardtown, Maryland, regarding Building Construction, effective August 31, 2015. Snow Load – 25 lb./sf; Wind Design – 100 mph; Frost Line – 20”; Winter Design Temp. – 18 deg.F.</p>

SUBDIVISION REGULATIONS	
<p>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</p>	<p>Yes St. Mary’s County Subdivision Ordinance Article 3 Subdivision Standards and Approvals lists at 30.1.</p> <p>Subdivision platting is to “provide for adequate light, air, and privacy, to secure safety from fire, flood, and other danger, and to prevent overcrowding of the land and undue congestion of population.” In addition, it will “guide the future growth and development in accordance with the Comprehensive Plan.”</p> <p>At 30.6.4 The criteria for approval of a preliminary plat includes requirements that subdivisions provide adequate public facilities in accordance with Chapter 70 of the Zoning Ordinance, that drainage, erosions control and construction complies with accepted engineering and construction practices. Applicants are required to specify the “Flood Hazard Zone and source” and to provide a plan that illustrates:</p> <ul style="list-style-type: none"> – storm drain culverts on or adjacent to the property, – physical features of the property, including water courses, shorelines, wetlands, 100-year flood plains, existing structures and steep slopes, – soil types, – topography that extends a minimum of 100 feet beyond the property line, and – proposed development including information about the method of water supply and fire suppression. <p>Applicants must also provide an erosion and sediment control plan, drainage area map, storm drain layout, method and location of storm water quality and quantity treatment including and storm water management calculations. Provision of this information allows for review for risk from hazards and the requirement that developers provide adequate measures to avoid, mitigate or eliminate hazards to new development particularly those associated with flooding and erosion.</p> <p>St. Mary’s County Subdivision Ordinance Article 5 Definitions</p> <p>Net Tract Area. Except in agriculture and resource areas, the net tract area is the total area of a site, including both forested and non-forested areas, to the nearest 1/10 acre, reduced by the area found to be within the boundaries of the 100-year floodplain. In agriculture and resource areas, the part of the total tract for which land use will be changed or will no longer be used for primarily agricultural activities, reduced by the area found to be within the boundaries of the 100-year floodplain.</p> <p>pg. 50-3</p>
<p>Do the regulations provide for conservation subdivision or cluster subdivisions in order to conserve environmental resources?</p>	<p>Yes Conservation or cluster subdivisions are a function of zoning, which Chapter 155 of the St. Mary’s Code provides provisions for cluster subdivisions.</p> <p>In residential developments with PUD zoning classification and in senior living communities, stormwater Environmental Site Design (ESD) features or BMPs may be clustered to treat runoff from multiple lots or parcels within the development to keep from reducing the overall density below the maximum allowed. Required green space, parks, forest conservation areas and other communal open spaces may be utilized to implement ESD features to meet the overall stormwater control requirements found in the Design Manual (https://www.stmarysmd.com/docs/MDEStormwaterDesignMan7-09.pdf) for specific multiple-lot drainage areas.</p>

<p>Do the regulations provide for conservation subdivision or cluster subdivisions in order to conserve environmental resources? Cont.</p>	<p>(a) Stormwater management requirements shall be met for each drainage area within the development. (b) ESD shall be used to the Maximum Extent Practicable (MEP) to meet the stormwater requirement in each drainage area. (c) Alternative measures or BMP facilities will only be used when ESD is not able to meet stormwater management requirements.</p> <p>St. Mary’s County Subdivision Ordinance Article 3 Subdivision Standards and Approvals, Chapter 31 Open Space Reservation, Dedication and Fees in Lieu</p> <p>Schedule 31.2.1: Required Usable and Developed Recreational Open Space Dedications:</p> <table border="1" data-bbox="544 609 1291 850"> <thead> <tr> <th>Number of units in the development (based on residential use types)</th> <th>Useable Open Space</th> <th>Developed Recreational Open Space within Useable Open Space</th> </tr> </thead> <tbody> <tr> <td>Residential use types having 1-24 units</td> <td>Exempt, except as required per §31.2.2.a below</td> <td>Planning Commission discretion in accordance with standards of this Chapter</td> </tr> <tr> <td>Residential use types having 25 or more units</td> <td>2,000 square feet per unit*</td> <td>10% of Useable Open Space; developed per standards of this Chapter.</td> </tr> </tbody> </table> <p>* An open space credit as determined by the Planning Commission may be granted if a project is connected by a continuous sidewalk to an improved public park that is located within ¼ mile.</p>	Number of units in the development (based on residential use types)	Useable Open Space	Developed Recreational Open Space within Useable Open Space	Residential use types having 1-24 units	Exempt, except as required per §31.2.2.a below	Planning Commission discretion in accordance with standards of this Chapter	Residential use types having 25 or more units	2,000 square feet per unit*	10% of Useable Open Space; developed per standards of this Chapter.
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Residential use types having 25 or more units	2,000 square feet per unit*	10% of Useable Open Space; developed per standards of this Chapter.								

CAPITAL IMPROVEMENT PROGRAM AND INFRASTRUCTURE POLICIES

<p>Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA Mitigation Plan?</p>	<p>The FY2011-2016 CIP for St. Mary’s County includes capital expenditures designed to improve the infrastructure of St. Mary’s County, including an Airport Master Plan and Regional Stormwater Management Facilities projects.</p>
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<p>Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?</p>	<p>Yes</p> <p>Chapter 11: Transportation 11.7.1 Hazard Mitigation Plan Goal: Reduce or eliminate long-term risks to people and their property from the effects of natural hazards.</p> <p>i. Objective: Ensure adequate land management measures in shoreline erosion hazard areas. ii. Objective: Minimize damage to repetitive loss properties through proactive mitigation efforts.</p> <p>a. Policy: Reduce the inventory of flooded conditions and number of roadway closures on County maintained roadways. b. Policy: Utilize the prior Shoreline Conditions Assessment to evaluate areas requiring higher levels of protection. c. Policy: Address existing storm conveyance systems and bridge structures that are inadequate to handle the runoff, which results in localized flooding, roadway closures, pavement failures and other potential safety concerns.</p> <p>i) Action: Develop capital improvement programs that leverage local, State and federal funds to construct shoreline protection systems (bulkheads, revetments, jetties, etc.) to protect County maintained roadway. ii) Action: Fund the appropriate mitigation measures, systematically replace, repair and / or upgrade them to handle the 10-year and 25-year storm events and safely pass the 100-year storm. iii. Objective: Ensure that building codes and standards follow FEMA’s basic guidelines and are properly implemented and enforced.</p> <p>Pg. 11-12 through 11-13</p>
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Source: 2022 St. Mary’s Hazard Mitigation Planning Committee

2.2 Review of Existing Plans, Ordinances and Codes & Recommendations

Comprehensive Plan—Quality of Life in St. Mary’s County—A Strategy for the 21st Century

The current Comprehensive Plan, effective in April 2010, is adopted as a guide for County actions regarding many aspects of community life and development—growth and land use; resource protection; efficient use and protection of water resources; housing; economic development; community facilities; transportation; and human services. The Comprehensive Plan is available on the County’s website at www.stmarysmd.com/lugm/comprehensiveplanning. The Comprehensive Plan establishes goals, objectives and policies that support the Community Vision for the County to “preserve and enhance the quality of life...foster economic growth by focusing and managing growth; by protecting the rural character and economy of the countryside, by nurturing the shoreline and adjacent waters; and by preserving and capitalizing on the natural resources and the historical quality of the county.” The 2010 Comprehensive Plan incorporated many related functional plans, including the Hazard Mitigation Plan. With regard to hazard mitigation, the 2010 Comprehensive Plan contains language relevant to or specifically intended to strengthen and support improved hazard mitigation planning. Relevant goals, policies, objectives are excerpted below, and discussion is provided for sections which pertain to Hazard Mitigation. Where additional attention to hazard mitigation appears necessary to ensure hazard mitigation is taken into account in implementation or future Comprehensive Plan updates, comments have been included in italics.

4.1.1.A. *Objective:* Designate growth areas sized to accommodate the needs of the projected 2030 population of the County. Target a majority of new residential development in development districts, town centers and village centers.

viii. Policy: Balance development goals with environmental protection and enhancement of the value of waterfront as a resource for recreation and water dependent facilities.

Comment: Ensure that future waterfront development considers both current and future conditions specific to flood vulnerability.

4.1.1.C. *Objective:* Focus development in town centers.

x. Encourage installation of underground services to minimize visual impacts of overhead utility lines.

Comment: Coordination with private utility companies is needed to address concerns regarding power and other types of service which can be disrupted by natural disasters that damage overhead lines.

4.1.2.B. *Objective:* Foster and enhance sense of community and remedy negative conditions in existing developed areas.

i.a. Landscape provisions for redevelopment and new development.

Comment: Ensure that consideration of water conservation is incorporated into future plans regarding landscaping.

4.4.1. *Goal:* Direct growth in rural areas to existing population centers to protect resource areas.

4.4.1.A. *Objective:* Limit growth in rural areas to preserve open space and to protect and promote agriculture and forestry.

i. Conserve the land and water resource base that is necessary to maintain and

support the preferred and uses of agriculture, forestry, fisheries activities and aquaculture, and to preserve natural environments (wetlands, forests, abandoned fields, beaches and shorelines).

Comment: With the passage of the Sustainable Growth & Agricultural Preservation Act of 2012 Implementation, growth in Maryland is limited to the spread of septic systems on large-lot residential development in order to reduce the nitrogen pollution into the Chesapeake Bay and other waterways.

In **Section 5.1. Introduction** the plan discusses the importance of sensitive areas protection and links those to environmental services they provide including services for eliminating and mitigating hazards.

... Sensitive areas provide ecosystem and economically valuable environmental services which cannot be inexpensively or effectively replaced. ... Streams and their buffers provide the primary transport system for storm water and, if managed poorly, they become primary conduits to transport pollution – heavy metals, oils, chemicals, trash from urbanized areas, nutrients, bacteria, pesticides and herbicides from farms and lawns – into the Bay. When managed well, streams and their buffers capture, reduce, and process pollutants, provide water supply functions, and provide spawning areas for recreational and commercial fish stock.

...Wetlands protect water quality, infiltrate, slow and filter runoff, help control and reduce pollution and erosion. Floodplains and wetlands are important in the maintenance of groundwater supplies and water purification. ... Marshes, fringe wetlands and submerged grass beds stabilize sediments and dampen impacts from storms to reduce loss of upland property and maintain water clarity. ...Forest conservation is important for protecting water supply, aiding recharge of aquifers, and infiltrating storm water runoff. Assuring the continued viability of sensitive areas to provide their ecosystem and environmental service functions and for their contributions to the beauty and diversity of the landscape is also an important goal of this plan.

In **Section 5.2 Measures of Success for Conservation of Sensitive Areas** the Comprehensive Plan discusses links between specific ordinance provisions for sensitive areas protection and plan goals including resources and goals that are important in hazard mitigation stating “The county maintains Geographic Information Systems (GIS) data layers that show the extent of the resources required to be protected under current regulations. That data was used to estimate the number of acres of these resources.” Many of the resources mapped in GIS are relevant to hazard mitigation planning including:

- 100-foot Buffer for all perennial and for intermittent streams in the Critical Area (50,220 acres) *These are regulated as drainage way buffers in the Floodplain ordinance and provide safe conveyance for storm water during storms*
- Conservation of 100-year floodplains and a surrounding 50-foot buffer (21,130 acres) *Floodplains are preserved from disturbances. The 50-foot buffer established assures that encroachment from new development is minimized and provides extra protection from flood events.*
- Conservation of the 100-foot Critical Area Buffer (7,250 acres) *The Critical Area Buffer is required to be established and maintained in dense natural vegetation to provide a stabilized shoreline as well as provide a natural barrier to wind and wave action.*
- Highly erodible soils (49,221 acres total, of which only the areas within 300 feet of water features and wetlands are required by this plan to have mandatory protection for a net protection area of 35,262 acres). *These soils are prone to erosion, often unstable, and prone*

to undermining and collapse due to movement of surface and groundwater. Identifying the soils and keeping development off of them reduces the risk of damage to buildings, infrastructure, and downstream sediment impacts.

Section 5.3.4. discusses the need to implement strategies, policies and programs, and to provide funding for resource conservation of inherently valuable sensitive areas which provide ecosystem functions (mitigation of flooding, filtering for improvement of water quality, economic value (farm, fishery, forest, mineral products, recreational use) and reduction in service costs (reduced storm water management, maintained water supply.) The County’s primary mechanism to maintain these values is via regulations that require environmentally sensitive designs and place the responsibility for protection, conservation and stewardship, and mitigation for losses predominately on the landowner in exchange for the value added from development.

The strongest Comprehensive Plan language supporting hazard mitigation planning is found in **Section 5.3.5** regarding the planning vision for quality of life and sustainability. This section discusses the need for stewardship and for maintaining, enhancing and avoiding disruption of the natural functions of wetlands, forests, and floodplains, and preventing development impacts that overwhelm the service capacity provided by natural systems. Sustainable communities “maintain a high quality of life enriched by the benefits of the environment and as free as possible from the disruptions associated with losses and damages which increase risks of environmental hazards and man-made disasters.” To assure that St. Mary’s County develops in a sustainable manner that balances growth and resource protection, it is necessary to assure that hazard avoidance and mitigation is integrated into the planning and development process. Another component is assuring that development is located to reduce exposure to risk associated with identified hazards, is constructed to minimize damage and disruptions from unavoidable risks and that development occurs in a manner that will not result in creating or increasing community exposure to hazards and adverse impacts. Of the twelve hazards identified as posing significant risks to the County, the highest risks are associated with 1) coastal/shoreline erosion, 2) extreme weather due to severe winter storms, 3) flood, 4) high wind due to hurricanes, 5) high wind due to tornado, 6) thunderstorm and lightning, and 7) wildfire. Also of concern are moderate risks associated with 8) hailstorms, 9) extreme summer heat and 10) drought. Risk of 11) earthquakes is considered to be low but the localized risk of 12) land failure of the steep slopes and cliffs, particularly in the Patuxent watershed is of increasing concern.

Section 5.5 discusses protection and management of riparian resource areas—riverbanks, streams and their buffers.

5.5. Goal: Protect riverbanks, streams, and their buffers from the adverse impacts of development and human activity.

5.5.1.A. Objective: Preserve, protect, and restore the natural ecosystems and functions of rivers, streams, and their buffers and adjacent hydric and erodible soils.

Comment: Riparian areas absorb and slow runoff and can provide safe conveyance and holding areas for floodwaters. Adverse impacts of human activity include removal of forest cover and increases in impervious cover both of which reduce infiltration of storm water and increase runoff volume and velocities. Increased volume and velocity promotes flash flooding and channel erosion that disconnects streams from their floodplains causing more sudden and more dangerous downstream flood events with deeper and faster flood waters.

Section 5.7 discusses protection and management of tidal floodplains, non-tidal floodplains, and the floodway protection to prevent the adverse impacts of development and human activity.

5.7.1.A. Objective “Preserve, protect and restore the natural environment and beneficial functions of floodplains” contains a number of policies directly pertaining to reduction of hazard including:

5.7.1.A.i. “Limit and manage development activity in the 100-year floodplain to reduce vulnerability and flood hazards”;

5.7.1.A.ii. Minimize the disturbance to vegetation in the floodplain. Specific Actions to implement these policies include:

- For all 100-year floodplain areas, continue to enforce existing regulations that require buffers at least 50-foot-wide measured from the edge of the floodplain (determined by elevation).
- Avoid disturbances to floodplains and their buffers to the maximum extent possible by requiring floodplain easements, continuing to prohibit development in the floodplain when alternative locations exist on a development site, continuing to prohibit creation of new development lots within the floodplain; prohibiting new fill in the floodplain, and keeping storm water ponds and structures out of the floodplain.
- Maintain community eligibility for participation in the National Floodplain Insurance Program (NFIP) by assuring that development activities are conducted, and structures are constructed or expanded in a manner that fully complies with NFIP criteria.
- Seek to lower flood insurance rates through participation in the Community Rating System (CRS) which is a Federal Emergency Management Agency (FEMA) program that decreases flood insurance rates for residents in communities with effective hazard mitigation strategies.
- Develop a comprehensive “No Adverse Impact” program for floodplain management.

5.7.1.B. *Objective* “Plan for and accommodate land use changes and impacts that are anticipated due to climate variability and projections for sea level rise.” Contains several policies directly pertaining to identification and mitigation of hazard impacts including:

- *Continue to map vulnerable lands, infrastructures and facilities to include new data and integrate into other County planning documents and tools.*
- *Include risk assessment and vulnerability when making public investments in infrastructure investments, to incorporate responses to threats into placement decisions and designs for new facilities, and for upgrade and replacement of threatened facilities. Also, include in land*

Subdivision Ordinance

The current Subdivision Ordinance that went into effect on September 14, 2010, is the primary tool governing the subdivision of land in the unincorporated areas of the County. In Section 10.3, the ordinance identifies 10 purposes, several of which are relevant to hazard mitigation and avoidance:

10.3.2. Land shall be suitable for the purpose for which it is subdivided, and adequate and effective public facilities shall be available, as determined by the Planning Commission. In addition, the public improvements shall conform to and be compatible with all other County laws, regulations, plans, programs, and standards.

Comment: The review for suitable land and adequate facilities extends to identification of high hazard locations unsuitable for subdivision and assuring that appropriate infrastructure is provided to avoid, mitigate or eliminate hazard risks.

10.3.3. To protect and provide for the public health, safety, and general welfare and to prevent overcrowding of land and undue congestion of population.

Comment: This should be extended to include the avoidance of development in high hazard areas.

10.3.9. To prevent the pollution of air, surface waters; to assure the adequacy of drainage facilities; to safeguard the water table; and to encourage the wise use and management of natural resources throughout the County to preserve the integrity, stability, and beauty of the County and the value of the land.

Comment: Many of the measures required to prevent pollution, assure adequacy of drainage facilities, and manage natural resources are also measures that reduce hazard risk.

Article 3 Subdivision Standards and Approvals lists at 30.1. that subdivision platting is to “provide for adequate light, air, and privacy, to secure safety from fire, flood, and other danger, and to prevent overcrowding of the land and undue congestion of population.” In addition, it will “guide the future growth and development in accordance with the Comprehensive Plan.”

At 30.6.4 The criteria for approval of a preliminary plat includes requirements that subdivisions provide adequate public facilities in accordance with Chapter 70 of the Zoning Ordinance, that drainage, erosions control and construction complies with accepted engineering and construction practices. Applicants are required to specify the “Flood Hazard Zone and source” and to provide a plan that illustrates:

- storm drain culverts on or adjacent to the property;
- physical features of the property, including water courses, shorelines, wetlands, 100-year flood plains, existing structures, and steep slopes;
- soil types;
- topography that extend(s) a minimum of 100 feet beyond the property line; and,
- proposed development including information about the method of water supply and fire suppression.

Applicants must also provide an erosion and sediment control plan, drainage area map, storm drain layout, method and location of storm water quality and quantity treatment including and storm water management calculations. Provision of this information allows for review for risk from hazards and the requirement that developers provide adequate measures to avoid, mitigate or eliminate hazards to new development particularly those associated with flooding and erosion.

Final plats are required to demonstrate that “the lot and block layout provides for safe and convenient vehicular, service and emergency access, efficient utility service connections, and adequate buildable area in each lot for planned uses; rights-of-way and easements of adequate size and dimension are provided for the purpose of constructing the street, utility, and drainage facilities needed to serve the development.”

Section 30.16. specifies the requirements for public improvement and infrastructure including storm drainage and over lot grading. “Where a development is traversed by a natural drainage course or stream, there shall be provided a drainage easement, a minimum of 50 feet in width, conforming substantially with the line of such watercourse for the purpose of maintaining, improving, or protecting such drainage facilities. This easement area shall be designed to the 100-year flood plain level. Applicants must dedicate, either in fee or by drainage easement of land on both sides of existing watercourses, where topography or other conditions are such as to make impractical the inclusion of drainage facilities within road rights-of-way, perpetual unobstructed easements at least 20 feet in width for such drainage facilities shall be provided across property outside the road right-of-way....Drainage easements shall be carried from the road to a natural watercourse or to other drainage facilities and be adequate to accommodate the top width of the design flow, access and maintenance requirements. When a proposed drainage system will carry water across private land outside the subdivision,

appropriate drainage rights must be secured and indicated on the plat with the respective recordation information.”

2010 Town of Leonardtown Comprehensive Plan

Following the plan review, updates to mapping products to include the updated floodplain mapping and integration of the 2023 Hazard Mitigation Plan is recommended for the next plan update.

2.3 Plan Integration Conclusion

Integrating hazard planning into the County’s planning framework will lead to development patterns and redevelopment that decreases hazard risk and vulnerability. To achieve and facilitate integration, St. Mary’s County and the Town of Leonardtown should review the safe growth audit and conduct an evaluation on how planning documents, policies, codes and programs are maintained and implemented, and the roles of people, agencies, and departments in evaluating and updating them. This depth of review will enable the County and the Town to identify opportunities for plan integration, resulting in effective ways to reduce hazard vulnerability in St. Mary’s County.

The development of a more in-depth inventory will enable the county to identify further gaps and overlaps between the current hazard mitigation plan and the larger planning framework including the County’s future Comprehensive Plan. Identifying existing tools may lead to opportunities for integration. The identification of gaps will lead to the consideration of capacity specific to county staffing and resources. Finally, the systematic planning process will yield a roadmap displaying steps that are available to, and achievable by, St. Mary’s County.

Further recommendations include:

- Include a map within both the County and Town Comprehensive Plan Updates depicting flood zones and the areas considered most “at-risk.” New mapping products are available. Also, mapping products included within the 2023 Hazard Mitigation Plan could prove ideal for future comprehensive plan integration.
- Include a map within both Comprehensive Plan Updates depicting vulnerable lands, infrastructure, and facilities.
- In reviewing suitable land for adequate public facilities, identify high hazard locations that are unsuitable for subdivision and assure that appropriate infrastructure is provided to avoid, mitigate, or eliminate hazard risks.
- Extend the Subdivision Ordinance to include the avoidance of development in high hazard areas in order to protect and provide for the public health, safety, and general welfare and to prevent overcrowding of land and undue congestion of population.
- Review and add mitigation projects identified in the 2023 Hazard Mitigation Plan into Capital Improvement Multi-Year Budget.
- Finally, new project sheets developed for the 2023 Hazard Mitigation Plan clearly denote the intended location, responsible agency, and partners for each mitigation project. Projects and action items where the County or Town of Leonardtown is listed as “partner,” or “responsible agency” can be integrated into the goals and objectives of updated comprehensive plans.

For a complete guide to plan integration, FEMA has created a step-by-step guidebook to aid local communities. The guide is called “Plan Integration: Linking Local Planning Efforts” and was published in July 2015. The guide is available at fema.gov.

Note: Review of local planning mechanisms indicated that the 2017 Hazard Mitigation Plan was not integrated into all planning documents because a majority of them have not been updated since 2017. Therefore, LPR mitigation action item #1 was developed as a result of the plan integration conclusion and recommendations. This mitigation action was further refined in project sheet, Table 5.2 within Chapter 5.

CHAPTER 5 – MITIGATION STRATEGIES

1.0 Hazard Mitigation Goals

Multi-hazard mitigation goals were developed to represent St. Mary’s County long-term hazard mitigation priorities. Goals identified are consistent with the hazards and vulnerabilities identified within the Hazards Identification, Risk and Vulnerability Assessment sections of this plan.

Mitigation goals were reviewed by the 2022 Hazard Mitigation Planning Committee (HMPC) members. Members were given the opportunity to review and discuss existing goals at the September 28, 2022, Mitigation Workshop. No goals were removed; however, several goals were modified during the review process. New goals added during this plan update process were focused on the integration of natural systems, promotion of whole community participations, and the reduction of community lifeline vulnerability.

St. Mary’s County Hazard Mitigation Plan Goal - To protect life, property, and the environment from hazard events through:

1. ***Increased public awareness of hazards, mitigation, preparedness, and resiliency.***
2. ***Promote whole community participation including vulnerable populations.***
3. ***Enhanced coordination with local agencies and organizations for mitigation efforts.***
4. ***Protection of local assets, infrastructure, and critical facilities from hazard impacts considering both current and future conditions.***
5. ***Promote actions that protect natural resources, while enhancing hazard mitigation and community resiliency.***
6. ***Efficient use of local resources.***
7. ***Integration of nature-based solutions into hazard mitigation and resilience projects, as feasible.***
8. ***Reduce lifeline vulnerability through mitigation activities. A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.***

Goals are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.

Note: Community Lifeline include:

- *Safety and Security - Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety*
- *Food, Water, Shelter - Food, Water, Wastewater, Shelter, Agriculture*
- *Health and Medical - Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management*
- *Energy - Power Grid, Fuel*
- *Communications - Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch*
- *Transportation - Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime*
- *Hazardous Material - Facilities, HAZMAT, Pollutants, Contaminants*

9. ***Reduce the County’s and Town’s vulnerability to/from the high hazard dam.***

Note: Goals 2, 7, 8, and 9 were added as “new” goals during the plan update process.

2.0 Mitigation Actions

Mitigation goals form the foundation of actions developed by the Hazard Mitigation Planning Committee (HMPC). To further refine and categorize mitigation goals and actions, the following four (4) categories have been applied to each mitigation action item, as applicable.

1. **Local Planning and Regulations-** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
2. **Structure and Infrastructure Projects-** Actions that involve the construction of structures to reduce the impact of a hazard event. Such structures include dams, levees, floodwalls, seawalls, retaining walls, barrier islands, and safe rooms. Also included under this category are actions that involve the modification of existing critical and public facilities, buildings, structures, and public infrastructure to protect them from hazards. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and infrastructure modification.
3. **Natural Systems Protection-** Actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural protection systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration preservation.
4. **Education and Awareness Programs-** Actions to inform and educate citizens, elected officials, and property owners about potential ways to mitigate for hazards that can occur in the County. Such actions include outreach programs, projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

A total of thirty-seven (37) new mitigation actions were developed during the plan updated and are categorized under four types:

- Local Planning and Regulations- 12 Action Items
- Structure and Infrastructure Projects- 14 Action Items
- Natural Systems Protection- 5 Action Items
- Education and Awareness Programs- 6 Action Items

3.0 2022 Mitigation Actions, Project Sheet, and Prioritization

The following tables list the mitigation action items that were developed by the 2022 HMPC. During the Mitigation Workshop, held on September 28, 2022, participants reviewed all mitigation actions developed for each mitigation category. Three mitigation actions were prioritized for each mitigation category and twelve project implementation worksheets were completed during the workshop. Mitigation project sheets are included in the chapter and immediately follow each mitigation action table.

Committee members ranked projects to determine the high priority projects for St. Mary's County. The high priority projects are labeled on the implementation project worksheets. As a result of the prioritization process, six (6) projects were ranked high, ten (10) were ranked medium, and the remaining five (5) projects were ranked low.

3.1 2022 Mitigation Actions

During the 2023 Plan Update, the following mitigation actions were developed. A total of thirty-seven (37) new mitigation actions were developed during the plan update, while eleven (11) were carried over from the previous plan and are categorized under four types:

- Local Planning and Regulations- 20 Action Items
- Structure and Infrastructure Projects- 15 Action Items
- Natural Systems Protection- 7 Action Items
- Education and Awareness Programs- 6 Action Items

Action items carried forward from the previous plan are denoted in Tables 1, 13, 18, and 22 with an asterisk (*).

3.2 Priority Projects

Twelve (12) mitigation actions were identified by HMPC members for further development. Implementation project worksheets were completed. Additionally, implementation project worksheets carried over from the previous plan were included.

Following the Mitigation Workshop an online survey containing all implementation project worksheets were provided to all HMPC members for additional ranking purposes. The online survey was used as a tool for ranking purposes by HMPC members. The basis for this online survey is the STAPLEE evaluation method, which uses seven criteria for evaluation: Social, Technical, Administrative, Political, Legal, Economic, and Environmental. The online survey consisted of the following six (6) questions developed from the STAPLEE Evaluation Method. The exercise asked members to answer with, Yes/No/or Null for each question. A point system was assigned to Yes/No/or Null in order to determine whether the projects were high, medium, or low. These six (6) questions included the following:

1. Do you think there would be community acceptance/general support for this mitigation action?
2. Do you think implementation of this mitigation action will enhance the health and safety of the community?
3. Do you think the Town will be able to sufficiently staff and/or provide technical support to implement this mitigation action?
4. Do you think the benefits of this mitigation action will exceed the likely costs?
5. Do you think the maintenance requirements for this option will be affordable and not provide an undue burden on the Town?
6. Is this project consistent with environment goals?

The implementation project worksheets for each of the four (4) categories are included after each category's mitigation action tables.

Local Planning and Regulations Mitigation Action Items & Project Sheets

Table 5.1 Local Planning and Regulations Mitigation Action Items

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
1	<p>Integration of hazard planning into the County’s planning framework will lead to development patterns and redevelopment that decreases hazard risk and vulnerability. To achieve and facilitate integration, St. Mary’s County and the Town of Leonardtown should review the safe growth audit and conduct an evaluation on how planning documents, policies, codes, and programs are maintained and implemented, and the roles of people, agencies, and departments in evaluating and updating them. This depth of review will enable the County and the Town to identify opportunities for plan integration, resulting in effective ways to reduce hazard vulnerability in St. Mary’s County. Compare areas slated for growth including redevelopment with hazard risk areas.</p>	<p>Land Use & Growth Development, Department of Emergency Services</p>	<p>1, 4, 6, & 8</p>	<p>1-2 years</p>	<p>All-Hazards</p>
2	<p>Collaborate with the Town of Leonardtown and Charles County to conduct watershed assessment(s) to include new Atlas 14 precipitation table- rainfall intensity.</p>	<p>Department of Emergency Services, Land Use & Growth Development, Department of Public Works & Transportation</p>	<p>5</p>	<p>1-2 years</p>	<p>All Flood Related Hazards</p>
3*	<p>Decrease flood insurance cost for St. Mary’s County and the Town of Leonardtown policyholders. Engage in the Community Rating System (CRS) incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). In designated CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk. The County is currently addressing corrective actions required prior to verification visit.</p> <p><i>This action is new, however incorporates mitigation action item #4 carried forward from the 2017 Plan.</i></p>	<p>Department of Emergency Services, Land Use & Growth Development</p>	<p>3, 4 & 5</p>	<p>1-2 years</p>	<p>Flood</p>
4	<p>Develop an Extreme Heat Emergency Plan identifying triggers, surveillance, and actions.</p>	<p>Department of Emergency Services, Department of Public Works & Transportation, Recreation & Parks, Public Information Office, OOA</p>	<p>1 & 3</p>	<p>1-2 years</p>	<p>Drought & Extreme Heat</p>

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
5	Develop a Disaster Recovery Plan to guide decision making process after a major disaster.	Department of Emergency Services	1, 2, 3, 4 & 8	1-2 years	All-Hazards
6	<p>2022 Mitigation Strategies should be reviewed in reference to the Capital Improvement Plan for integration purposes. Projects that reduce risk and vulnerability to the citizens of St. Mary's should be given prioritization. Resources that may be used to fund future mitigation actions include:</p> <ul style="list-style-type: none"> • Targeted funding within Capital Improvement budget. • CDBG funds or MDE's Comprehensive Flood Management Grant Program as non-Federal match, which will offset local match requirements. 	Department of Emergency Services, County Administration, Department of Finance	3 & 6	Ongoing	All-Hazards
7	Collect 5 years of data with NFP to identify areas at greatest/most frequent risk of flooding and proposed CIP project to assist with mitigation.	Department of Emergency Services, Department of Finance	1, 3 & 4	5+ years	Flood
8	Continue to engage the public and decision makers in identifying hazards and climate change issues making connections to existing planning and policy efforts.	Department of Emergency Services	1 & 2	Ongoing	All-Hazards
9	Develop climate resilience plan for St. Mary's County including the Town of Leonardtown.	Department of Emergency Services	1, 2, 3 & 4	5+ years	All-Hazards
10	Understand community impact of Risk 2.0 and share information with public subsequent mitigation measures. Encourage the purchased of flood insurance for long-term renters.	Department of Emergency Services, Land Use & Growth Development, Public Information Office	1, 2 & 4	1-2 years	Flood
11	Complete After-Action Report/ Improvement Plan (AAR/IP) for the Covid-19 Incident.	St. Mary's County Health Department	1 & 2	1-2 years	Emerging Infectious Disease
12	Pursue Building Code Effectiveness Grading Schedule survey/rating.	Land Use & Growth Development, Inspections	4	1-2 years	All-Hazards
13*	Freeboard increase in Moderate and Minimal Flood Risk Area.	Land Use & Growth Management, Department of	1, 3 & 6	1-2 years	Flood

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
14*	Identify, draft, and submit ordinance to the Commissioners of St. Mary's County / Leonardtown Commissioners to assure cleared floodplain land remains open space in perpetuity.	Emergency Services Land Use & Growth Management, Town of Leonardtown	3, 4, 5, 6 & 7	1-2 years	Flood
15*	Development of Cultural & Historical Resources Plan.	Land Use & Growth Management	3, 4 & 7	1-2 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
16*	Add "Repetitive Loss" to the definitions included in County Ordinances.	Land Use & Growth Management	1, 3 & 6	1-2 years	Flood
17*	Modify Substantial Improvement Standards.	Land Use & Growth Management	1, 3 & 6	1-2 years	Flood
18*	Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).	Land Use & Growth Management	1, 2, 3, 6 & 8	1-2 years	Drought & Extreme Heat
19*	Develop a Flood Mitigation Plan.	Department of Emergency Services	1, 3, 4, 5 & 7	1-2 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
20*	Elevate Repetitive Loss Properties.	Department of Emergency Services, Land Use and Growth Management, Department of Public Works & Transportation	3 & 8	3-5 years	Flood

Table 5.2

Hazard(s):	All-Hazards
Location(s):	Countywide
Mitigation Action Item #1:	Integration of hazard planning into the County’s planning framework will lead to development patterns and redevelopment that decreases hazard risk and vulnerability. To achieve and facilitate integration, St. Mary’s County and the Town of Leonardtown should review the safe growth audit and conduct an evaluation on how planning documents, policies, codes, and programs are maintained and implemented, and the roles of people, agencies, and departments in evaluating and updating them. This depth of review will enable the County and the Town to identify opportunities for plan integration, resulting in effective ways to reduce hazard vulnerability in St. Mary’s County. Compare areas slated for growth including redevelopment with hazard risk areas.
Background/Issue:	<p>Integrating hazard mitigation planning and implementation actions into existing St. Mary’s County planning mechanisms (comprehensive plan, capital budget, ordinances, etc.) and vice versa is essential to building a safer and more resilient community. Integration of planning documents results in consistency and collaborative ideas within the local planning structure.</p> <p>As part of the plan update process, existing plans and ordinances were reviewed and recommendations provided. Recommendations included in Chapter 4 included:</p> <ul style="list-style-type: none"> • Include a map within both the County and Town Comprehensive Plan Updates depicting flood zones and the areas considered most “at-risk.” New mapping products are available. Also, mapping products included within the 2023 Hazard Mitigation Plan could prove ideal for future comprehensive plan integration. • Include a map within both Comprehensive Plan Updates depicting vulnerable lands, infrastructure, and facilities. • In reviewing suitable land for adequate public facilities, identify high hazard locations that are unsuitable for subdivision and assure that appropriate infrastructure is provided to avoid, mitigate, or eliminate hazard risks. • Extend the Subdivision Ordinance to include the avoidance of development in high hazard areas to protect and provide for the public health, safety, and general welfare and to prevent overcrowding of land and undue congestion of population. • Review and add mitigation projects identified in the 2023 Hazard Mitigation Plan into Capital Improvement Multi-Year Budget. • Finally, new project sheets developed for the 2023 Hazard Mitigation Plan clearly denote the intended location, responsible agency, and partners for each mitigation project. Projects and action items where the County or Town of Leonardtown is listed as “partner”, or “responsible agency” can be integrated into the goals and objectives of updated comprehensive plans. <p>To ensure integration, the Department of Land Use and Growth Management should coordinate with Department of Emergency Services during with the document development or review process. This assist with plan integrations, as well as ensure</p>

	<p>duplication in effort is avoided.</p> <p>In addition, the Department of Land Use and Growth Management and Department of Emergency Services should review locations of new development to ensure allowed construction will not cause issues which may require future mitigation. Special regulation areas should also be reviewed.</p>
Ideas for Integration:	<p>County Comprehensive Plan Capital Improvement Plan County Ordinances</p>
Responsible Agency:	<p>Land Use & Growth Development</p>
Partners:	<p>Department of Emergency Services</p>
Potential Funding:	<p>County’s Annual Budget</p>
Cost Estimate:	<p>Staff Time</p>
Benefits: (Losses Avoided)	<p>Large Infrastructure Savings Prevent Future Losses Targeted development in non-hazard areas reduces increased hazards.</p>
Timeline:	<p>1-2 years</p>
Goals	<p>1, 4, 6, & 8</p>
Priority	<p>Medium</p>

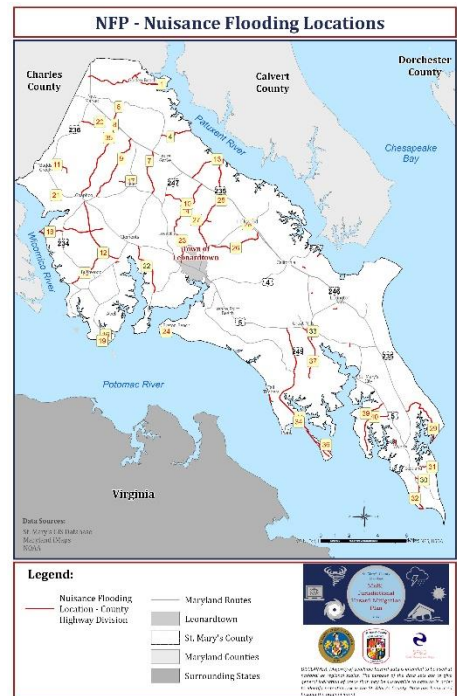
Table 5.3

Hazard(s):	All Flood Related Hazards
Location(s):	Selected Watershed for Assessment
Mitigation Action Item #2:	Collaborate with the Town of Leonardtown and Charles County to conduct watershed assessment(s) to include new Atlas 14 precipitation table- rainfall intensity.
Background/Issue:	<p>The watershed study is the necessary first step to reduce impacts from flooding problems. The watershed study or analysis evaluates the characteristics of a community, defines the location and cause of the flooding problem, and develops alternatives that can reduce or eliminate flooding. These studies should also identify other flood related hazards within a community (e.g., risks to critical infrastructure - roads and bridges - due to stream instability and stream erosion; damage and exposure to sewer lines; and current and potential risks to public and private property.</p> <p>The proposed flood management solutions should include community outreach, flood warning systems, and higher new development stormwater management standards that demonstrate to MDEM and FEMA that the community is investing in a comprehensive solution that will prevent or reduce flooding from continued development in a stressed watershed. This comprehensive watershed approach to flood management should lead to higher floodplain management standards that can be leveraged for FEMA Community Rating System discounts on flood insurance and may result in an increase of a community's financial bond ratings.</p> <p>Proposed project scopes should include the following:</p> <ol style="list-style-type: none"> 1. Identify and characterize known flooding events <ol style="list-style-type: none"> a. Characterize the total rainfall, rainfall distribution, event duration. b. General location characteristics (geographic region, upstream/downstream position in watershed) Include documented reports when available that include critical locations (choke points) in the watershed. c. Location and description of properties or structures impacted or at risk. d. Focused or detailed analysis of what critical resources (roads, buildings, etc.) are impacted within the current FEMA 100-year floodplain; and what additional areas will be impacted due to climate change (this includes sea-level rise and more intense rainfall - for example, 100-year storm + 30 % or more). This analysis should include a depth of flooding and loss estimate due to flooding for each alternative considered. 2. Identify all potential causes of flooding <ol style="list-style-type: none"> a. Perform the watershed hydrologic and hydraulic analyses commensurate with level of watershed analysis to be completed (base level; concept level; design level): <ol style="list-style-type: none"> i. Hydrology modeling for various precipitation events including future climate change scenarios; existing and future land use; the impact of existing stormwater management quantity control facilities. ii. Hydraulic modeling to assess the impacts and capacity of existing waterway crossings (bridges and culverts); delineation of local floodplain limits and floodplain encroachments (rail, road, parking

	<p>and other construction); location and capacity of stormwater conveyance infrastructures.</p> <p>iii. Determine the level of management required to reduce flooding under a variety of scenarios.</p> <p>3. Develop conceptual level solutions</p> <p>a. Conceptual alternatives of solutions to alleviate flooding (relief channels, enlarged conveyance systems - including existing storm drains, regional stormwater management, and others).</p> <p>b. Identify what nonstructural local alternatives can be utilized to reduce or alleviate flooding in the future such as increased 10-year or 25-year or greater stormwater quantity management in the watershed; existing land use changes, flood acquisitions; and flood warning systems, etc.</p> <p>Note: Additional information can be found at: Advancing Stormwater Resiliency in Maryland (A-StoRM).</p>
Ideas for Integration:	Hazard Mitigation Plan Comprehensive Plan
Responsible Agency:	Department of Emergency Services Land Use & Growth Development Department of Public Works & Transportation
Partners:	Maryland Department of the Environment
Potential Funding:	DNR Nuisance Flood Plan Grant Flood Mitigation Assistance Program (FMA) Hazard Mitigation Grant Program (HGMP) Building Resilient Infrastructure and Communities (BRIC) Comprehensive Flood Management Grant Program (CFMGP)
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Identifying potential flood risk reduction measures.
Timeline:	1-2 years
Goals	1, 3, 4, 5 & 7
Priority	Low

Table 5.4

Hazard(s):	Flooding
Location(s):	Countywide
Mitigation Action Item #7:	Collect 5 years of data with NFP to identify areas at greatest/most frequent risk of flooding and proposed CIP project to assist with mitigation.
Background/Issue:	<p>In December 2020, St. Mary’s County developed a Nuisance Flood Plan. According to the plan, flooding is one of the most common natural hazards experienced in St. Mary’s County. In St. Mary’s County, nuisance flooding of tidal waters occurs most predominately in locations near or adjacent to major bodies of water. Along the Patuxent and Potomac Rivers nuisance flooding is common on both residential and commercial properties. Elsewhere in the County, nuisance flooding has been experienced and addressed in several lowland locations. Sporadic flooding occurs at locations where debris has accumulated in ditches and culverts thus causing an overflow onto the roadways. Some culverts in low-lying areas may have difficulty conveying sufficient water during high rainfall events causing ponding on low-lying roadways within the County.</p> <p>Documenting the extent and impacts of nuisance flooding is critical to public safety and the long-term resilience of St. Mary’s County. This information will be documented and updated on a regular basis for emergency planning purposes.</p> <p>The following factors will be recorded by St. Mary’s County Department of Emergency Services and DPW&T for tracking and archived by County GIS staff. This includes instances of nuisance flooding addressed by SHA and communicated over the radio.</p> <ul style="list-style-type: none"> ● Date, time, and location of nuisance flooding ● Impacts (e.g., “x amount of water on the roadway,” “traffic diversion impacts,” “ditch overflow,” “docks underwater,” etc.) ● Agency notified and action taken <p>The County 311 Reporting System will be interrogated annually to determine if additional flood prone areas can be determined by an aggregation of similar complaints.</p> <p>Utilizing these tools, areas of greatest/most frequent risk to flooding will be verified in the next 5-years. Once verified, mitigation strategies can be determined and proposed for inclusion in the Capital Improvement Plan (CIP).</p>



Ideas for Integration:	Capital Improvement Plan
Responsible Agency:	Department of Emergency Services Department of Finance
Partners:	Department of Public Works & Transportation Maryland Department of Emergency Management (MDEM) State Highway Administration Federal Emergency Management Agency (FEMA) National Weather Service (NWS)
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Prevents future flooding and mitigates expense.
Timeline:	5+ years
Goals	1, 3 & 4
Priority	Medium

Table 5.5

Hazard(s):	Flood
Location(s):	Countywide
Mitigation Action Item #13:	Freeboard increase in Moderate and Minimal Flood Risk Area.
Background/Issue:	Add at least 1 foot of freeboard above nearest regulated floodplain for structures in the 0.2% or 500-year floodplain which is flooding both due to sea level rise and to increased major storm events. Currently, no floodplain management regulations exist within Moderate (0.2%) and Minimum (500-year) floodplain areas.
Ideas for Integration:	An increase in the freeboard requirement can be implemented simply by modifying the Flood Protection Elevation definition.
Responsible Agency:	Land Use & Growth Management
Partners:	Department of Emergency Services
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Reduce Loss to Property and Life
Timeline:	1-2 years
Goals	1, 3 & 6
Priority	High

Table 5.6

Hazard(s):	Flood
Location(s):	Countywide & Town of Leonardtown
Mitigation Action Item #14:	Identify, draft and submit ordinance to the County Commission/Leonardtown Commissioners to assure cleared floodplain land remains open space in perpetuity.
Background/Issue:	<p>The properties can be enhanced to make better use of wetland or ecological habitat, but in no case, should any type of structure be allowed, except perhaps for elevated walkways through wetlands to facilitate providing access to these areas for the purposes of learning about wetland habitat and ecology.</p> <p>Parcels should be identified and mapped. Those parcels that are either or large or contiguous should be evaluated for open space and recreational opportunities.</p>
Ideas for Integration:	Creation of recreational open space including parks, playgrounds, and trails.
Responsible Agency:	Land Use & Growth Management Town of Leonardtown
Partners:	Recreations and Parks
Potential Funding:	Maryland Program Open Space Maryland Green Infrastructure Resiliency Maryland Community Parks and Playgrounds Program Maryland Recreational Trails Program Comprehensive Flood Management Grant Program (FMG) Building Resilient Infrastructure and Communities (BRIC)
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Flood prone property would remain in “open space” in perpetuity.
Timeline:	Planning: 1-2 years Acquisition of prioritized flood prone parcels: 3-7 Years
Goals	3, 4, 5, 6 & 7
Priority	High

Table 5.7

Hazard(s):	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
Location(s):	Countywide
Mitigation Action Item #15:	Development of Cultural & Historical Resources Plan.
Background/Issue:	<p>St. Mary's County has more than 900 sites registered on the Maryland Historical Trust Inventory of Historic Places, 32 sites listed in the National Register of Historic Places, eight sites in National Register Historic Districts, four National Historic Sites, three local historic districts, and over 500 archaeology sites. There are 148 historic sites – standing structures – at risk to flooding, erosion, and sea level rise.</p> <p>This will reduce the impacts of flooding on its historic resources by integrating historic property and cultural resource protection into hazard mitigation planning. These sites need to be evaluated as candidates for Hazard Mitigation projects.</p>
Ideas for Integration:	<p>Request a grant to hire an architectural historian to survey and document additional cultural resources that are located within the floodplains and/or storm surge areas around the county. The St. Mary's County Historical Preservation Commission will assist with the identification of sites and work with architectural historian. The architectural historian selected will be qualified to develop the hypotheses outlined in the Demonstration Value under Public benefit.</p> <p>Also, the Architect historian, along with members of the St. Mary's County Historic Preservation Commission, will then review the existing sites, along with the new sites that have been added, and evaluate their historical significance to the county. These records will become a party of the local Hazard Mitigation Plan.</p>
Responsible Agency:	Land Use & Growth Management Town of Leonardtown
Partners:	Maryland Historical Trust Department of Emergency Service Information Technology Historical Preservation Commission
Potential Funding:	Historic Preservation: Repair and Restoration of Disaster-Damaged Historic Properties Hazard Mitigation Program Grant Building Resilient Infrastructure and Communities (BRIC)
Cost Estimate:	\$35,000 for a single jurisdiction. Regional and multi-jurisdictional projects may request more than \$35,000.
Benefits: (Losses Avoided)	Mitigate losses to historical structures within the state of Maryland to continue to preserve the history and culture of the citizens in the County
Timeline:	Grant Preparation and Processing: 1 year Plan Development: 1-2 years

Goals	3, 4 & 7
Priority	Low

Table 5.8

Hazard(s):	Flood
Location(s):	Countywide
Mitigation Action Item #16:	Add "Repetitive Loss" to the definitions included in County Ordinances.
Background/Issue:	This will allow extension of the Increased Cost of Compliance (ICC) coverage in flood insurance policies that pays up to \$30,000 in additional coverage to bring repetitive loss as well as substantially damaged properties into compliance with the floodplain ordinance. The community must be willing to treat repetitive loss properties the same as new and substantially improved structures to qualify. If this is adopted, they must require that repetitive loss properties meet all code requirements as new structures, but they will be making ICC payments available to these structures. Point of contact: Kevin Wagner, Community Assistance Program Manager, MDE. Email: Kevin Wagner at kevin.wagner@maryland.gov .
Ideas for Integration:	Integration into County Floodplain Ordinance. Include with Mitigation Action Items #1.
Responsible Agency:	Land Use & Growth Management
Partners:	Department of Emergency Service Commissioners of St. Mary's County
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Reduce the loss of property and life.
Timeline:	1-2 years
Goals	1, 3 & 6
Priority	Medium

Table 5.9

Hazard(s):	Flood
Location(s):	Countywide
Mitigation Action Item #17:	Modify Substantial Improvement Standards.
Background/Issue:	<p>Substantial improvement, as defined in 44 CFR § 59.1, means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement.</p> <p>Return cumulative value for revisions of structure in floodplains to the calculations for substantial improvements (perhaps limited to a 10-year window to account for inflated costs of repairs and assessments.)</p>
Ideas for Integration:	Complete modification during floodplain ordinance revision process.
Responsible Agency:	Land Use & Growth Management
Partners:	Department of Emergency Service
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Property protection through the enforcement of current building codes and floodplain management regulations.
Timeline:	1-2 years
Goals	1, 3 & 6
Priority	Low

Table 5.10

Hazard(s):	Flood
Location(s):	Countywide
Mitigation Action Item #18:	Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).
Background/Issue:	<p>Comprehensive Water and Sewage Plan managed by Land Use & Growth Management discusses water shortage and reuse issues. Corps of Engineers which is supported by Land Use & Growth Management oversaw the Water Policy Task Force and Corp of Engineers recommendations regarding this item.</p> <p>Water reuse provides an effective means for conserving limited high-quality freshwater supplies and meeting everyday water demands. According to the EPA's 2004 Guidelines for Water Reuse, water reuse can be an alternate source for several applications including landscaping, agricultural irrigation, industrial processing and power plant cooling. Therefore, areas in the county that would benefit from water reuse should be identified and analyzed for the possible use of this practice.</p>
Ideas for Integration:	Water & Sewer Plan Comprehensive Plan – Community Facilities
Responsible Agency:	Land Use & Growth Management
Partners:	Department of Public Works & Transportation Recreation & Parks
Potential Funding:	County's Annual Budget
Cost Estimate:	Project Dependent/Staff Time
Benefits: (Losses Avoided)	Water Reuse
Timeline:	1-2 years
Goals	1, 3 & 6
Priority	Low

Table 5.11

Hazard(s):	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
Location(s):	Countywide
Mitigation Action Item #19:	Develop a Flood Mitigation Plan.
Background/Issue:	The purpose of a Flood Mitigation Plan is to assist State and local governments in funding cost-effective actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other insured structures. The long-term goal of FMA is to reduce or eliminate claims under the National Flood Insurance Program (NFIP) through mitigation activities. The program provides cost-shared grants for three purposes: Planning Grants to States and communities to assess the flood risk and identify actions to reduce that risk; Project Grants to execute measures to reduce flood losses; and Technical Assistance Grants that States may use to assist communities to develop viable Flood Mitigation Assistance (FMA) applications and implement FMA projects. FMA also outlines a process for development and approval of Flood Mitigation Plans.
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System
Responsible Agency:	Department of Emergency Services
Partners:	Land Use and Growth Management Department of Public Works & Transportation
Potential Funding:	Flood Mitigation Assistance Program
Cost Estimate:	\$30,000-\$40,000
Benefits: (Losses Avoided)	Prioritized and technically feasible grant funded projects.
Timeline:	1-2 years
Goals	1, 3, 4, 5 & 7
Priority	Medium

Table 5.12

Hazard(s):	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
Location(s):	Repetitive Loss Properties, specifically those located in Piney Point and Tall Timbers
Mitigation Action Item #20:	Elevate Repetitive Loss Properties
Background/Issue:	Structures experiencing repetitive loss from flooding, hurricanes, tropical storms, and Nor'easter should be evaluated for potential elevation projects. These types of storms and storm surges have caused damages to structures on both the interior and exterior. Additionally, all repetitive loss properties located within the FEMA Special Flood Hazard Areas and are currently located next to tidal waters should be a priority for flood mitigation projects such as elevation.
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System
Responsible Agency:	Department of Emergency Services
Partners:	Land Use and Growth Management Department of Public Works & Transportation
Potential Funding:	Hazard Mitigation Grant Program Flood Mitigation Assistance Program Building Resilient Infrastructure and Communities (BRIC)
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Flood insurance and personal property insurance premiums cost are greatly reduced. No damage to the interior of the structure (living quarters). If the mechanical and electrical equipment is elevated 2 feet above the FIRM, then the mechanical should not have to be replaced because of flooding.
Timeline:	3-5 years Three (3) years once approved by MEMA / FEMA, grant is received and the owner of the structure deposits their portion of the required funds. Note that any construction work needs to be done during summer and completed by early fall when the conditions are dry. All development work (survey, design testing and required documentation) should be accomplished when the project is completed during late fall and winter.
Goals	3 & 8
Priority	Low

Structure and Infrastructure Projects Mitigation Action Items & Project Sheets

Table 5.13 Structure and Infrastructure Projects Mitigation Action Items

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
1	Identify public and/or critical facilities that lack grounding/surge protection devices.	Facility Owner	3, 4, 6, 8 & 9	1-2 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Winter Storm, Flood, Wind, Tornado, Wildfire, Thunderstorm, Dam Failure
2	Further evaluate roadway flooding issues not completed in the previous planning cycle (2017-2021.) Review prioritized repetitive roadway flooding areas identified in St. Mary’s County Nuisance Flood Plan. Include these areas in capital improvement plan.	Department of Emergency Services, Department of Public Works & Transportation, State Highway Administration	3, 4, 6, 8 & 9	Ongoing	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood, Dam Failure
3	Review Situational Awareness and Reporting tools for All-Hazards used for incident operations that lend themselves to the integration of community lifelines construct. Identify tool or modify situational reporting to incorporate lifelines. Incorporating the lifelines primarily impacts how incident information is organized and reported during response. The lifelines help characterize an incident, i.e., what is happening and why it is important. <ul style="list-style-type: none"> ● Safety and Security ● Food, Water, and Shelter ● Health and Medical ● Energy ● Communications ● Transportation ● Hazardous Material 	Department of Emergency Services	4 & 8	3-5 years	All-Hazards
4	Increase back-up capabilities for 9-1-1 Centers and EOC’s with operations.	Department of Emergency Services	4, 6 & 8	3-5 years	All-Hazards

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
5*	<p>Water resource facilities identified as at-risk to flooding. Additional flood damage avoidance measures may be appropriate. Conduct site specific visits and assess alternatives where indicated.</p> <p><i>This action is new, however incorporates mitigation action item #6 carried forward from the 2017 Plan.</i></p>	<p>MetCom Town of Leonardtown</p>	<p>4 & 8</p>	<p>3-5 years</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood</p>
6	<p>Review Flood Mitigation Sites identified in the St. Mary's County Nuisance Flood Plan to determine potential mitigation project for each of three sites identified.</p>	<p>Department of Emergency Services, Town of Leonardtown, Land Use & Growth Management</p>	<p>1, 4, 6 & 8</p>	<p>Ongoing</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood</p>
7	<p>Investigate locations that rain gauges could be added (example St. Mary's County Airport Tidal Gauge at St. George's Island and McIntosh Run at Winery.) There are no official rain gauges in St. Mary's County.</p>	<p>Department of Emergency Services, United States Geological Survey (USGS)</p>	<p>3, 4, 6, & 8</p>	<p>5+ years</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood, Thunderstorm</p>
8	<p>Evaluate and as necessary change subdivision regs, zoning code and road ordinance to eliminate where possible new dead end (one entry point) subdivisions to facilitate EMS and general mobility and circulation. These areas do not have access for public safety during flood events. Country Lakes is an example where the area was not assessable due to flooding.</p>	<p>Land Use & Growth Management, Department of Public Works & Transportation, State Highway Administration</p>	<p>1, 3, 6 & 8</p>	<p>1-2 years</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood, Thunderstorm</p>
9	<p>Include in the SMC priority letter to MD DOT raising MD243 where McIntosh Run frequently floods near where Nelson Run joins it. Route 243 constant flooding because of McIntosh Run.</p>	<p>Department of Public Works & Transportation</p>	<p>3, 4 & 8</p>	<p>1-2 years</p>	<p>Flood</p>
10	<p>Analyze land within dam inundation areas to assess its suitability for conservation or recreational uses.</p>	<p>Land Use & Growth Management, Recreation & Parks</p>	<p>4, 5, 6, 7, 8 & 9</p>	<p>1-2 years</p>	<p>Dam Failure</p>

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
11	Updated risk and vulnerability assessment should be completed for high hazard dam, which can aid in determining if a dam requires steps towards rehabilitation (repair, replacement, reconstruction, or removal). Dam inspections can be performed by MDE's Dam Safety Division. Investigations and risk assessments can utilize a risk prioritization methodology defined in section H.14 of the FY21 HHPD NOFO. In addition, consider mitigation options for dams rating as poor or unsatisfactory conditions, such as St Mary's River State Park Dam, Ledford Pond Dam, Breton Bay Golf and Country Club Dam, and Clair Peake Dam (Md 235).	Land Use & Growth Management, Department of Emergency Services	1, 4, 8 & 9	1-2 years	Dam Failure
12	Develop a Town Run Flood Study.	Town of Leonardtown, Federal Emergency Management Agency	3, 4, 5 & 8	1-2 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood
13	Conduct an engineering analysis to map stream and large drainage swales (greater than 10 acres) floodplains (100-year) or water elevations to keep future development out of these non-mapped FEMA floodplains. Funding is needed for the engineering. In addition, analysis tractive forces in streams with major outfalls to tidal waters.	Land Use & Growth Management	3, 4, 5 & 8	3-5 years	Sea Level Rise, Climate Change
14	Conduct a hydraulic vulnerability assessment of all public water and sewer facilities (defined by the State as "critical infrastructure") is necessary to model the impact of sea level rise, the respective storm surges and extreme recurring rainfall events according to the EPA methodology. Mitigation strategies and resiliency recommendations for public water/sewer infrastructure such as relocation, hardening, flood-proofing or elevating, etc. should be identified as protective measures for implementation. Likewise, it is anticipated that this will also result in a significantly increased rate of failure of private well and septic systems especially in coastal, remote or flood prone areas.	St. Mary's County Metropolitan Commission, St. Mary's County Health Department, St. Mary's County Government, Town of Leonardtown	3, 4, 5 & 8	3-5 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood, Thunderstorm
15*	Conduct an assessment to determine flood mitigation measures for the Adkins Mobile Home Park.	Department of Emergency Services	1, 5, 6, 8 & 9	1-2 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood, Dam Failure

Table 5.14

Hazard(s):	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood, Dam Failure
Location(s):	Countywide
Mitigation Action Item #2:	Further evaluate roadway flooding issues not completed in the previous planning cycle (2017-2021.) Review prioritized repetitive roadway flooding areas identified in St. Mary’s County Nuisance Flood Plan. Include these areas in capital improvement plan.
Background/Issue:	<p>The 2020 Nuisance Flood Plan included nuisance flooding locations that were identified by the County’s Highway Division, current FEMA mapping, and complaint-identified nuisance flood areas.</p> <p style="text-align: right;">Appendix I – Nuisance Flooding Location Inventory</p> <p>During the Mitigation Workshop held on September 28th, HMPC members identified additional roadways including:</p> <ul style="list-style-type: none"> • Newtowne Neck Road (RT 243) in Leonardtown • Point Lookout Road (RT 5) in Leonardtown • Medleys Neck Road (RT 244) • Maddox Road (RT 238) • Camalier Drive in Leonardtown (SWM issues) • Mattingly Street in Leonardtown (drainage ditch issues) <p>Furthermore, it was noted nuisance flood issues for private roads was unknown.</p> <p>Nuisance flooding locations should be reviewed to ensure all locations have been identified. The Steering Committee and Sub-Committee Members should prioritize the complete list. Then submit proposed mitigation projects to address the highest priority locations for consideration within the Capital Improvement Program framework.</p>
Ideas for Integration:	Further identification of areas based on complaints and institutional knowledge. Hazard Mitigation Plan Capital Improvement Plan
Responsible Agency:	Department of Emergency Services Department of Public Works & Transportation
Partners:	State Highway Administration Maryland Department of Emergency Services Federal Emergency Management Services

Appendix I – Nuisance Flooding Location Inventory


A. Locations Identified by County Highway Division

North Area	Central Area
Golden Beach Road, down in the flats	Bayside Road
South Sandgate Road	Maypole Road
All Faith Church Road	Old Breton Beach Road
Delabrooke Road	McIntosh Road
Morgan Parlett Road	St. Johns Road
Locke’s Hill Road	Jones Road
	Morgan Road
West Area	South Area
Morganza Turner Road	St. Jerome’s Neck Road
Mechanicsville Road	Long Neck Road
Baptist Church Road	Hays Beach Road
Bishop Road	Cornfield Harbor Road
Bethel Church Road	Adkins Road
Hurry Road	Piney Point Road (County Portion)
Manor Road	Thomas Road
Friendship School Road	Ball Point Road
Bushwood Road	Flat Iron Road
Palmer Road	River Road
Foley Mattingly Road	Villa Road
Mill Point Road	Beachville Road
Beach Road	Poplar Street
Locks Crossing Road	
Davis Road	

Note from County Highway Division
Heavy rain events and/or high tides affect different parts of the county, which dictates the County response each time. Storm direction and width of the storm front are also factors.


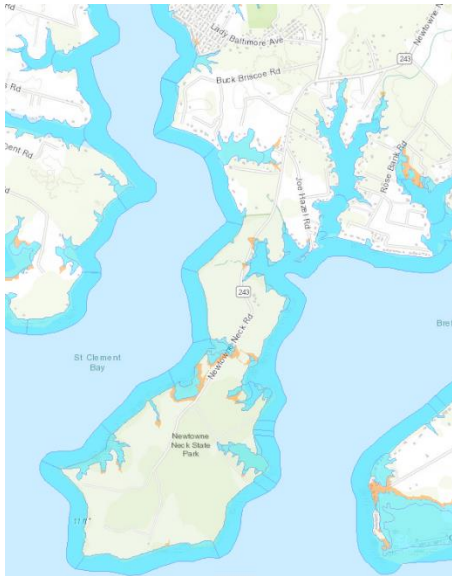

Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Reduce the loss of property and life. Minimize nuisance flooding.
Timeline:	Ongoing
Goals	3, 4, 6, 8 & 9
Priority:	Medium

Table 5.15

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood</p>
<p>Location(s):</p>	<p>Countywide</p>
<p>Mitigation Action Item #5:</p>	<p>Water resource facilities identified as at-risk to flooding. Additional flood damage avoidance measures may be appropriate. Conduct site specific visits and assess alternatives where indicated.</p>
<p>Background/Issue:</p>	<p>The following water resource facilities were identified as at-risk to two or more of the flood scenarios: hurricane storm surge, sea level rise, and 1% annual chance flood hazard.</p> <ul style="list-style-type: none"> • Pump Stations <ul style="list-style-type: none"> - 20208 Point Lookout Road - 16668 Piney Point Road - 45572 Aspen Lane - 24511 Point Lookout Road - 20540 Pershing Drive • Wastewater Stations <ul style="list-style-type: none"> - 20208 Point Lookout Road - 20540 Pershing Drive - 45572 Aspen Lane - 16668 Piney Point Road - 24511 Point Lookout Road <p>An example of a facility at-risk to all three (3) flood scenarios is the Wastewater Station & Sewer Pumpstation located on 16668 Piney Point Road.</p>  <p>The Town of Leonardtown’s currently has a contract to flood proof the WWTP. The Town also has a project to increase the elevation of the McIntosh Run pump station. MetCom should review the wastewater and water resource facilities to determine risk and potential mitigation measures to ensure continued service.</p>


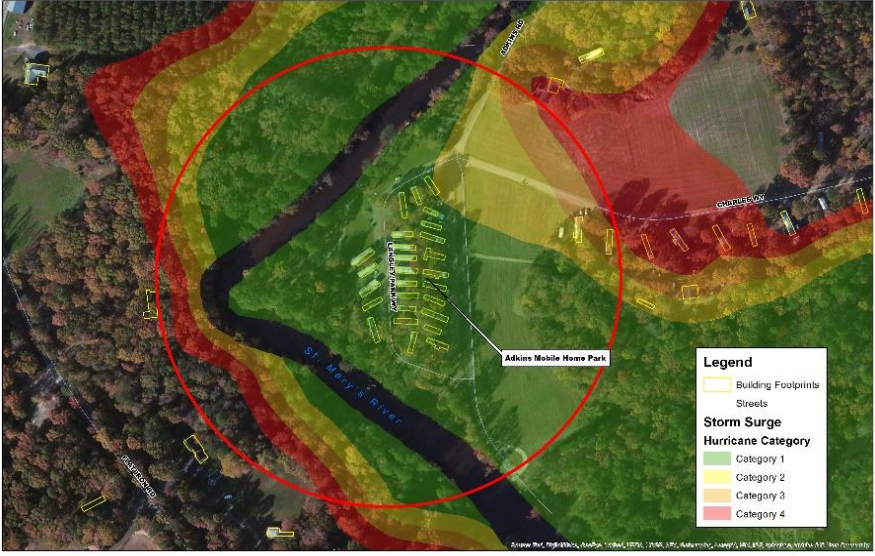
Ideas for Integration:	Identify and incorporate mitigation measures to minimize risk.
Responsible Agency:	MetCom Town of Leonardtown
Partners:	St. Mary's County Health Department Maryland Department of the Environment Maryland Department of Emergency Management Federal Emergency Management Agency
Potential Funding:	Flood Mitigation Assistance Program (FMA) Building Resilient Infrastructure and Communities (BRIC) Local Government Infrastructure Program
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Avoid contamination , loss of service and repeat construction costs.
Timeline:	3-5 years
Goals	4 & 8
Priority:	Medium

Table 5.16

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood, Thunderstorm</p>
<p>Location(s):</p>	<p>Countywide</p>
<p>Mitigation Action Item #8:</p>	<p>Evaluate and as necessary change subdivision regulations, zoning code and road ordinance to eliminate where possible new dead end (one entry point) subdivisions to facilitate EMS and general mobility and circulation. These areas do not have access for public safety during flood events. Country Lakes is an example where the area was not assessable due to flooding.</p>
<p>Background/Issue:</p>	<p>According to the St. Mary’s County Department of Emergency Services Tropical Storm Isaias After Action Report, during the height of the storm many roads were closed due to flooding and/or damage. Two major areas that could not be entered or exited for approximately 4 hours were Brenton Bay, Compton area and County Lakes.</p> <p>Brenton Bay</p>  <p>Compton Area</p>  <p>Country Lakes Subdivision</p> 

Ideas for Integration:	Capital Improvement Plan
Responsible Agency:	Land Use & Growth Management Town of Leonardtown
Partners:	Department of Public Works & Transportation State Highway Administration
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Accessibility and Safety
Timeline:	1-2 years
Goals	1, 3, 6 & 8
Priority:	Medium

Table 5.17

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood, Dam Failure</p>
<p>Location(s):</p>	<p>Adkins Road</p>
<p>Mitigation Action Item #15:</p>	<p>Conduct an assessment to determine flood mitigation measures for the Adkins Mobile Home Park.</p>
<p>Background/Issue:</p>	<p>The Adkins Mobile Home Park is in close proximity to the St. Mary's River and therefore flooding is an issue. Twenty-seven (27) mobile homes are in Zone AE with an average flood depth ranging from 8-9 feet. In fact, the southern portion of the Adkins Mobile Park is located within the floodway.</p>  <p>The Adkins Mobile Home Park is located in a Category 1 Storm Surge inundation area, as shown on the map below.</p> 

	Furthermore, an overflow or breach from the St. Mary’s Dam could impact the Adkins Mobile Home Park, located downstream of the dam.
Ideas for Integration:	Strengthen regulations pertaining to mobile home placement within the floodway.
Responsible Agency:	Department of Emergency Services
Partners:	Department of Public Works & Transportation
Potential Funding:	Building Resilient Infrastructure and Communities (BRIC) Hazard Mitigation Grant Program Maryland Community Development Block Grant
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Reduce the loss of property.
Timeline:	1-2 years
Goals	1, 5, 6, 8 & 9
Priority:	Medium

Natural Systems Protection Mitigation Action Items & Project Sheets

Table 5.18 Natural Systems Protection Mitigation Action Items

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
1	Using the Maryland Coastal Resiliency Assessment and local knowledge consider the Shoreline Hazard Index relative exposure to St. Mary's County shoreline rating of "high" to identify potential shoreline protection project locations.	Land Use & Growth Management, Department of Public Works & Transportation, Maryland Department of Natural Resources, FEMA	4, 5 & 7	Ongoing	Hurricane, Tropical Storm & Storm Surge, Shoreline Erosion, Sea Level Rise
2	Review Stream Corridor and Stream Channel results from McIntosh Run and Town Run for potential mitigation actions. The survey was conducted by the Maryland Silver Jackets team, Maryland Department of Natural Resources, Maryland Department of the Environment and U.S. Army Corps of Engineers.	Land Use & Growth Management, Department of Public Works & Transportation, Maryland Department of the Environment, Maryland Department of Natural Resources, Department of Emergency Services USACE, SHA	2, 3, 4, 5 & 8	Ongoing	Hurricane, Tropical Storm & Storm Surge, Flood
3	Well head elevations should be inventoried and where feasible raised above the Federal Emergency Management Agency (FEMA) base flood elevation or higher. Consider sea level rise in terms of well head elevation. Well head covers may also be utilized as a preventative measure to mitigate flood contamination.	Information Technology, St. Mary's County Health Department, Maryland Department of the Environment, FEMA	1, 2, 5 & 8	Ongoing	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood
4	Consider septic system inspections and backflow valve installation to mitigate issues of contamination from backup into the home as a result of a flood event and/or identify failing systems prior to flood event.	Information Technology, St. Mary's County Health Department, Maryland Department of the Environment	1, 2, 5 & 8	Ongoing	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Flood


ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
5	Identify dredging projects slated for completion in the next ten years (St. Jeromes).	Land Use & Growth Management, Department of Public Works & Transportation, Maryland Department of Natural Resources, Maryland Department of the Environment, USACE	4 & 5	3-5 years	Hurricane, Tropical Storm & Storm Surge, Shoreline Erosion, Flood
6*	Ellis Road Living Shoreline and Bank Stabilization.	Department of Public Works & Transportation	4, 5, 6, 7 & 8	3-5 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood
7*	Sandgate's Road Living Shoreline Stabilization and Roadway Elevation Project.	Department of Public Works & Transportation	4, 5, 6, 7 & 8	3-5 years	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood

Table 5.19

Hazard(s):	Hurricane, Tropical Storm & Storm Surge, Shoreline Erosion, Sea Level Rise
Location(s):	County Shorelines, Ellis Road Shoreline at St. Clements Bay, Seventh District, Sandgates Road and Shoreline on the Patuxent River, Sixth District
Mitigation Action Item #1:	Using the Maryland Coastal Resiliency Assessment and local knowledge consider the Shoreline Hazard Index relative exposure to St. Mary’s County shoreline rating of “high” to identify potential shoreline protection project locations. Includes Action Items #18 and #19 carried over from the 2017 Plan.
Mitigation Action Item #6:	Ellis Road Living Shoreline and Bank Stabilization.
Mitigation Action Item #7:	Sandgate’s Road Living Shoreline Stabilization and Roadway Elevation Project.
Background/Issue:	<p>The Maryland Coastal Resiliency Assessment, produced by the Maryland DNR, is a landscape-level spatial analysis and modeling effort that identifies where natural habitats provide the greatest potential risk reduction for coastal communities. In part, this assessment includes a Shoreline Hazard Index, which identifies high, moderate, and low hazard shorelines based on six (6) variables: sediment type, historic erosion rates, elevation, localized sea level rise risk, wave power, and storm surge height.</p> <p>The Maryland analysis estimated the relative exposure of each 250-meter segment of the Maryland coastline to storm-induced erosion and flooding, and the relative effectiveness of existing natural habitats to buffer the shoreline from these hazards. The Shoreline Hazard Index, depicted in Figure 3.2, represents the relative exposure to coastal hazards for St. Mary’s County shoreline. Exposure is rated high, moderate, and low.</p>  <p>The Maryland Coastal Resiliency Assessment dataset is useful for a high-level examination of the overall health of the County’s shorelines. Most of the southern and western portions of St. Mary’s County shoreline, as depicted in the figure, have areas ranked as “high” hazard. It is important to note that all hazard rankings as part of the coastal resiliency assessment are in comparison to the entire State.</p> <p>Using the Shoreline Hazard Index as the initial baseline, further analysis to determine priority shorelines and potential mitigation measures may be conducted in areas ranked as a “high” hazard.</p> <p>Two (2) areas previously identified for mitigation measures include Ellis and Sandgate Roads. Due to a historically extensive wave action coupled with littoral drift, the shore adjacent to Ellis Road has eroded and compromised the shoreline bank and the shoreline adjacent to Sandgate’s Road has eroded to within 10 feet of Sandgates Road. If allowed to continue, failure of the shoreline bank will result in the collapse of Ellis Road, resulting in the stranding of residents, disruption of traffic, and the lack</p>

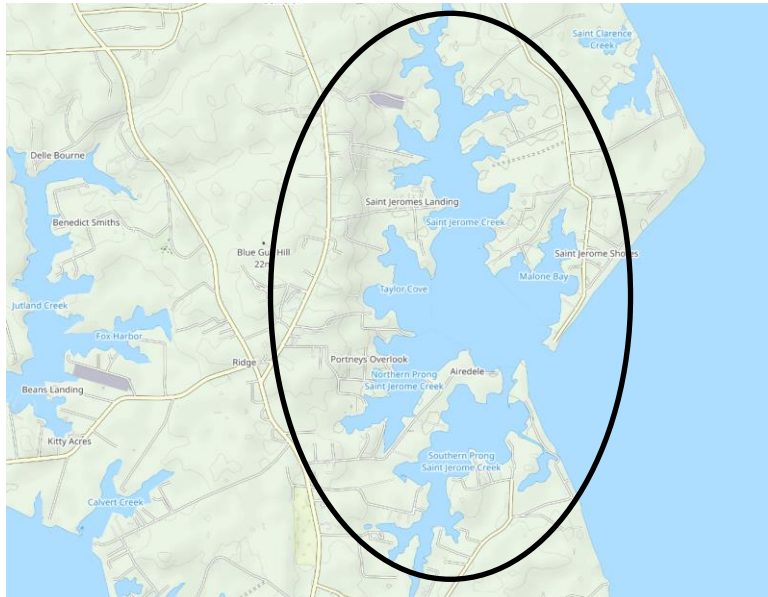

	<p>of availability for emergency services delivery. Since 2003, the shoreline adjacent to Sandgates Road has eroded thirty-five feet to its current condition.</p> <p>Implement structural measures to incorporate climate resiliency, stabilize the bank, and reduce the potential of damage to adjacent properties on Ellis Road and Sandgates Road.</p>
Ideas for Integration:	<p>Capital Improvement Plan</p> <p>Ellis Road: Integration will occur with the existing roadway and shoreline bank to mitigate the potential for collapse.</p> <p>Sandgates Road: Integration will occur with elevation of the existing roadway and shoreline bank structural measures to mitigate the potential for collapse.</p>
Responsible Agency:	<p>Land Use & Growth Management Department of Public Works & Transportation</p>
Partners:	<p>Maryland Department of Natural Resources for Technical Assistance Federal Emergency Management Agency United States Department of Agriculture (USDA)</p>
Potential Funding:	<p>Continuing Authorities Program (CAP) Small Watershed Grants National Coastal Resilience Fund Hazard Mitigation Grant Program Maryland Sea Grant (NOAA)</p>
Cost Estimate:	<p>Project Dependent</p> <p>Ellis Road: Approximately \$250,000, inclusive of design costs and construction of 650 feet of living shoreline measures.</p> <p>Sandgates Road: Project costs estimated at approximately \$225,000 inclusive of design costs and construction of a 200-foot living shoreline coupled with elevation of the roadway.</p>
Benefits: (Losses Avoided)	<p>Shoreline Protection Property Protection Flood Management Coastal Resiliency</p>
Timeline:	<p>Ongoing</p>
Goals	<p>4, 5, 6, 7 & 8</p>
Priority:	<p>Medium</p>

Table 5.20

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Flood</p>
<p>Location(s):</p>	<p>McIntosh and Town Runs</p>
<p>Mitigation Action Item #2:</p>	<p>Review stream corridor and stream channel results from McIntosh Run and Town Run for potential mitigation actions. The survey was conducted by the Maryland Silver Jackets team, Maryland Department of Natural Resources, Maryland Department of the Environment and U.S. Army Corps of Engineers.</p>
<p>Background/Issue:</p>	<p>Numerous homes and businesses are subject to both riverine and coastal flooding along McIntosh Run and Town Run. The Leonardtown Area Flood Mitigation Assessment conducted by the Maryland Silver Jackets team, Maryland Department of Natural Resources, Maryland Department of the Environment (MDE) and U.S. Army Corps of Engineers proposed to examine the flooding issues, run modeling to understand the cause of flooding, and identify flood risk reduction measures to alleviate flooding issues. As a result of the study, potential flood risk reduction measures including nonstructural, regulatory, and natural means will be presented. The Town of Leonardtown and St. Mary’s County should review all mitigation measures and implement priority mitigation actions to alleviate the issues at each stream channel. Note: MDE field staff did bathymetric surveys of McIntosh Run.</p> <p>- Siltation of downstream channel on McIntosh Run</p> 
<p>Ideas for Integration:</p>	<p>Property measures from the Maryland Silver Jackets Team.</p>
<p>Responsible Agency:</p>	<p>Land Use & Growth Management, Department of Public Works & Transportation</p>

Partners:	Maryland Department of the Environment Maryland Department of Natural Resources Department of Emergency Services U.S. Army Corps of Engineers (USACE) Maryland State Highway Administration (SHA)
Potential Funding:	Continuing Authorities Program (CAP) Emergency Watershed Protection (EWP) Program - Recovery Assistance Flood Mitigation Assistance Program (FMA) Small Watershed Grants National Coastal Resilience Fund Comprehensive Flood Management Grant Program (CFMGP)
Cost Estimate:	Base Cost: \$75-\$100K +
Benefits: (Losses Avoided)	Flood Control/Storm Surge Control Public Safety Debris Control
Timeline:	Ongoing
Goals	2, 3, 4, 5 & 8
Priority:	Medium

Table 5.21

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Shoreline Erosion, Flood</p>
<p>Location(s):</p>	<p>St. Jerome Creek</p>
<p>Mitigation Action Item #5:</p>	<p>Identify dredging projects slated for completion in the next ten years.</p>
<p>Background/Issue:</p>	<p>Most dredged material is comprised of clean sediments that can be used on the land as soil amendments or engineered fill or in the water to create aquatic habitat and help improve water quality.</p> <p>In 2001, Maryland passed the Dredged Material Management Act and defined Maryland’s “Beneficial Uses” of dredged material, including marsh enhancement, beach nourishment, shoreline stabilization, and island restoration. These beneficial uses can increase shoreline and community resilience while dramatically reducing the financial costs of dredged material disposal and coastal restoration projects.</p> <p>Every year, the Maryland Port Administration and the U.S. Army Corps of Engineers dredge roughly 4.5 million cubic yards of sediment from the Bay. St. Mary’s County should work with state and federal partners to review the potential dredging of St. Jerome Creek and identify dredge material placement (DAP) sites and beneficial use sites. The Dredged Material Management Program could be involved with determining adequate long term placement capacity for the dredge material.</p> <p>St. Jerome Creek</p>  



Ideas for Integration:	Dredge Site Study & Permitting
Responsible Agency:	Land Use & Growth Management Department of Public Works & Transportation
Partners:	U.S. Army Corps of Engineers (USACE) Maryland Port Administration Maryland Department of Natural Resources (DNR) - Chesapeake and Coastal Service Maryland Department of the Environment (MDE)
Potential Funding:	Building Resilient Infrastructure and Communities (BRIC) Watershed and Flood Prevention Operations Program Chesapeake Initiative Continuing Authorities Program (CAP) Chesapeake Research Consortium Maryland's Waterway Improvement Fund (WIF) Community Resilience Program
Cost Estimate:	Base Cost: \$75-\$100K +
Benefits: (Losses Avoided)	Property Protection Shoreline Protection Flood Management Surface Water Quality Livability Beneficial Reuse Dredge Material
Timeline:	3-5 years
Goals	4 & 5
Priority:	High

Education and Awareness Programs Mitigation Action Items & Project Sheets

Table 5.22 Education and Awareness Programs Mitigation Action Items

ID #	ACTION	LOCATION/ RESPONSIBLE ENTITY	GOALS	TIMEFRAME	HAZARD
1	Obtain and strategically deploy signage for community awareness during hazard event. This signage may include flood warning signs with or without flashing lights.	Department of Public Works & Transportation, Department of Emergency Services, Law Enforcement, SHA	1 & 8	Ongoing	Hurricane, Tropical Storm & Storm Surge, Flood
2	Disseminate generator safety tips such as those provided by American Red Cross's Safe Generator Use webpage .	Department of Emergency Services, Southern Maryland Electric Cooperative (SMECO)	1, 2 & 8	Ongoing	Hurricane, Flood, Winter Storm, High Wind, Tornadoes, Thunderstorm, Wildfire
3	Inform property owners of ways they can mitigate damage to their property. Include information on hazard risk and high-risk areas.	Department of Emergency Services	1, 2, 4 & 8	Ongoing	Hurricane, Tropical Storm & Storm Surge, Flood
4	Conduct several flood insurance training/workshops for the public, real estate agents, surveyors, and insurance agents. Offer continuing education credits for professionals.	MIA (state), Department of Emergency Services, Real Estate & Insurance Association, Property Management, St. Mary's County Health Department	1, 3, 8 & 9	Ongoing	Hurricane, Tropical Storm & Storm Surge, Sea Level Rise, Shoreline Erosion, Flood, Thunderstorm, Dam Failure
5	Work with Chamber of Commerce and County Economic Development to encourage local business owners to development a business continuity of operations plan. FEMA's Ready Business toolkits available at: https://www.ready.gov/business is an available resource.	County Commissioners, County Executive, Economic Development	1, 2, 3, 4 & 8	Ongoing	All-Hazards
6	Work with the Health Department to develop vulnerable population outreach and engagement specific to current health impacts and outbreaks affecting St. Mary's County.	St. Mary's County Health Department	1, 2, 3 & 8	Ongoing	Hurricane Storm Surge, Flooding, Tornado

Table 5.23

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Flood</p>
<p>Location(s):</p>	<p>Countywide</p>
<p>Mitigation Action Item #1:</p>	<p>Obtain and strategically deploy signage for community awareness during hazard event. This signage may include flood warning signs with or without flashing lights.</p>
<p>Background/Issue:</p>	<p>Severe flooding is part of the history of many U.S. communities. Despite this reality, many residents are not fully aware of the flood potential in their area. To help raise awareness of flood risk, High Water Mark Systems in prominent locations within communities that have experienced severe flooding should be installed. Locations should be selected based severity of flood risk.</p> <p>High Water Warning Systems detect rising water levels and activate warning alerts, providing approaching drivers with advance warning of real-time road flooding. Various High Water Warning Systems utilize a pole mounted, submersible sensors. Once water makes contact and rises above the sensor, activating the flashing lights or transmitters. As long as the flood waters are detected, the activated lights will continuously flash, alerting motorists.</p> <p>Samples of High Water Warning Systems</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>Ideas for Integration:</p>	<p>Expand current public messaging and signage capabilities. Identify specific threat areas in need of more education/signage.</p>
<p>Responsible Agency:</p>	<p>Department of Public Works & Transportation Department of Emergency Services</p>

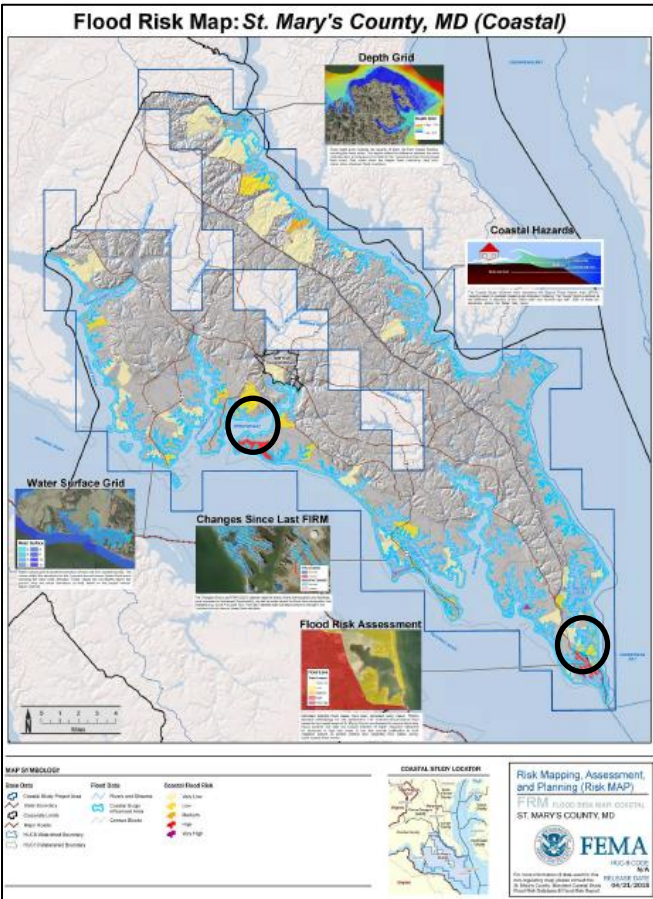
Partners:	Law Enforcement Maryland State Highway Administration (SHA)
Potential Funding:	Building Resilient Infrastructure and Communities (BRIC) Hazard Mitigation Grant Program
Cost Estimate:	Dependent upon signage type selected.
Benefits: (Losses Avoided)	Reduce loss of life and property.
Timeline:	Ongoing
Goals	1 & 8
Priority:	High

Table 5.24

Hazard(s):	Hurricane, Flood, Winter Storm, High Wind, Tornadoes, Thunderstorm, Wildfire
Location(s):	Countywide
Mitigation Action Item #2:	Disseminate generator safety tips such as those provided by American Red Cross's Safe Generator Use webpage .
Background/Issue:	<p>Improper or unsafe use of generators result in death and property damage. Most generator-related fatalities are caused by carbon monoxide, a colorless, odorless gas that can build up especially quickly in enclosed spaces. At certain levels, just five minutes of exposure is enough to be fatal.</p> <p>OSHA's Fact Sheet about portable generators states the following hazards are associated with generators:</p> <ul style="list-style-type: none"> • Shocks and electrocution from improper use of power or accidentally energizing other electrical systems. • Carbon monoxide from a generator's exhaust. • Fires from improperly refueling a generator or inappropriately storing the fuel for a generator. • Noise and vibration hazards. <p>The American Red Cross provides information on How to Choose a Generator, Using a Generator at Home, and How to Prevent Carbon Monoxide (CO) Poisoning When Using a Generator. For public awareness, fire departments could provide this information on flyers or post on social media.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">How to Choose a Generator</p> <p>What size generator will I need?</p> <ol style="list-style-type: none"> 1. Add up the power requirements of the appliances and devices you will want to use. (Check the back and sides for a label with this info.) 2. Add up the wattage of all the light bulbs you will want to use. 3. Find the total amps you need by dividing watts by volts. 4. Choose a generator that produces more amps than you need – because some machines draw up to 3 times as much power when starting up, and others lose efficiency over time. The best option is a permanently-installed stationary generator. </div> <p>Target areas which periodic losses electrical service during flooded conditions. In addition, coordinate portable generator information with information regarding emergency generators (natural gas). In addition, work with Southern Maryland Electric Cooperative (SMECO) to share information with customers.</p>

Ideas for Integration:	Fire Department Outreach Public Announcement Advertisements
Responsible Agency:	Department of Emergency Services
Partners:	Southern Maryland Electric Cooperative (SMECO) Community Agencies
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time Material Cost Advertisement Cost
Benefits: (Losses Avoided)	Educating the public on generator safety helps prevent property damage and loss of life.
Timeline:	Ongoing
Goals	1, 2 & 8
Priority:	High

Table 5.25

<p>Hazard(s):</p>	<p>Hurricane, Tropical Storm & Storm Surge, Flood</p>
<p>Location(s):</p>	<p>High-Risk Flood Hazard Areas</p>
<p>Mitigation Action Item #3:</p>	<p>Inform property owners of ways they can mitigate damage to their property. Include information on hazard risk and high-risk areas.</p>
<p>Background/Issue:</p>	<p>The St. Mary’s County, Maryland Coastal Study – Flood Risk Report identified high risk flood hazard areas, denoted in red on the map below. These areas include Scotland and west of Beauvue along Breton Beach Road.</p>  <p>These areas could be targeted for outreach on how to protect their property from flooding. FEMA provides several resources on home protection including Protect Your Property From Flooding. In addition, FEMA provides various natural hazard brochures that could be distributed to residents in hazard risk and high-risk areas. These brochures are found on FEMA’s Protect Your Property from Natural Hazards Brochures website.</p>
<p>Ideas for Integration:</p>	<p>Add pertinent information to current messaging efforts. Potential to combine with mitigation action #4.</p>

Responsible Agency:	Department of Emergency Services
Partners:	County Agencies Real Estate & Insurance Association Property Management St. Mary's County Health Department
Potential Funding:	County's Annual Budget
Cost Estimate:	Staff Time
Benefits: (Losses Avoided)	Reduce risk of property damage. Improve recovery and resiliency.
Timeline:	Ongoing
Goals	1, 2, 4 & 8
Priority:	High

CHAPTER 6 – ACTION PLAN

1.0 Introduction

This Plan document is considered St. Mary's County's road map for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing mitigation measures to eliminate or reduce future damage from those hazards to protect the health, safety, and welfare of its residents. The proposed projects in this plan will be implemented when funding is available and pursued necessary to mitigate from the hazards outlined in Chapter 3: Hazard Risk & Vulnerability.

2.0 Monitoring, Evaluating, and Updating the Plan

Monitoring, evaluating, and updating the Plan are critical to maintaining its relevance. Effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. This section identifies who will be responsible for monitoring, evaluating, and updating the Plan, and what those responsibilities entail. This section also lays out the method and schedule of these and describes how the public will be involved on a continuing basis.

3.0 Hazard Mitigation Planning Committee

Following the adoption of the [2017 St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan](#), the Commissioners of St. Mary's County officially established the St. Mary's County Hazard Mitigation Planning Committee (HMPC) to institutionalize hazard mitigation planning and resiliency.

The Hazard Mitigation Planning Committee is a permanent entity and is responsible for maintaining the Plan and for monitoring, evaluating, and updating. The Director of Emergency Services has been chosen as the committee chairman that will ensure that Hazard Mitigation meetings occur quarterly, and the plan is continuously updated.

The Hazard Mitigation Planning Committee oversees the progress made on the implementation of the identified action items and projects, as needed, to reflect changing conditions. The Committee serves as the focal point for coordinating countywide mitigation efforts and will meet annually to address all its responsibilities. The committee serves in an advisory capacity to the St. Mary's County Emergency Services.

In addition, the Committee monitors the mitigation activities by reviewing reports from the agencies identified for implementation of the different mitigation actions. The Committee request that the responsible agency or organization identified in the Chapter 5- Mitigation Strategies submit an annual report, which provides adequate information to assess the status of mitigation actions. The Committee would then provide their feedback to the individual agencies.

Evaluation of the Plan should include not only checking on whether mitigation actions are implemented, but also assessing their degree of effectiveness. This would be done through a review of the qualitative and quantitative benefits (or avoided losses) of the mitigation activities. These would then be compared to the goals and objectives that the Plan was intended to achieve. The Committee would also evaluate mitigation actions to see if they need to be modified or discontinued considering new developments. The Committee would document progress annually.

The Plan is updated every 5 years by St. Mary's County Emergency Services, as required by the DMA 2000, or following a disaster. The updated Plan accounts for any new developments in the county or special circumstances (post-disaster). Issues that come up during monitoring and evaluation, which require changes in mitigation strategies and actions, should be incorporated in the Plan at this stage.

4.0 Public Involvement

The Committee meetings are open to the public and are advertised. It is recommended that the county's website continue to link to the plan update project website to serve as a means of communication by providing information about mitigation initiatives and to include having the plan available for citizens. In addition, following natural disasters which impact this jurisdiction, Emergency Services will capture public comment and concerns for future updates within the plan where applicable.

5.0 Adoption of the 2023 Hazard Mitigation Plan

A public meeting was held on March 21, 2023, to present the plan highlights to both the public and the Commissioners of St. Mary's County. Emergency Services was available to answer any additional questions prior to formal adoption. Citizens were encouraged to provide comments. The minutes from the meeting are provided in Appendix G.

Media announcements advertising the public meetings were provided via local newspapers and the County website. An overview of the planning process and the mitigation measures being considered were included. These advertisements for the Public Hearings can also be found within Appendix G.

6.0 Updating the Plan & Plan Integration

As the county and town governments work to increase their overall technical capacity and implement their comprehensive planning goals, they should prioritize projects that mitigate asset vulnerability to hazards. In addition, prioritization of projects that include the continuity of government and community services will serve to improve resiliency. Plan integration recommendations detailed in Chapter 4 should be considered during the Comprehensive Plan update, as well as the integration of hazard vulnerability mapping.

APPENDIX A

HAZARD IDENTIFICATION & RISK ASSESSMENT

HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

As part of the plan update process for St. Mary's County, Maryland, a Hazard Identification Risk Assessment (HIRA) has been completed for the County.

A **risk** is the chance, high or low, that any hazard will occur and the severity or impact from that hazard.

Ten (10) natural hazards have been identified and a hazard risk has been assigned to each. Only natural hazards are included in this assessment as they lend themselves better to data collection related to geographic extent than technological and man-made hazards. A separate risk assessment will be conducted for the technological and man-made hazards (i.e., transportation accident, hazardous material incident, dam failure, fire and explosion, mass power outage) identified in the previous plan version.

Natural Hazard Identification and Risk Assessment Ranking Results			
Hazards	2017 Hazard Ranking	2022 Hazard Ranking	2022 Composite Score
Coastal Events	High	High	24
Thunderstorm	Medium-High	Medium-High	20
Pandemic & Infectious Disease	n/a	High	22
Wind	Medium-High	Medium-High	20
Flood	Medium-High	Medium-High	15.5
Tornado	Medium-High	Medium-High	18
Extreme Heat	Medium	Medium-High	18
Drought	Medium	Medium	15
Winter Storm	High	Medium	13.5
Wildfire	Medium-Low	Medium-High	17.5

The methodology and data used to complete this HIRA has been included on the following pages, which will comprise Appendix A of the Plan Update.

METHODOLOGY

To assess the hazard risk for the ten (10) natural hazards identified in this Plan Update, a composite score method was undertaken. The composite score method was based on a blend of quantitative and qualitative factors extracted from the National Centers for Environmental Information (NCEI) database, and other available data sources. These included:

- Historical impacts, in terms of human lives and property;
- Geographic extent;
- Historical occurrence; and,
- Future probability.

The following seven (7) ranking parameters were used to develop the composite risk score, which provide the hazard ranking results for the ten (10) identified natural hazards. Each parameter was rated on a scale of one (1) to four (4).

Injuries and Death Ranking		Property and Crop Damage Ranking		Annualized Events Ranking		*Probability and Future Ranking	
Death	4	> 2M	4	2.51	4	Highly Likely	4
N/A	3	501K	3	1.01	3	Likely	3
Injury	2	50k	2	0.11	2	Occasional	2
None	1	0	1	0	1	Unlikely	1

Source: National Centers for Environmental Information
 * Based upon annualized events

Max Geographical Extent (Hazard Dependent) Ranking									
Ranking	Coastal Events	Drought	Flood	Thunderstorm	Tornado	Wildfire	Wind	Winter Weather	Pandemic & Infectious Disease
1	0.00	0	0.00	0-2 events	0-10 events	0	0.00	10"-19"	Countywide = Ranking of 4
2	25.00	0.18	10.00	3-5 events	11-17 events	0.4674	60.00	20"-29"	
3	50.00	0.3421	20.00	6-8 events	18-22 events	2.1545	74.00	30"-39"	
4	75.00	0.49	30.00	>9 events	>23 event	3.9041	95.00	>40"	
<i>Source:</i>	<i>COASTAL: Risk Area</i>	<i>DROUGHT: CDL MD</i>	<i>FLOOD: DFIRMS</i>	<i>THUNDERSTORM: NCDC</i>	<i>TORNADO: NCDC</i> <i>EARTHQUAKE: Maryland Geological Survey</i>	<i>WILDFIRE: MD DNR Forest Service</i>	<i>WIND: ASCE</i>	<i>WINTER STORM: National Weather Service</i>	<i>Maryland Health Department</i>
Calculated Using:	% of Coastal Land Area	% Crop Area	% Area in 100-yr Floodplain	Average number based on: Number of events, 2"> hail and lightning events with Injuries/Deaths	Sum of all tornados weighted by F-scale (F1*1.5, F2*2, F3*3, F4*4); Number of Earthquake Events	Average annual acres burned (%)	ASCE Design Wind Speeds	Average Snowfall	Nature of Hazard: Pandemic Global and Emerging Infectious Disease Large Geographic Area

Source: 2021 State of Maryland Hazard Mitigation Plan

The following weighted risk factors were used in the equation below to determine the composite risk score for each identified hazard.

Weighted Risk Factors		
Injuries	IN	1
Deaths	DT	1
Property Damage	PD	1
Crop Damage	CD	1
Geographic Extent (Hazard Dependent)	GE	1.5
Events (Annualized)	EV	1
Future Probability	FP	1

Equation: Composite Score = IN + DT + PD + CD + (GE*1.5) + EV + FP

Hazard Ranking Results

Using the data tables above to populate the parameters, the composite score was determined for each identified hazard. Hazard Rankings were assigned accordingly using the adjacent Composite Score chart.

Composite Score	
Score (>=)	Hazard Ranking
0 - 9	Low
10 - 15	Medium
16 - 20	Medium-High
21 - 28	High

The following table provides the hazard risk ranking update results. Coastal Events was ranked as a “High” risk hazard. Thunderstorm, Flood, Tornado, Wildfire, Wind, Extreme Heat, and Pandemic & Infectious Disease were ranked as “Medium-High” risk hazards, while Drought and Winter Weather were ranked as “Medium” risk hazards.

Hazard	Injuries & Deaths		Property & Crop Damage		Geographic Extent	Total Events Annualized	Future Probability	Composite Score	HAZARD RANKING
	IN	DT	PD	CD					
Flood (Flash Flood, Heavy Rain)	0 = 1	0 = 1	\$785K = 3	0 = 1	8% = 1	4.15 = 4	Highly Likely = 4	15.5	Medium-High
Drought	0 = 1	0 = 1	0 = 1	\$1.67M = 3	18% = 2	1.2 = 3	Likely = 3	15	Medium
Tornado	4 = 2	0 = 1	\$4.21M = 4	\$21K = 1	25 = 4	0.46 = 2	Occasional = 2	18	Medium-High
Thunderstorm (Thunderstorm Wind, Lightning, Hail)	0 = 1	0 = 1	\$2.131M = 3	\$22.6K = 1	215 = 4	3.58 = 4	Highly Likely = 4	20	Medium-High
Wind	0 = 1	0 = 1	\$4.937M = 4	\$75K = 2	115 = 4	1.16 = 3	Likely = 3	20	Medium-High
Wildfire	1 = 2	1 = 4	0 = 1	0 = 1	0.012% = 1	29.13 = 4	Highly Likely = 4	17.5	Medium-High
Extreme Heat	0 = 1	2 = 4	0 = 1	0 = 1	18% = 2	2.73 = 4	Highly Likely = 4	18	Medium-High
Winter Weather (Winter Storm, Blizzard, Ice Storm)	0 = 1	0 = 1	\$15K = 1	\$2.5K = 1	14.2" = 1	4.62 = 4	Highly Likely = 4	13.5	Medium
Coastal Events (Tropical Storm, Hurricane, Coastal Flooding)	154 = 2	1 = 4	\$91.175 M = 4	\$50k = 2	81% = 4	2.32 = 3	Likely = 3	24	High
Pandemic & Emerging Infection Diseases	*17,732 = 2	*198 = 4	0 = 1	0 = 1	**100% = 4	*** 1,078.6 avg. cases annually = 4	Highly Likely = 4	22	High

Data Tables

The following data tables were developed and used to populate five (5) of the eight (8) parameters: Injuries, Death, Property Damage, Crop Damage, and Annualized Events.

FLOOD

Total Flood Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Flood, Flash Flood, and Heavy Rain</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$785K	\$0	% in 100-yr SFHA Flood Zone = 8%	Total = 108 Annual Avg = 4.15
Source: National Centers for Environmental Information, as of February 2022 & 2021 State of Maryland Hazard Mitigation Plan *Note: Data collected for 1950-present, no data available for these event types prior to 1996.					

Flood Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2005-2021)
0	0	\$30K	\$0	% in 100-yr SFHA Flood Zone = 8%	Total = 41 Annual Avg = 2.41
Note: Data collected for 1950-present, no data available for this event type prior to 2005. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Flood (C). Any high flow, overflow, or inundation by water which causes damage. In general, this would mean the inundation of a normally dry area caused by an increased water level in an established watercourse, or ponding of water, that poses a threat to life or property. If the event is considered significant, it should be entered into Storm Data, even if it only affected a small area. Refer to the Flash Flood event (Section 14) for guidelines for differentiating between Flood and Flash Flood events.					

Flash Flood Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$755K	\$0	% in 100-yr SFHA Flood Zone = 8%	Total = 33 Annual Avg = 1.27
Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Flash Flood (C). A life-threatening, rapid rise of water into a normally dry area beginning within minutes to multiple hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Ongoing flooding can intensify to the shorter-term flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters. Flash flooding, such as dangerous small stream or urban flooding and dam or levee failures, requires immediate action to protect life and property. Conversely, flash flooding can transition into flooding as rapidly rising waters abate. The Storm Data preparer uses professional judgment in determining when the event is no longer characteristic of a Flash Flood and becomes a Flood.					

Heavy Rain Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2006)
0	0	\$0	\$0	% in 100-yr SFHA Flood Zone = 8%	Total = 34 Annual Avg = 3.4
Note: Data collected for 1950-present, no data available for this event type prior to 1997. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Heavy Rain (C). Unusually large amount of rain which does not cause a Flash Flood or Flood event, but causes damage, e.g., roof collapse or other human/economic impact. Heavy Rain will no longer be acceptable as a means to record low-impact or isolated flood events.					

DROUGHT

Total Drought Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Drought</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1998-2007)
0	0	\$0	\$1.67M	% Crop land cover from 2017 USDA Cropland Data = 18%	Total = 12 Annual Avg = 1.2
Source: National Centers for Environmental Information, as of February 2022, 2021 State of Maryland Hazard Mitigation Plan & USDA 2017 Cropland Data. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Drought (Z). Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. Conceptually, drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield. There are different kinds of drought: meteorological, agricultural, hydrological, and social-economic. Each kind of drought starts and ends at different times.					

WILDFIRE

Wildfire Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Events (2000-2020)
1	1	\$0	\$0	Avg Annual Acres Burned = 0.012%	Total = 418 Annual Avg = 29.13/yr.

Note: Data obtained from MD-DNR Forest Service for 2000-2020.

TORNADO

Total Tornado Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Tornado, Funnel Cloud, and Waterspout. No Funnel Cloud or Waterspout events are recorded in the NCEI Database for this county.</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1967-2020)
4	0	\$4.12M	\$21K	SVRGIS (intensity & frequency) = 25 events	Total = 25 Annual Avg = 0.46

Source: National Centers for Environmental Information, as of February 2022 & 2021 State of Maryland Hazard Mitigation
Note: Data collected for 1950-present, no data available for this event type prior to 1967.

Tornado Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1967-2020)
4	0	\$4.12M	\$21K	SVRGIS (intensity & frequency) = 25 events	Total = 25 Annual Avg = 0.46

Note: Data collected for 1950-present, no data available for this event type prior to 1967.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Tornado (C). A violently rotating column of air, extending to or from a cumuliform cloud or underneath a cumuliform cloud, to the ground, and often (but not always) visible as a condensation funnel. For a vortex to be classified as a tornado, it must be in contact with the ground and extend to/from the cloud base, and there should be some semblance of ground-based visual effects such as dust/dirt rotational markings/swirls, or structural or vegetative damage or disturbance.

WIND

Total Wind Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: High Wind and Strong Wind</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2020)
0	0	\$4.9376M	\$75K	ASCE Wind Design Speed = 115	Total = 29 Annual Avg = 1.16

Source: National Centers for Environmental Information, as of February 2022 & 2019 Building Code Administration
Note: Data collected for 1950-present, no data available for these event types prior to 1996.

High Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2020)
0	0	\$4.855M	\$0	ASCE Wind Design Speed = 115	Total = 15 Annual Avg = 0.6

Note: Data collected for 1950-present, no data available for this event type prior to 1996.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: High Wind (Z). Sustained non-convective winds of 35 knots (40 mph) or greater lasting for 1 hour or longer, or gusts of 50 knots (58 mph) or greater for any duration (or otherwise locally/regionally defined). In some mountainous areas, the above numerical values are 43 knots (50 mph) and 65 knots (75 mph), respectively. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.

Strong Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2003)
0	0	\$82.6K	\$75K	ASCE Wind Design Speed = 115	Total = 14 Annual Avg = 2.0

Note: Data collected for 1950-present, no data available for this event type prior to 1997.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Strong Wind (Z). Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph), resulting in a fatality, injury, or damage. Consistent with regional guidelines, mountain states may have higher criteria. A peak wind gust (estimated or measured) or maximum sustained wind will be entered.

WINTER WEATHER**Total Winter Weather Hazard Risk Assessment Data Table**

Hazards included within this table from NCEI Data: Winter Storm, Winter Weather, Blizzard, Ice Storm, Frost/Freeze, Heavy Snow, Extreme Cold, and Cold/Wind Chill.

Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$15K	\$2.5K	Average snowfall total: 14.2" (NOAA/NWS)	Total = 120 Annual Avg = 4.62

Source: National Centers for Environmental Information, as of February 2022, 2021 State of Maryland Hazard Mitigation Plan, & NOAA/NWS

Winter Storm Hazard Data Table

Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1999-2021)
0	0	\$5K	\$	Average snowfall total: 14.2" (NOAA/NWS)	Total = 28 Annual Avg = 1.22

*Note: Data collected for 1950-present, no data available for this event type prior to 1999.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Winter Storm (Z). A winter weather event that has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12 and/or 24-hour warning criteria for at least one of the precipitation elements. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. Normally, a Winter Storm would pose a threat to life or property.*

Winter Weather Hazard Data Table

Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2021)
0	0	\$0	\$0	Average snowfall total: 14.2" (NOAA/NWS)	Total = 50 Annual Avg = 2.0

*Note: Data collected for 1950-present, no data available for this event type prior to 1997.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Winter Weather (Z). A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation, but does not meet locally/regionally defined warning criteria. A Winter Weather event could result from one or more winter precipitation types (snow, or blowing/drifted snow, or freezing rain/drizzle). The Winter Weather event can also be used to document out-of-season and other unusual or rare occurrences of snow, or blowing/drifted snow, or freezing rain/drizzle. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.*

Ice Storm Hazard Data Table

Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2000-2021)
0	0	\$0	\$0	Average snowfall total: 14.2" (NOAA/NWS)	Total = 3 Annual Avg = 0.14

*Note: Data collected for 1950-present, no data available for this event type prior to 2000.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Ice Storm (Z). Ice accretion meeting or exceeding locally/regionally defined warning criteria (typical value is 1/4 or 1/2 inch or more). If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. The Storm Data preparer should include the times that ice accretion began, met criteria, and accretion ended. If the freezing rain was mixed with other precipitation types, then a Winter Storm event should be used.*

Blizzard Hazard Data Table

Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2016)
0	0	\$10K	\$0	Average snowfall total: 14.2" (NOAA/NWS)	Total = 4 Annual Avg = 0.19

*Note: Data collected for 1950-present, no data available for this event type prior to 1996.
Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone.
Based on NCEI definitions/criteria: Blizzard (Z). A winter storm which produces the following conditions for 3 consecutive hours or longer: (1) sustained winds or frequent gusts 30 knots (35 mph) or greater, and (2) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.*

Heavy Snow Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2006)
0	0	\$0	\$0	Average snowfall total: 14.2” (NOAA/NWS)	Total = 8 Annual Avg = 0.73
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone. Based on NCEI definitions/criteria: Heavy Snow (Z). Snow accumulation meeting or exceeding locally/regionally defined 12 and/or 24 hour warning criteria. This could mean values such as 4, 6, or 8 inches or more in 12 hours or less; or 6, 8, or 10 inches in 24 hours or less. If the event that occurred is considered significant, even if it affected a small area, it should be entered into Storm Data. I</i></p>					

Extreme Cold Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2000-2001)
0	0	\$0	\$0	Average snowfall total: 14.2” (NOAA/NWS)	Total = 5 Annual Avg = 2.5
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2000. Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone. Based on NCEI definitions/criteria: Extreme Cold (Z). A period of extremely low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined warning criteria (typical value around -35° F or colder). If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data .</i></p>					

Cold/Wind Chill Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1998-2019)
0	0	\$0	\$2.5K	Average snowfall total: 14.2” (NOAA/NWS)	Total = 4 Annual Avg = 0.18
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1998. Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone. Based on NCEI definitions/criteria: Cold/Wind Chill (Z). Period of low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined advisory (typical value is -18° F or colder) conditions. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data .</i></p>					

Frost/Freeze Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2005-2019)
0	0	\$0	\$0	Average snowfall total: 14.2” (NOAA/NWS)	Total = 18 Annual Avg = 1.2
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2005. Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone. Based on NCEI definitions/criteria: Frost/Freeze (Z). A surface air temperature of 32 degrees Fahrenheit (°F) or lower, or the formation of ice crystals on the ground or other surfaces, for a period of time long enough to cause human or economic impact, during the locally defined growing season. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. .</i></p>					

COASTAL EVENTS

Total Coastal Events Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Tropical Storm, Hurricanes, Storm Surge, and Coastal Flooding. No Hurricanes or Tropical Depressions are recorded in the NCEI Database for this county.</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2020)
154	1	\$91.175M	\$50K	% of County in Coastal Land Area = 81%	Total = 58 Annual Avg = 2.32
<p><i>Source: National Centers for Environmental Information, as of February 2022 & 2021 State of Maryland Hazard Mitigation Plan Note: Data collected for 1950-present, no data available for these event types prior to 1996.</i></p>					

Tropical Storm Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1999-2020)
154	1	\$90.775M	\$50K	% of County in Coastal Land Area = 81%	Total = 5 Annual Avg = 0.23
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1999. Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone. Based on NCEI definitions/criteria: Tropical Storm (Z). A tropical cyclone in which the 1-minute sustained surface wind ranges from 34 to 63 knots (39 to 73 mph). A Tropical Storm should be included as an entry when these conditions are experienced in the WFO’s (Weather Forecast Office) CWA (County Warning Area).</i></p>					

Coastal Flooding Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2020)
0	0	\$300K	\$0	% of County in Coastal Land Area = 81%	Total = 50 Annual Avg = 2.0
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Coastal Flood (Z). Flooding of coastal areas due to the vertical rise above normal water level caused by strong, persistent onshore wind, high astronomical tide, and/or low atmospheric pressure, resulting in damage, erosion, flooding, fatalities, or injuries. Coastal areas are defined as those portions of coastal land zones (coastal county/parish) adjacent to the waters, bays, and estuaries of the oceans. Farther inland, the Storm Data preparer determines the boundary between coastal and inland areas, where flood events will be encoded as Flash Flood or Flood rather than Coastal Flood. Terrain (elevation) features will determine how far inland the coastal flooding extends.</p>					

Storm Surge Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2006)
0	0	\$100K	\$0	% of County in Coastal Land Area = 81%	Total = 3 Annual Avg = 0.27
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Storm Surge (Z). For coastal areas, the vertical rise above normal water level associated with a storm of tropical origin (e.g., hurricane, typhoon, tropical storm, or subtropical storm), caused by any combination of strong, persistent onshore wind, high astronomical tide and low atmospheric pressure, resulting in damage, erosion, flooding, fatalities, or injuries. Note: Coastal flooding not associated with a typhoon, hurricane, tropical storm or subtropical storm should be reported under the Coastal Flood event.</p>					

THUNDERSTORM

Total Thunderstorm Hazard Risk Assessment Data Table					
Hazards included within this table from NCEI Data: Thunderstorm Wind, Lightning, and Hail.					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1962-2021)
0	0	\$2.131M	\$22.6K	ASCE Wind Design Speed = 115 2" > hail and lightning events with Injuries/Deaths = 1	Total = 215 Annual Avg = 3.58
<p>Source: National Centers for Environmental Information, as of February 2022, & 2019 Building Code Administration & 2021 State of Maryland Hazard Mitigation Plan. Note: Data collected for 1950-present, no data available for this event type prior to 1962.</p>					

Thunderstorm Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1963-2021)
9	0	\$1.457M	\$22.6K	ASCE Wind Design Speed = 115	Total = 158 Annual Avg = 2.68
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1963. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Thunderstorm Wind (C). Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage. Maximum sustained winds or wind gusts (measured or estimated) equal to or greater than 50 knots (58 mph) will always be entered. Events with maximum sustained winds or wind gusts less than 50 knots (58 mph) should be entered as a Storm Data event only if the result in fatalities, injuries, or serious property damage. Storm Data software permits only one event name for encoding severe and non-severe thunderstorm winds. The Storm Data software program requires the preparer to indicate whether the sustained wind or wind gust value was measured or estimated.</p>					

Lightning Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2008)
0	0	\$662K	\$0	Countywide	Total = 10 Annual Avg = 0.77
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Lightning (C). A sudden electrical discharge from a thunderstorm, resulting in a fatality, injury, and/or damage.</p>					

Hail Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1962-2021)
0	0	\$12K	\$0	2"> hail and lightning events with Injuries/Deaths = 1	Total = 47 Annual Avg = 0.78
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1962. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Hail (C). Frozen precipitation in the form of balls or irregular lumps of ice. Hail 3/4" or larger in diameter will be entered. Hail accumulations of smaller size, which cause property and/or crop damage or casualties, should be entered. Maximum hail size will be encoded for all hail reports entered.</p>					

EXTREME HEAT

Total Extreme Heat Hazard Risk Assessment Data Table					
Hazards included within this table from NCEI Data: Excessive Heat and Heat					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	2	\$0	\$0	% Crop from 2017 Agriculture Census = 18%	Total = 71 Annual Avg = 2.73
<p>Source: National Centers for Environmental Information, as of February 2022 & 2021 State of Maryland Hazard Mitigation Plan. Note: Data collected for 1950-present, no data available for this event type prior to 1996.</p>					

Excessive Heat Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2000-2020)
0	0	\$0	\$0	% Crop from 2017 Agriculture Census = 18%	Total = 6 Annual Avg = 0.29
<p>Note: Data collected for 1950-present, no data available for this event type prior to 2000. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Excessive Heat (Z). Excessive Heat results from a combination of high temperatures (well above normal) and high humidity. An Excessive Heat event occurs and is reported in Storm Data whenever heat index values meet or exceed locally/regionally established excessive heat warning thresholds. Fatalities (directly related) or major impacts to human health that occur during excessive heat warning conditions are reported using this event category. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.</p>					

Heat Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	2	\$0	\$0	% Crop from 2017 Agriculture Census = 18%	Total = 65 Annual Avg = 2.5
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1996. Legend: There are three designators: C - County/Parish; Z - Zone; and M - Marine Zone. Based on NCEI definitions/criteria: Heat (Z). A period of heat resulting from the combination of high temperatures (above normal) and relative humidity. A Heat event occurs and is reported in Storm Data whenever heat index values meet or exceed locally/regionally established advisory thresholds. Fatalities or major impacts on human health occurring when ambient weather conditions meet heat advisory criteria are reported using the Heat event. If the ambient weather conditions are below heat advisory criteria, a Heat event entry is permissible only if a directly related fatality occurred due to unseasonably warm weather, and not man-made environments.</p>					

PANDEMIC AND EMERGING INFECTIOUS DISEASES

Cases of Selected Notifiable Conditions Reported St. Mary's County, Maryland					
Condition	2015	2016	2017	2018	2019
Amebiasis	0	0	1	0	0
Anaplasmosis	0	1	0	0	0
Animal Bites	253	479	381	365	318
Babesiosis	0	1	0	0	0
Campylobacteriosis	6	11	7	9	13
Chlamydia	351	308	404	504	511
Creutzfeldt-Jakob Disease	1	0	0	0	0
Cryptosporidiosis	1	0	0	0	1
Cyclosporiasis	0	0	0	0	3
Dengue Fever	0	2	0	0	0
Ehrlichiosis	1	2	8	5	11
Giardiasis	2	0	1	1	3

Cases of Selected Notifiable Conditions Reported St. Mary's County, Maryland					
Condition	2015	2016	2017	2018	2019
Gonorrhea	38	127	95	165	314
H. influenzae – invasive disease	4	4	3	2	1
Hepatitis A (acute symptomatic)	4	2	0	0	1
Hepatitis B (acute symptomatic)	0	1	1	0	0
Hepatitis C (acute symptomatic)	4	1	0	2	1
Influenza Novel A Virus Infection	0	0	1	0	0
Kawasaki Syndrome	0	0	0	0	1
Legionellosis	1	1	1	1	0
Lyme Disease	53	53	67	30	37
Malaria	0	0	1	1	1
Meningitis, aseptic	9	2	3	3	3
Meningitis, fungal	0	0	0	2	2
Mycobacteriosis, Other than TB & Leprosy	11	13	20	12	3
Pertussis	4	2	0	9	6
Pneumonia – Hospitalized Healthcare Worker	2	1	1	1	0
Rabies - Animal	5	14	0	5	3
Salmonellosis – other than typhoid fever	21	20	15	16	10
Shiga toxin producing E. coli (STEC)	0	1	0	5	1
Shigellosis	0	0	1	2	2
Spotted Fever Rickettsiosis	2	0	4	15	13
Strep Group A – Invasive Disease	6	3	5	3	5
Strep Group B – Invasive Disease	15	11	11	7	7
Strep pneumoniae - Invasive Disease	9	8	9	6	8
Syphilis – primary and secondary	3	1	3	5	3
Tuberculosis	2	0	2	0	0
Vibriosis (non-cholera)	1	2	1	2	2
Yersiniosis	0	0	0	3	2
Zika virus disease, non-congenital	**	1	0	0	0
Zika virus infection, congenital	**	0	0	0	0
Zika virus infection, non-congenital	**	0	0	0	0
TOTALS:	809	1,072	1,045	1,181	1,286
Average Numbers of New Cases 2015-2019	1,078.6				
* Data sources: Maryland's NEDSS and PRISM databases. Data is current as of 1/15/2021. These are active databases and counts may vary slightly over time, as well as differ slightly from counts published by the Centers for Disease Control and Prevention (CDC). HIV/AIDS data are not included here but available at http://phpa.dhmh.maryland.gov/OIDEOR/CHSE/SitePages/statistics.aspx .					
** Zika virus infections not reported for the years 2014 and 2015 in the database.					

APPENDIX B

DATA METHODOLOGY

METHODOLOGY

In order to assess the current risk and vulnerability of the community, an inventory of critical and public facilities in the County was performed. Critical and public facilities are those facilities that warrant special attention in preparing for a disaster and/or are of vital importance in maintaining the functioning of the community.

Data was obtained from the St. Mary's County Department of Information Technology's GIS and Addressing Supervisor to aid in the development of the 2022 St. Mary's County Critical and Public Facilities database. The Department of Information Technology provided a critical infrastructure database that contained the following attribute columns:

- Facility Type;
- Facility Name;
- Address;
- Owner;
- CCNPP Zone;
- On Evacuation Route;
- Storage Type;
- Capacity;
- Storage; and,
- Generator.

The next step in the process was to utilize the 2021 parcel data, provided by the Department of Information Technology, and Maryland Property View data to incorporate additional attributes to each critical and public facilities. The additional attributes included the following:

- Account Identifier;
- Square Footage;
- Year Built;
- Improvement Value;
- Building Stories; and,
- Structure Material;

Once attributes from the parcel data was incorporated for each data point, a vulnerability analysis was conducted. Additional attribute columns, below, were included in the database in order to capture the vulnerability status for each structure, where applicable.

- Designated between Critical and Public Facility Type;
- FEMA Flood Zone;
- Flood Depth;
- Storm Surge Inundation Areas (Hurricane Categories 1-4); and
- Facilities built in 1965 or prior.

Upon completion of the critical and public facilities database, facilities were depicted on hazard inundation mapping and utilized in tables for the vulnerability analysis sections of the Plan.

A **critical facility** is a facility provides services and functions essential to a community, especially during and after a disaster. Examples of critical facilities requiring special consideration include:

- EOC
- Fire Stations
- Police Stations
- Medical Facilities
- Schools
- Public and Private Utilities Facilities
- Water & Wastewater Treatment Plants

A **public facility** can be any facility, including, but not limited to, buildings, property, recreation areas, and roads, which are owned, leased, or otherwise operated, or funded by a governmental body or public entity.

The complete inventory of critical and public facilities for the 2022 St. Mary’s County Hazard Mitigation Plan has been compiled and presented in Appendix C. The information below provides a synopsis of critical and public facilities analyzed during the planning process.

Table 1

2022 Critical & Public Facilities			
Critical Facilities		Public Facilities	
Facility Type	Number of Facilities	Facility Type	Number of Facilities
EOC	2	Fuel Evacuation Routes Fueling Stations	33
Fire	15	Government	6
Medical	14	Utility Water Pump Stations Water Stations Well Sites Water Towers/Storage Wastewater Stations WWTP Communication Towers Power Substation	289
Police	4		
School	77		
Total	112	Total	328

APPENDIX C

CRITICAL & PUBLIC FACILITIES DATABASE

Critical & Public Facilities

Account ID	Facility Type	Feature Name	Street	City	Year Built
Critical Facilities					
1903015084	EOC	911 Communications @ St. Mary's Governmental Center	23090 Leonard Hall Dr	Leontardtown	2010
1903015068	EOC	911 Communications @ Leontardtown	41655 Courthouse Dr	Leontardtown	1940
1906041256	Fire	Hollywood Volunteer Rescue Squad Company 79	43256 RESCUE LN	Hollywood	1989
1903015149	Fire	Leontardtown Volunteer Rescue Squad Company 19	22855 Lawrence Ave	Leontardtown	1984
1905040523	Fire	Mechanicsville Volunteer Rescue Squad Company 29	28120 Old Flora Corner Rd	Mechanicsville	1988
1901006398	Fire	Ridge Volunteer Rescue Squad Company 49	16515 Three Notch Rd	Ridge	2005
1907007914	Fire	Seventh District Volunteer Rescue Squad Company 59	21530 Colton Point Rd	Avenue	1976
1908050791	Fire	Bay District Volunteer Fire Department Company 3	46900 South Shangri-La Dr	Lexington Park	2011
1906052908	Fire	Hollywood Volunteer Fire Department Company 7	24801 Three Notch Rd	Hollywood	1991
1905006236	Fire	Mechanicsville Volunteer Fire Department Station 2	28165 Hills Club Rd	Mechanicsville	1976
1901006428	Fire	Ridge Volunteer Fire Department Company 4	13820 Point Lookout Rd	Ridge	1978
1907007558	Fire	Seventh District Volunteer Fire Department Company 5	21660 Colton Point Rd	Avenue	1952
1902004968	Fire	Second District Volunteer Fire/EMS Department Company 6	45245 Drayden Rd	Valley Lee	2021
1908051925	Fire	Lexington Park Volunteer Rescue Squad Company 39	21633 Great Mills Rd	Lexington Park	1960
1903006654	Fire	Leontardtown Volunteer Fire Department Company 1	22733 Lawrence Ave	Leontardtown	1964
1908134731	Fire	Lexington Park Volunteer Rescue Squad Station 38	45945 Buck Hewitt Rd	Great Mills	2000
1908109842	Fire	Bay District Volunteer Fire Department Company 9	45774 Fire Department Ln	Great Mills	1993
1903178824	Government	Joseph D. Carter District Court Multi-Service Center	23110 Leonard Hall Dr	Leontardtown	1990
1903015084	Government	Potomac Building @ St. Mary's Governmental Center	23115 Leonard Hall Dr	Leontardtown	2010
1903015106	Government	SMC Health Department	21580 Peabody St	Leontardtown	1962
C141	Government	City Of Leontardtown Governmental Offices	41660 Courthouse Dr	Leontardtown	2006
1903035409	Medical	Medstar St. Mary's Hospital	25500 Point Lookout Rd	Leontardtown	2013
1908175977	Medical	MedExpress Urgent Care	45325 Abell House Ln	California	2016
1906014151	Medical	Phillip J. Bean Medical Center	24035 Three Notch Rd	Hollywood	1997
C142	Medical	Medstar Health Urgent Care	37767 Market Dr	Charlotte Hall	2003
1903062341	Medical	Cedar Lane Apartments	22680 Cedar Lane Ct	Leontardtown	1974
1908061432	Medical	Chesapeake Shores	21412 Great Mills Rd	Lexington Park	1982
1905005027	Medical	Charlotte Hall Veterans Home	29449 Charlotte Hall Rd	Charlotte Hall	1985
1908061432	Medical	Chesapeake Shores	21412 Great Mills Rd	Lexington Park	1982

Account ID	Facility Type	Feature Name	Street	City	Year Built
1903015092	Medical	Saint Mary's Nursing & Rehabilitation Center	21585 Peabody St	Leonardtown	1987
1907039603	Medical	The Village at Taylor Farm	21748 Oscar Hayden Rd	Bushwood	2004
1908178168	Medical	Discovery Commons at Wildewood Assisted Living	23185 Milestone Way	California	2014
1906017738	Medical	Vivian Ripple Center	24400 Mervell Dean Rd	Hollywood	1951
1902003724	Medical	Hospice Of Saint Mary's	44724 Hospice Ln	Callaway	2000
1906017738	Medical	Saint Mary's Adult Medical Daycare	24400 Mervell Dean Rd	Hollywood	1951
1903015084	Police	Patuxent Building: Sheriff's Office at St. Mary's Governmental Center	23150 Leonard Hall Dr	Leonardtown	2010
1903015084	Police	County Detention Facility	41880 Baldrige St	Leonardtown	2010
1903030563	Police	Maryland State Police	23200 Leonard Hall Dr	Leonardtown	1981
1905056985	Police	Sheriff's Office Northern Outpost	37575 Charlotte Hall School Rd	Charlotte Hall	1948
1908011443	School	Great Mills High School	21130 Great Mills Rd	Lexington Park	1996
1903015165	School	Leonardtown High School	23995 Point Lookout Rd	Leonardtown	1980
1903029263	School	Chopticon High School	25390 Colton Point Rd	Morganza	1970
1907007426	School	Dynard Elementary School	23510 Bushwood Rd	Chaptico	1964
1908011427	School	Chesapeake Charter Public School	20833 Great Mills Rd	Lexington Park	1935
1906054366	School	Hollywood Elementary School	44345 Joy Chapel Rd	Hollywood	1994
1905036712	School	Lettie Marshall Dent Elementary School	37840 New Market Turner Rd	Mechanicsville	1982
1908011435	School	Lexington Park Elementary School	46763 South Shangri-La Dr	Lexington Park	1950
1905006031	School	Mechanicsville Elementary School	28585 Three Notch Rd	Mechanicsville	1950
1906017746	School	Oakville Elementary School	26410 Three Notch Rd	Mechanicsville	1967
1908011478	School	Park Hall Elementary School	20343 Hermanville Rd	Park Hall	1964
1902004771	School	Piney Point Elementary School	44550 Tall Timbers Rd	Tall Timbers	1970
1908011486	School	Town Creek Elementary School	45805 Dent Dr	Lexington Park	1958
1905006023	School	White Marsh Elementary School	29090 Thompson Corner Rd	Mechanicsville	1957
1903015165	School	Leonardtown Middle School	24015 Point Lookout Rd	Leonardtown	1980
1901006258	School	Spring Ridge Middle School	19856 Three Notch Rd	Lexington Park	1974
1908011389	School	Esperanza Middle School	22790 Maple Rd	Lexington Park	1966
1904004310	School	Margaret Brent Middle School	29675 Point Lookout Rd	Helen	1956
1903015165	School	Dr. James A. Forrest Career & Technology Center	24005 Point Lookout Rd	Leonardtown	1980
1903015157	School	Banneker School Age Center	27180 Point Lookout Rd	Loveville	1974
1906017746	School	Oakville School Age Center	26410 Three Notch Rd	Mechanicsville	1967

Account ID	Facility Type	Feature Name	Street	City	Year Built
1905036712	School	Lettie Dent School Age Center	37840 New Market Turner Rd	Mechanicsville	1982
1908011702	School	Lexington Park Baptist Preschool	46855 South Shangri-La Dr	Lexington Park	1960
1903015165	School	Fairlead Academy 2	24009 Point Lookout Rd	Leonardtown	1980
1903015157	School	Benjamin Banneker Elementary School	27180 Point Lookout Rd	Loveville	1974
1908011451	School	Greenview Knolls Elementary School	45711 Military Ln	Great Mills	1965
1908011370	School	Green Holly Elementary School	46060 Millstone Landing Rd	Lexington Park	1973
1903015084	School	Leonard Hall Naval Academy	41740 Baldridge St	Leonardtown	2010
1901006118	School	St. Mary's College of Maryland	47645 College Dr	Lexington Park	1930
1901006312	School	Saint Michael's School Pre-K	16560 Three Notch Rd	Ridge	1975
1902004887	School	Little Flower School Pre-K & B/A	20410 Point Lookout Rd	Great Mills	1927
1908060525	School	Bay Montessori School & DCC	20525 Willows Rd	Lexington Park	1985
1908030200	School	Chesapeake Public Charter School Age Center	20945 Great Mills Rd	Lexington Park	1977
1902026414	School	Kiddie Campus of Callaway, LLC	20948 Point Lookout Rd	Callaway	1988
1903015173	School	Leonardtown School Age Center	22885 Duke St	Leonardtown	1975
1903178163	School	Duke Elementary School Age Center	23595 Hayden Farm Ln	Leonardtown	2016
1906017738	School	Hollywood Recreation School Age Center	24400 Mervell Dean Rd	Hollywood	1951
1904004329	School	Mother Catherine Academy	38833 Chaptico Rd	Mechanicsville	1972
1903037614	School	Evergreen Elementary School Age Center	43765 Evergreen Way	California	2009
1906017800	School	St. John's School	43900 Saint John's Rd	Hollywood	1890
1908011788	School	St Andrews Preschool	44078 Saint Andrews Church Rd	California	1930
1908054118	School	Little People CCC @Jarboe Educational Ctr.	21161 Lexwood Dr	Lexington Park	2002
1908017697	School	Creative Beginnings Preschool	22840 Three Notch Rd	California	1952
1903063836	School	St Mary's Sunshine Center Preschool/Daycare	22995 Moakley St	Leonardtown	2000
1908019177	School	Honey MacCallum Christian Preschool	23421 Kingston Creek Rd	California	1996
1908112010	School	Starmaker School For Early Education at Wildewood	23443 Cottonwood Pkwy	California	1993
1906041094	School	Hollywood United Methodist Preschool	24422 Mervell Dean Rd	Hollywood	1947
1906008240	School	Prep & Play Preschool & DCC	24442 Mervell Dean Rd	Hollywood	1931
1906063535	School	Minds N Motion Early Learning Center LLC	25468 Evas Way	Hollywood	1950
1903038084	School	Little Seedlings Christian Preschool	25550 Point Lookout Rd	Leonardtown	1991
1905044324	School	Mt. Zion United Methodist Church Preschool	27108 Mount Zion Church Rd	Mechanicsville	1914
1905019222	School	Minds N Motion Early Learning Center II	28220 Mechanicsville Rd	Mechanicsville	1922

Account ID	Facility Type	Feature Name	Street	City	Year Built
1905019222	School	Minds N Motion Early Learning Center II	28220 Mechanicsville Rd	Mechanicsville	1922
1904012763	School	Building Blocks of Faith Preschool	29870 Point Lookout Rd	Mechanicsville	1946
1908016003	School	Riversong Christian Learning Center Preschool/Daycare	45020 Patuxent Beach Rd	California	1987
1908011796	School	Little Sonbeams Christian Preschool	46707 South Shangri-La Dr	Lexington Park	1953
C182	School	Superstar Learning Center	29962 Killpeck Creek Ct	Charlotte Hall	1997
1903015378	School	Father Andrew White, S.J. School	22850 Washington St	Leonardtown	1932
1902000695	School	The Kings Christian Academy Four-Year-Old Program	20738 Point Lookout Rd	Callaway	2005
1902004887	School	Little Flower School	20408 Point Lookout Rd	Great Mills	1927
1908060525	School	Bay Montessori School and Day Care Center	20525 Willows Rd	Lexington Park	1985
1902000695	School	Kings Christian Academy	20738 Soaring Eagle Way	Callaway	2005
1908030200	School	Chesapeake Public Charter School	20945 Great Mills Rd	Lexington Park	1977
1903015491	School	St Mary's Ryken High School	22600 Camp Calvert Rd	Leonardtown	1958
1903015173	School	Leonardtown Elementary School	22885 Duke St	Leonardtown	1975
1903178163	School	Captain Walter Francis Duke Elementary School	23595 Hayden Farm Ln	Leonardtown	2016
1904004329	School	Mother Catherine School	38833 Chaptico Rd	Mechanicsville	1972
1903037614	School	Evergreen Elementary School	43765 Evergreen Way	California	2009
1906017800	School	St. John's Catholic School	43900 Saint John's Rd	Hollywood	1890
1908139490	School	George Washington Carver Elementary School	46155 Carver School Blvd	Lexington Park	2006
1901006231	School	Ridge Elementary School	49430 Airedele Rd	Ridge	1956
1908017697	School	Creative Beginnings	22840 Three Notch Rd	California	1952
1908019177	School	Honey Mac Callum Preschool	23421 Kingston Creek Rd	California	1996
1908112010	School	Starmaker School For Early Education	23443 Cottonwood Pkwy	California	1993
1904012763	School	Building Blocks of Faith	29870 Point Lookout Rd	Mechanicsville	1946
1906046983	School	Friendship Mennonite School	41403 Friendship Ct	Mechanicsville	1987
1903015378	School	Father Andrew White School	22850 Washington St	Leonardtown	1932

Account ID	Facility Type	Feature Name	Street	City	Year Built
Public Facilities					
1903025586	Fuel	Burch Oil, Inc	26796 Point Lookout Rd	Leonardtown	1990
1906035124	Fuel	Ridgell Oil	26460 Three Notch Rd	Lexington Park	1957
1908000190	Fuel	Wawa	22530 Three Notch Rd	Lexington Park	2002
1908015953	Fuel	Wawa	23141 Three Notch Rd	California	2004
1906004369	Fuel	Burchmart /Shell	24686 Three Notch Rd	Hollywood	1987
1906035124	Fuel	Ridgell Service Center	26460 Three Notch Rd	Mechanicsville	1957
1908029199	Fuel	Sheetz	20760 Old Great Mills Rd	Great Mills	0
1908044686	Fuel	Sheetz	22711 Three Notch Rd	California	2000
1907013906	Fuel	St. Mary's Gas	23950 Colton Point Rd	Clements	1955
1905016711	Fuel	Wawa	27605 Three Notch Rd	Mechanicsville	2001
1905003024	Fuel	Burchmart/Shell	28270 Three Notch Rd	Mechanicsville	1988
1901026631	Fuel	Rod N Reel Gas	18161 Three Notch Rd	Lexington Park	2012
1902028115	Fuel	USA Fuel	20815 Callaway Village Way	Callaway	2001
19080006210	Fuel	Shell	22141 Three Notch Rd	Lexington Park	1997
1903002527	Fuel	Citgo	25965 Point Lookout Rd	Leonardtown	1958
1903017842	Fuel	Exxon	26065 Point Lookout Rd	Leonardtown	2000
1904015134	Fuel	Race-N-In Gas	26755 Stone Corner Ln	Mechanicsville	1970
1905019869	Fuel	Sumoco	28035 Three Notch Rd	Mechanicsville	1946
1903025403	Fuel	Citgo	28085 Point Lookout Rd	Leonardtown	1967
1905042925	Fuel	Shell	30295 Three Notch Rd	Charlotte Hall	0
1908138117	Fuel	BJ's Gas Station	44950 Worth Ave	California	2004
1901031554	Fuel	Ridge Market Gas	13270 Point Lookout Rd	Ridge	1988
1908023085	Fuel	Sumoco	18400 Point Lookout Rd	Park Hall	1973
1901024957	Fuel	Oceanic	19343 Three Notch Rd	Lexington Park	1959
1902023466	Fuel	Shell	20943 Point Lookout Rd	Callaway	1984
1908134960	Fuel	Sumoco	21141 Three Notch Rd	Lexington Park	1999
1903034585	Fuel	Citgo	23952 Point Lookout Rd	Leonardtown	0
1903003906	Fuel	Shell	25355 Point Lookout Rd	Leonardtown	1988
1905024528	Fuel	Shell	27350 Three Notch Rd	Mechanicsville	1967
1905016347	Fuel	Citgo	29290 Three Notch Rd	Charlotte Hall	1990

Account ID	Facility Type	Feature Name	Street	City	Year Built
1905003911	Fuel	South Bound Stop Gas	29233 Three Notch Rd	Mechanicsville	1953
1905002311	Fuel	Wawa	30320 Three Notch Rd	Charlotte Hall	2002
1905007151	Fuel	Golden Beach Exxon	30100 Three Notch Rd	Charlotte Hall	1997
1906067824	Government	St. Mary's County Regional Airport	44174 Airport Rd	Hollywood	2010
1903043827	Government	St. Mary's County Board of Education	23160 Moakley Street	Leonardtown	1989
1901001310	Utility	ECC Radio Tower on Three Notch Rd	18244 Three Notch Rd	Dameron	1956
1903015084	Utility	ECC Radio Tower on Baldridge St	41875 Baldridge St	Leonardtown	2010
1905058821	Utility	ECC Radio Tower on Flora Corner Rd	28306 Flora Corner Rd	Mechanicsville	0
1903018296	Utility	SMECO Offices	23365 Hollywood Rd	Leonardtown	1984
1903015289	Utility	Greenbrier Water Tower At 23330 Greenbrier Rd	23330 Greenbrier Rd	Leonardtown	0
1903015289	Utility	Well #2 At 23320 Greenbrier Rd	23330 Greenbrier Rd	Leonardtown	0
1903015289	Utility	Well #3 At 23330 Greenbrier Rd	23330 Greenbrier Rd	Leonardtown	0
1908011524	Utility	Water Station At 22151 Donaldson Dr	22151 Donaldson Dr	Lexington Park	0
1907027753	Utility	Power Substation 22664 Maddox Rd	22664 Maddox Rd	Bushwood	0
1903031047	Utility	Power Substation 26030 Point Lookout Rd	26030 Point Lookout Rd	Leonardtown	0
1902019353	Utility	Power Substation 19478 Piney Point Rd	19478 Piney Point Rd	Valley Lee	0
1906030327	Utility	Power Substation 24275 Mervell Dean Rd	24275 Mervell Dean Rd	Hollywood	0
1908044090	Utility	Power Substation 21459 Great Mills Rd	21459 Great Mills Rd	Lexington Park	0
1901022059	Utility	Power Substation 19029 Three Notch Rd	19029 Three Notch Rd	Dameron	0
1902019361	Utility	Power Substation 17799 Piney Point Rd	17799 Piney Point Rd	Piney Point	0
1901022040	Utility	Power Substation 49311 Bennett Dr	49311 Bennett Dr	Ridge	0
1908044058	Utility	Power Substation 23225 Three Notch Rd	23225 Three Notch Rd	California	0
1903023834	Utility	Power Substation 22806 Point Lookout Rd	22806 Point Lookout Rd	Leonardtown	0
1902019922	Utility	NuStar	17877 Piney Point Rd	Piney Point	1956
1902015641	Utility	Valero Pier	44701 Lighthouse Rd	Piney Point	1935
1901040863	Utility	Wastewater Station At 13094 Point Lookout Rd	13094 Point Lookout Rd	Ridge	0
1908122261	Utility	Wastewater Station At 22317 Valley View Dr	22317 Valley View Dr	Great Mills	0
1908063915	Utility	Wastewater Station At 48151 Long Ln	48151 Long Ln	Lexington Park	0
1908145083	Utility	Wastewater Station At 22548 Dumleugh Dr	22548 Dumleugh Dr	Lexington Park	0
1908011540	Utility	Wastewater Station At 21647 Great Mills Rd	21647 Great Mills Rd	Lexington Park	0
1908138168	Utility	Wastewater Station At 23893 FDR Blvd	23137 FDR Blvd	California	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1908138176	Utility	Wastewater Station At 23753 FDR Blvd	23753 FDR Blvd	California	0
1903069710	Utility	Wastewater Station At 23255 Pembrook Dr	23255 Pembrook Dr	Hollywood	0
1908065721	Utility	Wastewater Station At 20208 Point Lookout Rd	20208 Point Lookout Rd	Great Mills	0
1908113637	Utility	Wastewater Station At 47133 Schwartzkopf Dr	47133 Schwartzkopf Dr	Lexington Park	0
1908131856	Utility	Wastewater Station At 47640 Hilton Dr	46860 Hilton Dr	Lexington Park	0
1908011567	Utility	Wastewater Station At 21345 Lynn Dr	21345 Lynn Dr	Lexington Park	0
1908109931	Utility	Wastewater Station At 48020 Pine Hill Run Rd	48020 Pine Hill Run Rd	Lexington Park	1970
1908140146	Utility	Wastewater Station At 45484 Columbine Pl	45484 Columbine Pl	Great Mills	0
1908103534	Utility	Wastewater Station At 48261 Keel Dr	48261 Keel Dr	Lexington Park	0
1908059918	Utility	Wastewater Station At 21895 Pegg Rd	21895 Pegg Rd	Lexington Park	2002
1902004801	Utility	Wastewater Station At 45271 Bloch Ave	45271 Bloch Ave	Piney Point	1989
1908119643	Utility	Wastewater Station At 46839 Planters Ct	46839 Planters Ct	Lexington Park	0
1908141827	Utility	Wastewater Station At 48053 Spinnaker Cir	48053 Spinnaker Cir	Lexington Park	0
1903033430	Utility	Wastewater Station At 21911 Rosebank Ct	21911 Rosebank Rd	Leonardtown	1984
1908160406	Utility	Wastewater Station At 22666 Sylvan Way	22666 Sylvan Way	Lexington Park	0
1908051917	Utility	Wastewater Station At 46485 Rosewood Dr	46485 Rosewood Dr	Lexington Park	0
1903039684	Utility	Wastewater Station At 39673 Lady Baltimore Ave	39673 Lady Baltimore Ave	Leonardtown	0
1909002480	Utility	Wastewater Station At 16668 Piney Point Rd	16668 Piney Point Rd	Piney Point	0
1903068978	Utility	Wastewater Station At 23699 Robert Way	23699 Robert Way	Leonardtown	0
1908122199	Utility	Wastewater Station At 48400 Surfside Dr	48400 Surfside Dr	Lexington Park	0
1908156948	Utility	Wastewater Station At 21572 Croaker Ct	21572 Croaker Ct	Lexington Park	0
1904033221	Utility	Wastewater Station At 35277 Golf Course Dr	35277 Golf Course Dr	Mechanicsville	1971
1904055241	Utility	Wastewater Station At 35420 Army Navy Dr	35410 Army Navy Dr	Mechanicsville	0
1904055233	Utility	Wastewater Station At 35757 Golf Course Dr	35695 Golf Course Dr	Mechanicsville	1970
1908162220	Utility	Wastewater Station At 45574 Aspen Ln	45572 Aspen Ln	California	0
1908166994	Utility	Wastewater Station At 44437 Redwood Ln	44437 Redwood Ln	California	0
1908147507	Utility	Water Station At 21010 Green Meadow Dr	21010 Green Meadow Dr	Lexington Park	0
1904007964	Utility	Water Station At 27136 Birch Manor Cir	27136 Birch Manor Cir	Mechanicsville	0
1903035689	Utility	Water Station At 40771 Meadow Dr	40771 Meadow Dr	Leonardtown	0
1908178152	Utility	Water Station At 47941 Long Ln	47941 Long Ln	Lexington Park	0
1908122466	Utility	Water Station At 48061 Long Ln	48061 Long Ln	Lexington Park	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1905049210	Utility	Water Station At 30020 Market Dr	30020 Market Dr	Charlotte Hall	0
1908179207	Utility	Water Station At 46787 South Shangri-La Dr	46787 South Shangri-La Dr	Lexington Park	0
1904022084	Utility	Water Station At 37551 Cox Ct	37549 Cox Ct	Mechanicsville	0
1904055764	Utility	Water Station At 36981 Dillion Ct	36981 Dillion Ct	Mechanicsville	0
1908090742	Utility	Water Station At 46092 Adams Ct	46106 Adams Ct	Lexington Park	0
1908011540	Utility	Water Station At 21647 Great Mills Rd	21647 Great Mills Rd	Lexington Park	0
1908111499	Utility	Water Station At 20880 Green Leaf Rd	47314 Green Leaf Rd	Lexington Park	0
1908122261	Utility	Water Station At 22311 Valley View Dr	22311 Valley View Dr	Great Mills	0
1908098727	Utility	Water Station At 22747 Three Notch Rd	22747 Three Notch Rd	California	0
1903074609	Utility	Water Station At 41994 Satchel Paige Way	41994 Satchel Paige Way	Hollywood	0
1906039855	Utility	Water Station At 40725 King Dr	40725 King Dr	Mechanicsville	0
1906021727	Utility	Water Station At 26256 Loveville Rd	26256 Loveville Rd	Mechanicsville	1971
1905043344	Utility	Water Station At 38456 Laurel Ridge Dr	38456 Laurel Ridge Dr	Mechanicsville	0
1908109931	Utility	Water Station At 48020 Pine Hill Run Rd	48020 Pine Hill Run Rd	Lexington Park	1970
1902004801	Utility	Water Station At 45271 Bloch Ave	45271 Bloch Ave	Piney Point	1989
1902034093	Utility	Water Station At 17741 Driftwood Dr	17741 Driftwood Dr	Tall Timbers	0
1908081840	Utility	Water Station At 45780 Nolte Ct	45780 Nolte Ct	California	0
1906045936	Utility	Water Station At 44022 Airport View Dr	44022 Airport View Dr	Hollywood	0
1903039684	Utility	Water Station At 39673 Lady Baltimore Ave	39673 Lady Baltimore Ave	Leonardtown	0
1903068951	Utility	Water Station At 40571 Candela Pl	40571 Candela Pl	Leonardtown	0
1908179206	Utility	Water Station At 23312 Town Creek Dr	23312 Town Creek Dr	California	0
1908179205	Utility	Water Station At 22825 Chestnut Rd	22825 Chestnut Rd	California	0
1908066833	Utility	Water Station At 45553 Norris Rd	45553 Norris Rd	Great Mills	0
1904033221	Utility	Water Station At 35804 Aviation Yacht Club Rd	35804 Aviation Yacht Club Rd	Mechanicsville	1971
1903042820	Utility	Water Station At 42573 Wilderness Rd	42573 Wilderness Rd	Leonardtown	0
1908177963	Utility	Water Station At 23351 White Oak Pkwy	23351 White Oak Pkwy	California	0
1908122466	Utility	Water Towers At 48061 Long Ln	48061 Long Ln	Lexington Park	0
1904055764	Utility	Water Towers At 36981 Dillion Ct	36981 Dillion Ct	Mechanicsville	0
1908011559	Utility	Water Towers At 25121 Great Mills Rd	25121 Great Mills Rd	Lexington Park	0
1908098727	Utility	Water Towers At 22747 Three Notch Rd	22747 Three Notch Rd	California	0
1904046188	Utility	Water Towers At 36755 Bethel Church Rd	36755 Bethel Church Rd	Mechanicsville	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1903033406	Utility	Water Towers At 40971 Paw Paw Hollow Ln	40971 Paw Paw Hollow Ln	Leonardtown	0
1908109931	Utility	Water Towers At 48020 Pine Hill Run Rd	48020 Pine Hill Run Rd	Lexington Park	1970
1902034093	Utility	Water Towers At 17741 Driftwood Dr	17741 Driftwood Dr	Tall Timbers	0
1904033221	Utility	Water Towers At 35804 Aviation Yacht Club Rd	35804 Aviation Yacht Club Rd	Mechanicsville	1971
1908161909	Utility	Water Towers At 23340 A White Elm Ct	23330 White Elm Ct	California	0
1905043344	Utility	Water Tower At 38456 Laurel Ridge Dr	38456 Laurel Ridge Dr	Mechanicsville	0
1908098727	Utility	Hickory Hills	22747 Three Notch Rd	California	0
1908011559	Utility	Great Mills Standpipe	25121 Great Mills Rd	Lexington Park	0
1908109931	Utility	Cedar Cove Tower 1	48020 Pine Hill Run Rd	Lexington Park	1970
1908122466	Utility	Cedar Cove Tower 2	48061 Long Ln	Lexington Park	0
1908161909	Utility	Wildewood	23330 White Elm Ct	California	0
1908122261	Utility	Greenview	22311 Valley View Dr	Great Mills	0
1906045936	Utility	St. Mary's Industrial Par	44022 Airport View Dr	Hollywood	0
1903042820	Utility	Wilderness Run	42581 Wilderness Rd	Leonardtown	0
1902034093	Utility	Piney Point Landings	17741 Driftwood Dr	Tall Timbers	0
1903033406	Utility	Breton Bay Standpipe	40971 Paw Paw Hollow Ln	Leonardtown	0
1903034860	Utility	St. Clements Shores	39673 Lady Baltimore Ave	Leonardtown	0
1903074609	Utility	Holland Forest Landing	41990 Satchell Page Way	Hollywood	0
1902004801	Utility	Piney Point	45271 Bloch Ave	Piney Point	1989
1903068951	Utility	Villages Of Leonardtown	40571 Candela Pl	Leonardtown	0
1908026254	Utility	Wildewood #1	44771 Wildewood Pkwy	California	0
1905055733	Utility	Persimmon Hills	39261 Persimmon Creek Rd	Mechanicsville	0
1908011524	Utility	Peggs Road	22151 Donaldson Dr	Lexington Park	0
1908138192	Utility	First Colony	45079 First Colony Blvd	California	0
1908026254	Utility	Wildewood #1	44771 Wildewood Pkwy	California	0
1908066833	Utility	Tubman Douglas	45553 Norris Rd	Great Mills	0
1903059367	Utility	Wildewood #3	23025 Cherry Laurel Pkwy	Lexington Park	0
1906045936	Utility	St. Mary's Industrial Park	44022 Airport View Dr	Hollywood	0
1908179207	Utility	Colony Square	46787 Shangri-La Dr	Lexington Park	0
1908094039	Utility	Fox Meadow	20252 Spitfire Ct	Park Hall	0
1908122466	Utility	Cedar Cove 2	48061 Long Ln	Lexington Park	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1908178152	Utility	Cedar Cove 1	47941 Long Ln	Lexington Park	0
1908090742	Utility	Esperanza Farms	46090 Adams Ct	Lexington Park	0
1908179205	Utility	Town Creek 6	22825 Chestnut Rd	California	0
1908011389	Utility	Town Creek 5	22786 Maple Rd	Lexington Park	1966
1908020728	Utility	Greenview Knolls 1	45805 Belvoir Rd	Great Mills	0
1908179206	Utility	Town Creek 3	23312 Town Creek Dr	Lexington Park	0
1903042820	Utility	Wilderness Run	42581 Wilderness Rd	Leonardtown	0
1902004801	Utility	Piney Point	45271 Bloch Ave	Piney Point	1989
1902034131	Utility	Landings At Piney Point	17641 Driftwood Dr	Tall Timbers	0
1903035689	Utility	Breton Bay	40771 Meadow Dr	Leonardtown	0
1903074609	Utility	Holland Forest Landing	41990 Satchell Page Way	Hollywood	0
1903068951	Utility	Villages Of Leonardtown	40571 Candela Pl	Leonardtown	0
1903071405	Utility	Forrest Farms	23102 Pembroke Dr	Hollywood	0
1908172838	Utility	Bradley Blvd.	22041 Grand Harvest Ln	Lexington Park	0
1908122261	Utility	California Run	22317 Valley View Dr	Great Mills	0
1908063915	Utility	Cedar Cove	48151 Long Ln	Lexington Park	0
1908011540	Utility	Essex Drive (Abandoned)	21647 Great Mills Rd	Lexington Park	0
1908065721	Utility	Great Mills	20208 Point Lookout Rd	Great Mills	0
1908113637	Utility	Greenbrier	47133 Schwartzkopf Dr	Lexington Park	0
1908011567	Utility	Lynn Drive	21345 Lynn Dr	Lexington Park	0
1908103534	Utility	Moorings	48261 Keel Dr	Lexington Park	0
1902004801	Utility	Piney Point	45271 Bloch Ave	Piney Point	1989
1908119643	Utility	Planter's Court	46839 Planters Ct	Lexington Park	0
1903034860	Utility	St. Clements Sores	39673 Lady Baltimore Ave	Leonardtown	0
1909002480	Utility	St. George Island	16668 Piney Point Rd	Piney Point	0
1901006118	Utility	St. Mary's City	47610 College Dr	Lexington Park	1930
1908122199	Utility	Waters Edge	48400 Surfside Dr	Lexington Park	0
1908162220	Utility	Wildewood #2	45572 Aspen Ln	California	0
1908166994	Utility	Wildewood #3	44437 Redwood Ln	California	0
1908145083	Utility	Dunleigh	22548 Dunleigh Dr	Lexington Park	0
1903030407	Utility	Glebe Run	24511 Point Lookout Rd	Leonardtown	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1908138168	Utility	First Colony #1	23137 FDR Blvd	California	0
1903068978	Utility	Villages Of Leonardtown	23699 Robert Way	Leonardtown	0
1908059918	Utility	Pegg Road		Lexington Park	2002
1908140146	Utility	Meadowlake	45484 Columbine Pl	Great Mills	0
1908131856	Utility	Hilton Run	46860 Hilton Dr	Lexington Park	0
1908160406	Utility	Rue Woods	22666 Sylvan Way	Lexington Park	0
1904033221	Utility	Wicomico Shores #3	35277 Golf Course Dr	Mechanicsville	1971
1908141827	Utility	Riverbay	48053 Spinnaker Cir	Lexington Park	0
1908156948	Utility	Westbury	21572 Croaker Ct	Lexington Park	0
1908109931	Utility	Marlay Taylor	48020 Pine Hill Run Rd	Lexington Park	1970
1904055233	Utility	Wicomico Shores	35695 Golf Course Dr	Mechanicsville	1970
1903029263	Utility	Chopticon High School	25390 Colton Point Rd	Morganza	1970
1908011893	Utility	ECC Radio Tower on Fire Department Ln	45778 Fire Department Ln	California	0
1903078086	Utility	Tudor Hill Water Tower	Goddard Ct	Leonardtown	0
1903011690	Utility	Leonardtown Wastewater Station	22665 Van Wert St	Leonardtown	1970
1906068049	Utility	Power Substation 26488 Loveville Rd	26488 Loveville Rd	Loveville	0
1908067457	Utility	Power Substation 22145 Pegg Rd	22145 Pegg Rd	Lexington Park	0
1905022851	Utility	Power Substation 28272 Flora Corner Rd	28272 Flora Corner Rd	Mechanicsville	0
1905028558	Utility	Power Substation 30205 Suite Landing Rd	30205 Suite Landing Rd	Charlotte Hall	0
1906059694	Utility	Wastewater Station At 44142 Airport Rd	44142 Airport Rd	Hollywood	1999
1902038285	Utility	Wastewater Station At 20979 Black Duck Ct	20979 Black Duck Ct	Callaway	0
1908110999	Utility	Wastewater Station At 46971 Bradley Blvd	46971 Bradley Blvd	Lexington Park	1991
	Utility	Wastewater Station At 40541 Breton View Ct	40541 Breton View Ct	Leonardtown	0
1908146489	Utility	Wastewater Station At 45579 Pleasant Mill Dr	45585 Pleasant Mill Dr	Great Mills	0
	Utility	Wastewater Station At 27763 Baptist Church Rd	27763 Baptist Church Rd	Mechanicsville	0
1908017794	Utility	Wastewater Station At 45888 Millstone Landing Rd	45888 Millstone Landing Rd	Lexington Park	2014
1901006266	Utility	Wastewater Station At 48841 Evergreen Park Rd	48841 Evergreen Park Rd	Lexington Park	0
1903180206	Utility	Wastewater Station At 24511 Point Lookout Rd	24511 Point Lookout Rd	Leonardtown	0
1908123543	Utility	Wastewater Station At 45599 Amber Dr	45599 FDR Blvd	California	0
1902038285	Utility	Wastewater Station At 20881 Hunting Quarters Dr	20881 Hunting Quarters Dr	Callaway	0
1908130019	Utility	Wastewater Station At 26693 South Laurel Glen Rd	26693 South Laurel Glen Rd	California	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1908076251	Utility	Wastewater Station At 21637 Liberty St	21637 Liberty St	Lexington Park	1985
1908151563	Utility	Wastewater Station At 20540 Pershing Dr	20540 Pershing Dr	Lexington Park	0
1908122067	Utility	Wastewater Station At 48251 Picketts Harbor Ct	48251 Picketts Harbor Ct	Lexington Park	0
1902034158	Utility	Wastewater Station At 17999 Driftwood Dr	18097 Driftwood Dr	Tall Timbers	0
1902030926	Utility	Wastewater Station At 17831 Saint Georges Park Rd	17831 Saint Georges Park Rd	Tall Timbers	0
1908105200	Utility	Wastewater Station At 21111 Three Notch Rd	21111 Three Notch Rd	Lexington Park	0
1903044068	Utility	Wastewater Station At 21911 Rosebank Ct	21911 Rosebank Ct	Leonardtown	1998
	Utility	Wastewater Station At 17061 Point Lookout Rd	17061 Point Lookout Rd	Lexington Park	0
1906041744	Utility	Wastewater Station At 23751 Three Notch Rd	23751 Three Notch Rd	Hollywood	0
1908034982	Utility	Wastewater Station At 21592 Great Mills Rd	21592 Great Mills Rd	Lexington Park	1973
UNKNOWN	Utility	Wastewater Station At 25355 Point Lookout Rd	25355 Point Lookout Rd	Mechanicsville	0
1902038579	Utility	Wastewater Station At 44919 Widegeon Pl	44919 Widegeon Pl	Callaway	1999
1908177756	Utility	Wastewater Station At 23251 Laurel Hill Dr	23251 Laurel Hill Dr	California	0
1908133506	Utility	Wastewater Station At 46687 Sandalwood St	46687 Sandalwood St	Lexington Park	0
	Utility	Water Station At 22942 Three Notch Rd	22942 Three Notch Rd	Charlotte Hall	0
	Utility	Water Station At 27141 Cox Dr	27141 Cox Dr	Mechanicsville	0
UNKNOWN	Utility	Water Station At 43818 Palomino	43818 Palomino Dr	Hollywood	0
1908138184	Utility	Water Station At 45079 First Colony Blvd	45079 First Colony Blvd	California	0
	Utility	Water Station At 23102 Pembrook Dr	23102 Pembrook Dr	Hollywood	0
1908122431	Utility	Water Station At 20024 Point Lookout Rd	20024 Point Lookout Rd	Great Mills	0
	Utility	Water Station At 45805 Belvoir Rd	45805 Belvoir Rd	Great Mills	0
1908020744	Utility	Water Station At 45786 Military Ln	45786 Military Ln	Great Mills	1970
1905180955	Utility	Water Station At 29122 Hearts Desire Dr	29116 Hearts Desire Dr	Mechanicsville	0
	Utility	Water Station At 24344 Mervell Dean Rd	24344 Mervell Dean Rd	Hollywood	0
1902180515	Utility	Water Station At 44861 Canvasback Ct	44861 Canvasback Ct	Callaway	0
1908114730	Utility	Water Station At 22825 Laurel Glen Rd	22825 Laurel Glen Rd	California	0
	Utility	Water Station At 37672 Mohawk Dr	37672 Mohawk Dr	Charlotte Hall	0
1903041964	Utility	Water Station At 41348 Philip Ln	41348 Philip Ln	Leonardtown	0
1905180956	Utility	Water Station At 39207 Persimmon Creek Rd	39207 Persimmon Creek Rd	Mechanicsville	0
	Utility	Water Station At 30066 Hunt Rd	30070 Hunt Rd	Mechanicsville	0
	Utility	Water Station At 21081 Three Notch Rd	21081 Three Notch Rd	Lexington Park	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1903084507	Utility	Water Station At 22786 Maple Dr	22786 Maple Dr	California	0
	Utility	Water Station At 43715 Wildewood Pkwy	43715 Wildewood Pkwy	California	0
	Utility	Water Station At 23025 Cherry Laurel Pkwy	23025 Cherry Laurel Pkwy	California	0
1908165033	Utility	Water Station At 21431 Willows Rd	21431 Willows Rd	Lexington Park	0
1908068844	Utility	Wastewater Station At 21591 South Essex Dr	21591 South Essex Dr	Lexington Park	0
1908177758	Utility	Water Station At 46921 Sale Center Ln	46921 Sale Center Ln	Lexington Park	0
1908138184	Utility	First Colony	45079 First Colony Blvd	California	0
1902044064	Utility	Hunting Quarters	44861 Canvasback Ct	Callaway	0
UNKNOWN	Utility	Fenwick Manor	43818 Palomino Dr	Hollywood	0
1908105170	Utility	Greenbrier	21081 Three Notch Rd	Lexington Park	0
1903076067	Utility	Leonardtwn Farms	43195 Heritage Dr	Leonardtwn	0
1903179190	Utility	Wildewood #2	43715 Wildewood Pkwy	California	0
	Utility	Forrest Farms	23102 Pembrook Dr	Hollywood	0
1905046157	Utility	Summitt Hill Section I	39514 Thomas Dr	Mechanicsville	0
1905066964	Utility	Ben Oaks Tower	39661 Claires Dr	Mechanicsville	0
1909000550	Utility	Potomac Land Lodge	16810 Piney Point Rd	Piney Point	2009
1905178399	Utility	Charlotte Hall Tower	37770 Golden Beach Rd	Charlotte Hall	0
1906177850	Utility	Hollywood Tower	24501 Three Notch Rd	Hollywood	0
1908122431	Utility	Great Mills Industrial Park	20024 Point Lookout Rd	Lexington Park	0
1908177758	Utility	Bank Square	46921 Sale Center Ln	Lexington Park	0
1908165033	Utility	Willows Road	21431 Willows Rd	Lexington Park	0
1908066698	Utility	Hickory Hills	22747 Three Notch Rd	California	0
1908114730	Utility	Laurel Glen	45211 Laurel Glen Rd	California	0
1908020744	Utility	Greenview Knolls #2	45786 Military Ln	Great Mills	1970
1908066957	Utility	Wildewood #2	23351 White Oak Pkwy	California	0
UNKNOWN	Utility	Fenwick Manor	43818 Palomino Dr	Hollywood	0
1902180515	Utility	Hunting Quarters	44861 Canvasback Ct	Callaway	0
UNKNOWN	Utility	Town Creek 1	46012 East Sunrise Dr	Lexington Park	0
1903041964	Utility	Mulberry South	41348 Philip Ln	Leonardtwn	0
1908105170	Utility	Southgate Center	21081 Three Notch Rd	Lexington Park	0
1903076067	Utility	Leonardtwn Farms	43195 Heritage Dr	Leonardtwn	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1905180956	Utility	Persimmon Hills	39207 Persimmon Creek Rd	Mechanicsville	0
1905180955	Utility	Hearts Desire	29116 Hearts Desire Dr	Mechanicsville	0
1905178399	Utility	Charlotte Hall Tower	37770 Golden Beach Rd	Charlotte Hall	0
1906177850	Utility	Hollywood Tower	24501 Three Notch Rd	Hollywood	0
1906041744	Utility	Sm Ind. Park	23751 Three Notch Rd	Hollywood	0
1902038285	Utility	Black Duck	20979 Black Duck Ct	Callaway	0
UNKOWN	Utility	Bretton Bay		Leonardtown	0
1908008515	Utility	Esperanza Farms	45888 Millstone Landing Rd	Lexington Park	2011
1908068844	Utility	Essex South	21591 South Essex Dr	Lexington Park	0
1901006266	Utility	Evergreen Park	48841 Evergreen Park Rd	Lexington Park	0
1908178623	Utility	Forest Run	21451 Great Mills Rd	Lexington Park	0
1908123543	Utility	Hickory Hills	45599 FDR Blvd	California	0
UNKOWN	Utility	Hunting Quarters	20881 Hunting Quarters Dr	Callaway	0
1908076278	Utility	Patuxent Park West	21637 Liberty St	Lexington Park	1986
1908122067	Utility	Picketts Harbor	48251 Picketts Harbor Ct	Lexington Park	0
1902034158	Utility	Piney Point Landings	17999 Driftwood Dr	Tall Timbers	0
1903044068	Utility	Rosebank	21911 Rosebank Ct	Leonardtown	1998
1902030926	Utility	Sheehan	17831 Saint Georges Park Rd	Tall Timbers	0
1908105200	Utility	Southgate	21111 Three Notch Rd	Lexington Park	0
1908048150	Utility	Spring Valley	46485 Rosewood Dr	Lexington Park	1976
1908034982	Utility	St. Mary's Square	21592 Great Mills Rd	Lexington Park	1973
1906059694	Utility	SMC Airport	44142 Airport Rd	Hollywood	1999
UNKOWN	Utility	Wicomico Shores #1	25355 Point Lookout Rd	Mechanicsville	0
1904033272	Utility	Wicomico Shores #2	35410 Army Navy Dr	Mechanicsville	0
1908059950	Utility	Wildewood #1	23251 Laurel Hill Dr	California	0
1908173273	Utility	First Colony #2	23753 FDR Blvd	California	2012
1908130019	Utility	Laurel Glenn	26693 South Laurel Glen Rd	California	0
1902042207	Utility	Widgeon	44919 Widgeon Pl	Callaway	0
1908133506	Utility	Willow Woods	46687 Sandalwood St	Lexington Park	0
1908146489	Utility	Cecil's Mill	45585 Pleasant Mill Dr	Great Mills	0
1908151563	Utility	Pembrooke	20540 Pershing Dr	Lexington Park	0

Account ID	Facility Type	Feature Name	Street	City	Year Built
1902043238	Utility	St. George's Peninsulas	18550 Peninsulas Ct	Valley Lee	0
1906069606	Utility	Broad Creek #2	24598 Broad Creek Dr	Hollywood	0
1908151636	Utility	Kingston	45101 Woodhaven Dr	California	0
1908167605	Utility	Hunting Creek	46775 Crimson Dr	Lexington Park	0
1908171335	Utility	Pembrooke #2	46982 Pembrooke St	Lexington Park	0
1908172846	Utility	Abberly	46891 Morning Dew Ln	Lexington Park	0
1906072445	Utility	Joy Chapel Estates	44060 East Leola Ct	Hollywood	0
1908177931	Utility	Elizabeth Hills	45563 Foxfield Ln	California	0
1903179999	Utility	Leyland Park	43871 Tallwood Rd	California	0
1908181121	Utility	Dean		California	2016
1902010232	Utility	Cedar Cove Marina Pump Station	18623 Cedar Cove Ln	Valley Lee	1966
1908179015	Utility	Myrtle Point #5	23871 Myrtle Glen Way	California	0
1906070116	Utility	Broad Creek		Hollywood	2017
1906181014	Utility	Woodmore	24098 Woodmore Dr	Hollywood	0
1908044074	Utility	Substation At 45900 Buck Hewitt Rd	45900 Buck Hewitt Rd	Great Mills	0

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St. Mary's County's Hazard Mitigation Planning Committee (HMPC).

APPENDIX E

MITIGATION STATUS

REPORT

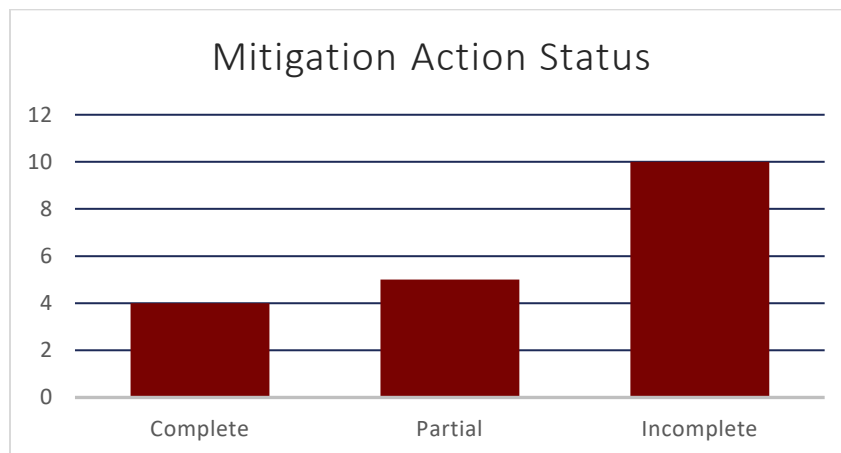
MITIGATION STATUS REPORT

The purpose of hazard mitigation action items and associated strategies is to reduce or eliminate long-term risk to people and property from hazards and their effects. During the 2017 Plan Update process, action items and strategies were developed. As part of this Plan Update, a mitigation action status report was created to determine the present status of these action item strategies. Each action item strategy within this status report included the following information:

Mitigation which is action taken to reduce or eliminate long-term risk to hazards.

- Action # & Title
- Status
- 2022 Status Update
- FEMA Mitigation Categories
- Location
- Background
- Ideas form Integration
- Responsible Entity
- Partners
- Potential Funding
- Cost Estimate
- Benefits
- Timeline

A total of nineteen (19) action items were evaluated as part of the plan update process; five (5) of these action items were ranked as “high priority” in the previous plan. Members of the Hazard Mitigation Planning Committee (HMPC) provided important feedback regarding the progress of these action items/strategies. Based on this feedback, the following was determined: four (4) strategies are “completed,” six (5) strategies are “partially” completed, and ten (10) projects are “incomplete.” The graph below further illustrates the present status of the 2017 mitigation action strategies based upon stakeholder feedback.



The mitigation action strategies identified as “completed” are listed below. One of the high priority mitigation action strategy was designated as “completed”; this mitigation action is identified in **red**.

- ACTION ITEM #1 - Encourage 2 feet of freeboard for structures within tidal influenced floodplains.
- **ACTION ITEM #7 – Targeted Hazard Mitigation Outreach to Mobile Home Parks.**
- ACTION ITEM #12 - Mitigate damage to power lines from falling trees.
- ACTION ITEM #14 - Water loop from Washington Street to Fenwick Street.

The HMPC determined which mitigation actions/strategies identified as being “incomplete” or “partial” will be carried forward into the current Plan Update. The HMPC determined a total of fourteen (14) mitigations actions would be carried forward into the 2022 Hazard Mitigation Plan. Mitigation actions being carried forward included:


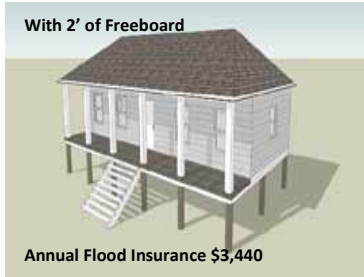
- ACTION ITEM #2 – Freeboard increase in Moderate and Minimal Flood Risk Area
- ACTION ITEM #3 – Adkins Mobile Home Park Flood Mitigation
- ACTION ITEM #4 – Apply for NFIP Community Rating System

- ACTION ITEM #6 – Complete elevation certificates for flood prone water pump station and wastewater pump stations.
- ACTION ITEM #8 – Identify, draft, and submit ordinance to the County Commission/Leonardtown Commissioners to assure cleared floodplain land remains open space in perpetuity.
- ACTION ITEM #9 – Development of Cultural & Historical Resources Plan
- ACTION ITEM #10 – “Repetitive Loss” be added to the definitions.
- ACTION ITEM #11 – Modify Substantial Improvement Standards
- ACTION ITEM #15 – Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).
- ACTION ITEM #16 – Develop Flood Mitigation Plan
- ACTION ITEM #17 – Elevate Repetitive Loss Properties
- ACTION ITEM #18 – Ellis Road Living Shoreline and Bank Stabilization
- ACTION ITEM #19 - Sandgates Road Living Shoreline Stabilization and Roadway Elevation Project.

HMPC members decided not to carry forward the following mitigation action items identified as “partial” since work on these projects was already in progress.

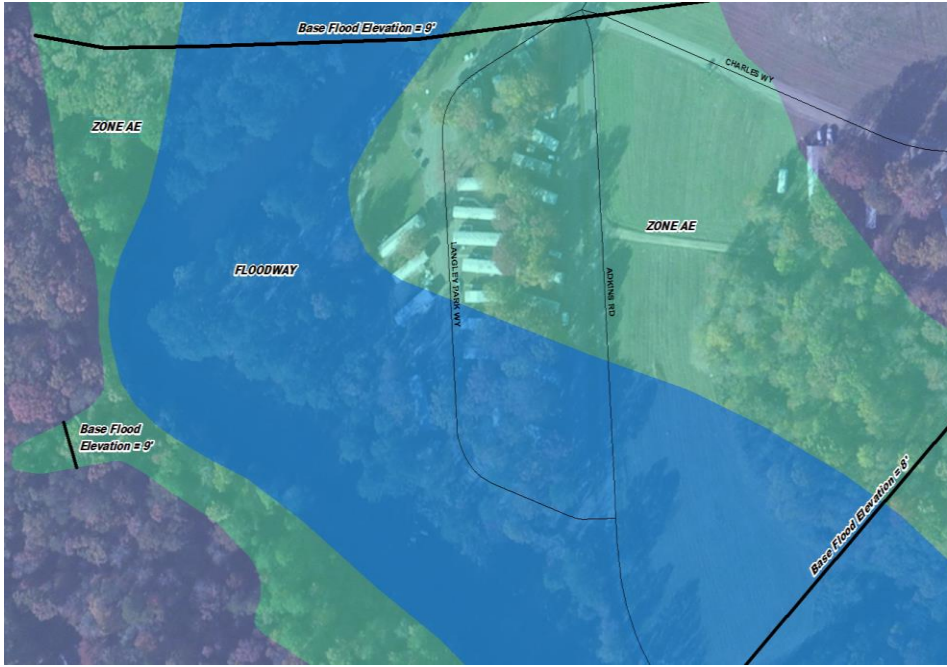
- ACTION ITEM #5- EOC Glass Upgrade
- ACTION ITEM #13- MD 5, Point Lookout Road Safety Improvement Project


The table on the following pages provides full status details for each mitigation action strategy. Mitigation Action Implementation Strategy Worksheets are presented with worksheets #3, #7, #9, #14, and #16 designated as “**high**” priority for St. Mary’s County.

ACTION ITEM #1 - Encourage 2 feet of freeboard for structures within tidal influenced floodplains.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
	●					
2022 Status Update	<p>According to Chapter 76 Floodplain Regulations, three feet of freeboard has been adopted. Excerpt from Chapter 76:</p> <p>Flood Protection Elevation (FPE): <i>The base flood elevation plus three (3) feet of freeboard. Structures in the Special Flood Hazard Area shall have the lowest floor, including basement, elevated to the Flood Protection Elevation. The Flood Protection Elevation also applies to all mechanical and electrical equipment, including duct work, electrical utility service entrance, meters, panels, outlets, and switches.</i></p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Coastal Areas					
Background/Issue:	<p>Historically, Maryland has experienced a relative sea level rise of approximately 1 foot over the past 100 years. In the future, however, due to the combined forces of regional land subsidence and global climate change, Maryland may experience 3 - 4 feet of sea level rise over the next century. Since elevations on FIRMs do not include sea level rise, freeboard will help keep structures above floodwaters as storm surge elevations increase. For this reason, the Maryland Commission on Climate Change recommends 2 or more feet of freeboard above the standard one foot for structures located in tidally influenced floodplains.</p> <p>Encourage property owners to elevate their building's lowest floor above predicted flood elevations by a small additional height (generally 1-3 feet above the National Flood Insurance Program (NFIP) minimum height requirements.) Elevating a home a few feet above legally mandated heights has very little effect on its overall look, yet it can lead to substantial reductions in flood insurance, significantly decrease the chances the home will be damaged by storms and flooding and help protect it against the impacts of sea level rise.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Without Freeboard</p> <p>Annual flood insurance \$7,750</p> </div> <div style="text-align: center;">  <p>With 2' of Freeboard</p> <p>Annual Flood Insurance \$3,440</p> </div> </div> <p><i>Note: NFIP premiums based on October 2010 rates for a one-floor residential structure with no basement built after a FIRM was issued for the community (post-FIRM rates differ from pre-FIRM rates). \$500 deductible/\$250,000 coverage for the buildings/\$100,000 for contents.</i></p>					
Ideas for Integration:	Building Codes					
Responsible Agency:	Land Use and Growth Management					
Partners:	Emergency Services					

Potential Funding:	CoastSmart Communities Grant Program
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	<p>The expense of incorporating freeboard into new structures is surprisingly low, generally adding only about 0.25 to 1.5 percent to the total construction costs for each foot of added height, according to a 2006 FEMA-commissioned study (Evaluation of the National Flood Insurance Program’s Building Standards).</p> <p>The minor resulting increase in monthly mortgage payments (often less than \$20 a month) is generally more than offset by savings on NFIP premiums. Consequently, adding freeboard typically saves homeowners money, sometimes over \$200 a month.</p> <p><i>Note: For specific information on good construction practices (including freeboard), see FEMA’s Home Builder’s Guide to Coastal Construction, http://stsm.us/md1.</i></p>
Timeline:	Ongoing

ACTION ITEM #2 - Freeboard increase in Moderate and Minimal Flood Risk Area						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
		●				
2022 Status Update	According to the St. Mary’s County NFIP Community Questionnaire, no additional regulations are planned at this time.					
FEMA Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	County-wide					
Background/Issue:	Add at least 1 foot of freeboard above nearest regulated floodplain for structures in the 0.2% or 500-year floodplain which is flooding both due to sea level rise and to increased major storm events. Currently, no floodplain management regulations exist within Moderate (0.2%) and Minimum (500-year) floodplain areas.					
Ideas for Integration:	An increase in the freeboard requirement can be implemented simply by modifying the Flood Protection Elevation definition.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Emergency Services					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Reduce Loss to Property and Life					
Timeline:	1-2 Years					

ACTION ITEM #3 - Adkins Mobile Home Park Flood Mitigation						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Adkins Road					
Background/Issue:	<p>The Adkins Mobile Home Park is in close proximity to the St. Mary's River and therefore flooding is an issue. Twenty-seven (27) mobile homes are located in Zone AE with an average flood depth ranging from 8-9 feet. In fact, the southern portion of the Adkins Mobile Park is located within the floodway.</p>  <p>The Adkins Mobile Home Park is located in a Category 1 Storm Surge inundation area, as shown on the map below.</p>					

	 <p>Furthermore, an overflow or breach from the St. Mary's Dam could impact the Adkins Mobile Home Park, located downstream of the dam.</p>
Ideas for Integration:	Strengthen regulations pertaining to mobile home placement within the floodway.
Responsible Agency:	Emergency Services
Partners:	Public Works & Transportation
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Grant Program Maryland Community Development Block Grant
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Reduce the loss of property.
Timeline:	1-2 Years
Priority:	HIGH

ACTION ITEM #4 - Apply for NFIP Community Rating System						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	According to the Department of Land Use & Growth Management, the County is plans to engage in the Community Rating System (CRS) incentive program. A Community Assist Visit was conducted in 2017. The County is currently addressing corrective actions.					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide and/ Town of Leonardtown					
Background/Issue:	<p>Applying for the NFIP Community Rating System would lower the cost of insurance premiums for the residents of St. Mary’s County. In fact, changing St. Mary’s County CRS rating from a 10 to a 9 would result in a 5% reduction. A 5% reduction across the board in flood insurance premiums would result in an annual saving of \$54,380 for all policy holders. Note: St. Mary’s County policy holders, including municipalities spend 1,087,616 dollars annually in flood insurance premiums.</p> <p>Other benefits of participating in the CRS program include:</p> <ul style="list-style-type: none"> • Residents and property owners in CRS communities have increased opportunities to learn about risk, evaluate their individual vulnerabilities, and act to protect themselves, as well as their homes and businesses. • CRS floodplain management activities provide enhanced public safety, reduced damage to property. • Technical assistance in designing and implementing some activities is available to community officials at no charge. • CRS communities have incentives to maintain and improve their flood programs over time. 					
Ideas for Integration:	Increase awareness of flooding potential and hazards by expanding outreach projects.					
Responsible Agency:	Land Use and Growth Management					
Partners:	Emergency Services Public Works and Transportation Non-Governmental Organizations					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	\$35,000					
Benefits: (Losses Avoided)	Reduced flood insurance premiums, increase preparedness and understanding.					
Timeline:	On-going					

ACTION ITEM #5 – EOC Glass Upgrade						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	<p>EOC Glass Upgrade is complete, but expansion is in permitting phase, please see below.</p> <p>The Emergency Communications Center Expansion Project was detailed in the FY23-FY28 Capital Improvement Plan. The project description:</p> <p><i>Expand the Emergency Operations Center to account for additional mission requirements and greater space needs. The expansion includes approximately 2,360 SF, consisting of 1,000 SF for office and administrative space, 820 SF to increase the lobby area, and 540 SF to increase the conference room/EOC. New construction planning phase estimate for unit cost is \$568/SF, based upon a \$3,210,000 estimate to construct the Sheriff District 4 Office, which is 5,650 SF. The District 4 Office is similar in construction type. This equates to a preliminary planning phase estimate of construction cost at \$1,340,000. Utility relocation to move waterline and sewer line in front of building is estimated at \$75,000. Design and Construction Management costs are estimated to be \$100,000 each. Geotechnical engineering and other third-party testing is estimated at \$75,000. Additional furnishings and network infrastructure costs are estimated to be \$50,000 and \$65,000 respectively. A 5% planning phase contingency has been added as of February 2021, which will be revised accordingly as the project progresses. Design completion anticipated in third quarter FY2022 with construction funding in FY2023. \$100,000 of prior approved construction management funded was returned to the FIN22 on 10-19-2021 for other capital project needs. The remaining balance is sufficient to proceed with design. Recommend replacing the funding in the FY2023 budget.</i></p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	St. Mary’s County Emergency Operations Center					
Background/Issue:	<p>Glass in the Emergency Operations Center is currently ¼” tempered glass. Replace the existing glass with 1” laminated bullet – impact resistant glass. Protective glass mitigates high wind damage from tornadoes, hurricanes, and other severe storm events. FEMA tornadoes windows: FEMA 361-2008 & Hurricane Certified Minimum of 6” Aluminum Framing 2 ½” x 6” Mullion and Intermediate Horizontal Members Available Codes and standards use the term <i>glazing</i> to address all windows and openings containing glass. Specifically, ASCE 7-05 (which is incorporated by reference into both the IBC and IRC).</p>					
Ideas for Integration:	Evaluate other essential facilities to determine the need for protective glass.					
Responsible Agency:	St. Mary’s County Building Services					
Partners:	Emergency Services					
Potential Funding:	State Homeland Security Grant Program Emergency Management Program Grant Hazard Mitigation Grant Program					

	Pre-Disaster Mitigation Grant Program
Cost Estimate:	\$80,000
Benefits: (Losses Avoided)	Continuity of Operations & Resiliency - enables staff to remain at Emergency Operations Center during an incident event.
Timeline:	18 months

ACTION ITEM #6 - Complete elevation certificates for flood prone water pump station and wastewater pump stations.

Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Countywide					
Background/Issue:	<p>Flood prone water pump station and wastewater facilities include:</p> <ul style="list-style-type: none"> ● Water Station <ul style="list-style-type: none"> ○ 45271 Bloch Avenue ● 7 Wastewater Stations <ul style="list-style-type: none"> ○ 20208 Point Lookout Rd ○ 20540 Pershing Drive ○ 45271 Bloch Avenue ○ 16668 Piney Point Road ○ 35277 Golf Course Drive ○ 35420 Army Navy Drive ○ 45574 Aspen Lane <p>In order to complete a FEMA Hazard Mitigation Grant applications for these facilities types an elevation certificate is necessary.</p>					
Ideas for Integration:						
Responsible Agency:	METCOM					
Partners:	Emergency Services Land Use and Growth Management					
Potential Funding:	N/A					
Cost Estimate:	Average cost of FEMA Elevation Certificate is \$350.00. Eight facilities at \$350.00 totals \$2800.00.					
Benefits: (Losses Avoided)						
Timeline:	12 Months					

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
National Flood Insurance Program

OMB No. 1825-0028
Expiration Date: November 30, 2013

ELEVATION CERTIFICATE
Required: From the instructions on page 1-13

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A - PROPERTY INFORMATION

A1. Building Owners Name: _____ **FOR INSURANCE COMPANY USE**
Policy Number: _____

A2. Building Street Address (Including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.: _____ **Company NAIC Number:** _____

City: _____ **State:** _____ **ZIP Code:** _____

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.): _____

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.): _____

A5. Latitude/Longitude: Lat: _____ Long: _____ **Horizontal Datum:** NAD 1927 NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number: _____

A8. For a building with a crawlspace or enclosure(s):

a) Square footage of crawlspace or enclosure(s): _____ sq ft

b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____

c) Total net area of flood openings in A8.b _____ sq ft

d) Engineered flood openings? Yes No

A9. For a building with an attached garage:

a) Square footage of attached garage _____ sq ft

b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____

c) Total net area of flood openings in A9.b _____ sq ft

d) Engineered flood openings? Yes No

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number: _____ **B2. County Name:** _____ **B3. State:** _____

B4. Map/Panel Number: _____ **B5. Elevation Date:** _____ **B7. FIRM Panel Effective Release Date:** _____ **B5. Flood Zone(s):** _____ **B9. Base Flood Elevation(s) (Zone AD, Use Base Flood Depth):** _____

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in item B9:
 FIRM Profile FIRM Community Determined Other Source: _____

B11. Indicate elevation datum used for BFE in item B9: NAVD 1929 NAVD 1988 Other Source: _____

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Other/Protected Area (OPA)? Yes No
Designation Date: _____ CBRS OPA

FEMA Form 060-032 (7/15) Replaces all previous editions. Form Page 1 of 6

ACTION ITEM #7 – Targeted Hazard Mitigation Outreach to Mobile Home Parks						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)		Ongoing
	●					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
			✓		✓	
Location:	Countywide					
Background/Issue:	Hazards such as high winds, hurricanes/tropical storms and tornados may be mitigated to protect life and safety. Mobile homes are particularly susceptible to these hazards. All mobile homes in the county have been identified and mapped to determine the most appropriate mitigation alternatives to reduce wind and flood damage. There are 17 mobile home parks within St. Mary’s County and contain over 900 mobile homes. Residents within these communities must be educated on the hazards of living in these structures.					
Ideas for Integration:	Building Codes					
Responsible Agency:	Land Use and Growth Management					
Partners:	Emergency Services					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Grant Program					
Cost Estimate:	Staff Time \$2,000 Print Cost Note: Include publication(s) on county website					
Benefits: (Losses Avoided)	Reduce loss to property and life.					
Timeline:	Short Term					
Priority:	HIGH					

ACTION ITEM #8 - Identify, draft, and submit ordinance to the County Commission/ Leonardtown Commissioners to assure cleared floodplain land remains open space in perpetuity.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	Currently working with the Maryland Silver Jackets team.					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓			✓		
Location:	Countywide					
Background/Issue:	The properties can be enhanced to make better use of wetland or ecological habitat, but in no case, should any type of structure be allowed, except perhaps for elevated walkways through wetlands to facilitate providing access to these areas for the purposes of learning about wetland habitat and ecology. Parcels should be identified and mapped. Those parcels that are either or large or contiguous should be evaluated for open space and recreational opportunities.					
Ideas for Integration:	Creation of recreational open space including parks, playgrounds, and trails.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Recreations and Parks					
Potential Funding:	Maryland Program Open Space Maryland Green Infrastructure Resiliency Maryland Community Parks and Playgrounds Program Maryland Recreational Trails Program					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Flood prone property would remain in “open space” in perpetuity.					
Timeline:	Planning 1-2 Years Acquisition of prioritized flood prone parcels 3-7 Years					

ACTION ITEM #9 - Development of Cultural & Historical Resources Plan

Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing
				●

2022 Status Update

According to the [Historic Preservation Commission Annual Report, January – December 2020](#), 2021 Outlook and Future plans included the following:

- *Apply for competitive CLG grants. A grant could support a local plan update and would give the Commission and planners an opportunity to revisit questions of potential new landmark designations, as well as integrate hazard mitigation planning and newer efforts into the overall local strategy.*
- *Follow up the work in IT as the Maryland Historic Site Files are being scanned so that they will be put on the County GIS for a quick reference with respect to floodplain.*
 - **2022 Update:** Historic Districts, Historic Places-National Register, and Historic Trust Sites-MHT are available for preview on the [St. Mary's County Full GIS Map](#).
- *The Maryland Department of Planning recommended an update to LUGM's webpage referencing the Historic Preservation Commission. Efforts are underway to update the Historic Preservation Commission section to include direct links to its preservation code, preservation plan, ordinance, and property tax information. In addition, updates will include information for historic property owners who may wish to nominate a property for local landmark status.*
 - **2022 Update:** [LUGM site](#) provides general information at the bottom of the homepage and includes a link to the Historic Preservation Commission(HPC) site. The HMC site includes links to the Historic Preservation Guidelines and appendices. The site also provides links to applications for historic district designation, historic area work permit, and historic preservation tax credit.

Historic Preservation Commission



- Annual Report
- Contact Us
- Meeting Agendas
- Meeting Minutes
- Membership Roster / Terms / Volunteer
- Meeting Schedule



Authority & Local Historic District Information

- By-Laws
- Resolution / Ordinance / Plan of Action
- Historic Landmarks Tax Credit
- Tax Credit in St. Mary's County Code
- Historic District Designation Application
- Historic Area Work Permit Instructions
- Historic Area Work Permit Application
- Historic Preservation Tax Credit Application
- Historic Preservation Guidelines
- Appendices to Historic Preservation Guidelines
- Historic Rural Roads Pamphlet

Committees, Boards, and Commissions Questions?

Diane Gleissner@stmarysmd.com
301-475-4200 ext. 71707
Fax: 301-475-4660

Looking to apply for a board?

[Apply Now](#)

Historic Maps

- Link to St. Mary's County GIS map
- Local Historic Districts on GIS map
- Maryland Historic Trust Sites on GIS map
- National Register of Historic Places in St. Mary's County
- National Register of Historic Places on GIS map

Historic Preservation Awards

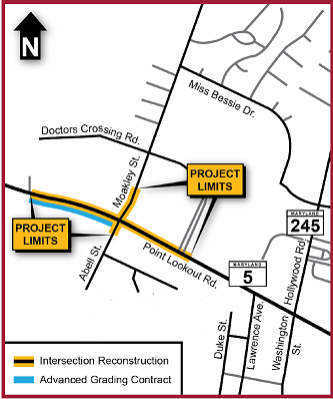
- HPC Award Nomination Form 2021

FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide					
Background/Issue:	<p>St. Mary's County has more than 900 sites registered on the Maryland Historical Trust Inventory of Historic Places, 32 sites listed in the National Register of Historic Places, eight sites in National Register Historic Districts, four National Historic Sites, three local historic districts, and over 500 archaeology sites. There are 148 historic sites – standing structures – at risk to flooding, erosion, and sea level rise.</p> <p>This will reduce the impacts of flooding on its historic resources by integrating historic property and cultural resource protection into hazard mitigation planning. These sites need to be evaluated as candidates for Hazard Mitigation projects.</p>					
Ideas for Integration:	<p>We are requesting a grant to hire an architectural historian to survey and document additional cultural resources that are located within the floodplains and/or storm surge areas around the county. The St. Mary's County Historical Preservation Commission will assist with the identification of sites and work with architectural historian. The architectural historian selected will be qualified to develop the hypotheses outlined in the Demonstration Value under Public benefit.</p> <p>Also, the Architect historian, along with members of the St. Mary's County Historic Preservation Commission, will then review the existing sites, along with the new sites that have been added, and evaluate their historical significance to the county. These records will become a party of the local Hazard Mitigation Plan.</p>					
Responsible Agency:	Land Use & Growth Management					
Partners:	Maryland Historical Trust Emergency Service and Technology Historical Preservation Commission					
Potential Funding:	Historic Preservation: Repair and Restoration of Disaster-Damaged Historic Properties Hazard Mitigation Program Grant					
Cost Estimate:	\$35,000 for a single jurisdiction. Regional and multi-jurisdictional projects may request more than \$35,000.					
Benefits: (Losses Avoided)	Mitigate losses to historical structures within the state of Maryland to continue to preserve the history and culture of the citizens in the County.					
Timeline:	Grant Preparation and Processing – 1 year Plan Development – 1-2 years					
Priority:	HIGH					

ACTION ITEM #10 - "Repetitive Loss" be added to the definitions.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide					
Background/Issue:	This will allow extension of the Increased Cost of Compliance (ICC) coverage in flood insurance policies that pays up to \$30,000 in additional coverage to bring repetitive loss as well as substantially damaged properties into compliance with the floodplain ordinance. The community must be willing to treat repetitive loss properties the same as new and substantially improved structures to qualify. If this is adopted, they must require that repetitive loss properties meet all code requirements as new structures, but they will be making ICC payments available to these structures. Point of contact: Kevin Wagner, Community Assistance Program Manager, MDE. Email: Kevin Wagner at kevin.wagner@maryland.gov .					
Ideas for Integration:	Integration into County Floodplain Ordinance. Include with Mitigation Action Items #1 & #2.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Department of Public Works & Transportation Commissioners of St. Mary's County					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Note: See Action Mitigation Action Items #1 & #2.					
Benefits: (Losses Avoided)	Reduce the loss of property and life.					
Timeline:	Note: See Action Mitigation Action Items #1 & #2.					

ACTION ITEM #11 - Modify Substantial Improvement Standards						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)		Ongoing
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Countywide					
Background/Issue:	Return cumulative value for revisions of structure in floodplains to the calculations for substantial improvements (perhaps limited to a 10-year window to account for inflated costs of repairs and assessments.)					
Ideas for Integration:	Complete modification during floodplain ordinance revision process.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Emergency Services					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Note: See Action Mitigation Action Items #1 & #2.					
Benefits: (Losses Avoided)	Property protection through the enforcement of current building codes and floodplain management regulations.					
Timeline:	Note: See Action Mitigation Action Items #1 & #2.					

ACTION ITEM #12 - Mitigate damage to power lines from falling trees.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
	●					
2022 Status Update	<p>According to Southern Maryland Electric Cooperative (SMECO) website:</p> <p><i>SMECO manages vegetation along the Co-op’s rights-of-way on a four-year cycle. We prune and remove trees, clear brush, and apply herbicides to maintain our rights-of-way. Our goal is to control the vegetation that threatens power lines so that we can maintain a safe and reliable electric system.</i></p> <p><i>SMECO’s vegetation management program follows best management practices for the utility arboriculture industry and adheres to federal and state regulations. At least seven days before working in a specific area, we use door hangers to notify customers about vegetation maintenance so that they will have an opportunity to ask questions or voice their concerns to SMECO.</i></p> <p>The website also offers a number for residents to call and report trees that are overhanging powerlines. The website also states where maintenance crews are currently working.</p> <div style="border: 1px solid black; padding: 5px;"> <p>St. Mary’s County:</p> <ul style="list-style-type: none"> ■ Maintenance tree trimming crews are currently working in the following areas: Redgate and Valley Lee. ■ One mowing crew is currently working in the following area: Redgate. <p>Three tree trimming crews are reserved for danger trees and customer service calls.</p> </div>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓	✓				
Location:	Countywide					
Background/Issue:	Earth gives way causing trees to collapse and fall to the ground. “Land Subsidence”. Due to high content of clay within the soil, diminished water will cause clay like soils to shrink. Trees and other vegetation draw water from the soil which then causes soil shrinkage. This shrinkage may lead to “falling trees”. Trees need to be cut back near power lines to avoid potential damage.					
Ideas for Integration:	Work with Southern Maryland Electric Cooperative (SMECO).					
Responsible Agency:	Public Works and Transportation					
Partners:	State Highway Administration Southern Maryland Electric Cooperative (SMECO)					
Potential Funding:	N/A					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Continuity of Power Supply and Improved Resiliency.					
Timeline:	On-going					

ACTION ITEM #13 - MD 5, Point Lookout Road Safety Improvement Project						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	<p>The Maryland Department of Transportation’s State Highway Administration (SHA) is constructing MD 5 (Point Lookout Road) Intersection Improvements at Abell Street and Moakley Street (SM2025218). Preliminary work includes installing erosion and sediment controls and temporary traffic signs.</p> <p>Overall project improvements include:</p> <ul style="list-style-type: none"> • Constructing bicycle-compatible shoulders in each direction that will also accommodate travel needed by the Amish community. • Reconstructing sidewalks and pedestrian ramps. • Constructing left-turn lanes at the MD 5 intersection with Abell/Moakley Streets. • Resurfacing and/or restriping roadway pavement. • Installing drainage systems and stormwater management facilities. • Adding landscaping and planting trees. • Employing stream relocation and restoration. 					
	 <p>Improvements began October 2019 and are currently still in progress. The latest update was provided for May 2022 stating:</p> <p><i>MDOT SHA’s contractor has completed the storm drain and pipe installation within the work zone. Crews are also nearing completion of the work at the driveway entrances and the sidewalk reconstruction along southbound MD 5. Remaining work along southbound MD 5 would then include base paving, which would take place at night.</i></p> <p>Updates and additional information about the project are available on MD SHA’s website: https://mdot-sha-md5-intrs-at-abell-st-and-moakley-sm2025218-maryland.hub.arcgis.com/</p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓
Location:	At Abell/Moakley (Phase 1)					
Background/Issue:	Intersection improvements at MD 5 (Point Lookout Road) and Moakley Street/Abell Street. Constructing northbound and southbound MD 5 left-turn lanes at Abell Street/Moakley Street and associated MD 5 widening. Geometric improvements to the intersection and mainline MD 5 to improve vehicular safety, pedestrian/bicyclist safety and traffic operations. A two-way center turn land between Clarks Rest and the entrance of St. Mary’s Hospital entrance adjacent to MD 5 is included.					

Ideas for Integration:	Install traffic lights
Responsible Agency:	Public Works and Transportation
Partners:	State Highway Administration Maryland Department of Transportation
Potential Funding:	Maryland Department of Transportation
Cost Estimate:	\$13,709,000.00
Benefits: (Losses Avoided)	Life Safety
Timeline:	Spring 2018

ACTION ITEM #14 - Water loop from Washington Street to Fenwick Street						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)		Ongoing
	●					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓
Location:	MD RTE 5 – 12” Watermain Installation along MD Rt. 5					
Background/Issue:	This will allow more commercial & residential properties to have water due to a breakage, using the inherent redundancy built into a loop system rather than a linear line system.					
Ideas for Integration:	Water & Sewer Plan					
Responsible Agency:	Town of Leonardtown					
Partners:	Public Works and Transportation					
Potential Funding:	Town of Leonardtown					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Continuity of Water Supply					
Timeline:	Spring 2017					
Priority:	HIGH					

ACTION ITEM #15 - Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).

Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
		●				
2022 Status Update	<p>The Comprehensive Water and Sewerage Plan (CWSP) 2017 Update identifies recommendations for the Water Policy Task Force which included the following:</p> <ul style="list-style-type: none"> • Conduct an evaluation of potential substitutes for ground water such as rainwater, gray water, desalinated water and, for certain purposes, sewage treatment plant effluent (recycled wastewater). Obtain necessary state and legislative changes needed to make gray water systems and recycled wastewater both legal and encouraged in Maryland. • Consider restricting non-potable water users to unconfined aquifers or other non-potable sources. For large commercial/industrial potable water application permits, require in-depth study to insure that every feasible alternative is explored before potable water for non-potable usage is allowed. 					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
				✓		
Location:	Countywide					
Background/Issue:	<p>Comprehensive Water and Sewage Plan managed by Land Use & Growth Management discusses water shortage and reuse issues. Corps of Engineers which is supported by Land Use & Growth Management oversaw the Water Policy Task Force and Corp of Engineers recommendations regarding this item. Water reuse provides an effective means for conserving limited high-quality freshwater supplies and meeting everyday water demands. According to the EPA's <i>2004 Guidelines for Water Reuse</i>, water reuse can be an alternate source for several applications including landscaping, agricultural irrigation, industrial processing and power plant cooling. Therefore, areas in the county that would benefit from water reuse should be identified and analyzed for the possible use of this practice.</p>					
Ideas for Integration:	Water & Sewer Plan Comprehensive Plan – Community Facilities					
Responsible Agency:	Land Use and Growth Management					
Partners:	Department of Public Works & Transportation Recreation & Parks					
Potential Funding:	Corp of Engineers					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Water Reuse					
Timeline:	1-3 Years					

ACTION ITEM #16 - Develop Flood Mitigation Plan						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)	Ongoing	
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Countywide					
Background/Issue:	The purpose of a Flood Mitigation Plan is to assist State and local governments in funding cost-effective actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other insured structures. The long-term goal of FMA is to reduce or eliminate claims under the National Flood Insurance Program (NFIP) through mitigation activities. The program provides cost-shared grants for three purposes: Planning Grants to States and communities to assess the flood risk and identify actions to reduce that risk; Project Grants to execute measures to reduce flood losses; and Technical Assistance Grants that States may use to assist communities to develop viable Flood Mitigation Assistance (FMA) applications and implement FMA projects. FMA also outlines a process for development and approval of Flood Mitigation Plans.					
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System					
Responsible Agency:	Emergency Services					
Partners:	Land Use and Growth Management Public Works and Transportation					
Potential Funding:	Flood Mitigation Assistance Program					
Cost Estimate:	\$30,000-\$40,000					
Benefits: (Losses Avoided)	Prioritized and technically feasible grant funded projects.					
Timeline:	Short Term					
Priority	HIGH					

ACTION ITEM #17 – Elevate Repetitive Loss Properties						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	<p>The FY22-27 Capital Improvement Plan (CIP) identified the Piney Point Road Shore Erosion project which consisted of Design and construct approximately 500 feet of shore erosion protection along the Piney Point Road/ Island Creek waterfront to provide the needed shore erosion protection to the County maintained road. Also, within the CIP, the MD 249 St. George Island Shore Erosion/Flooding project was discussed. A meeting with State and Federal agencies was conducted in 2019 and concluded that SHA would fund, design, and construct mitigation measures.</p> <p>In March 2021, Maryland State Highway presented a roadway profile improvement and shoreline protection study for MD 249 Saint George Island. The study results were:</p> <ul style="list-style-type: none"> • Roadway Study: <ul style="list-style-type: none"> ○ Recommends raising the road 3.8’ 4’ ○ Drainage improvements ○ Pavement reconstruction and overlay • Shoreline Protection Study: <ul style="list-style-type: none"> ○ Living Shoreline for 3 sites which includes combination of: <ul style="list-style-type: none"> ▪ Stone Sill ▪ Tidal Marsh ▪ Sand Dunes/Levee ▪ Gabion Flood Protection Barriers ▪ Tide Valves <p>This project will assist will with mitigation the flood issues in the Piney Point Road, however the repetitive loss properties should still be evaluated for elevation.</p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓	✓				✓
Location:	Repetitive Loss Properties, specifically those located in Piney Point and Tall Timbers					
Background/Issue:	Structures experiencing repetitive loss from flooding, hurricanes, tropical storms, and Nor’easter should be evaluated for potential elevation projects. These types of storms and storm surges have caused damages to structures on both the interior and exterior. Additionally, all repetitive loss properties located within the FEMA Special Flood Hazard Areas and are currently located next to tidal waters should be a priority for flood mitigation projects such as elevation.					
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System					
Responsible Agency:	Land Use and Growth Management Public Works and Transportation					
Partners:	Emergency Services					
Potential Funding:	Hazard Mitigation Grant Program Flood Mitigation Assistance Program					
Cost Estimate:	Project Dependent					

Benefits: (Losses Avoided)	Flood insurance and personal property insurance premiums cost are greatly reduced. No damage to the interior of the structure (living quarters). If the mechanical and electrical equipment is elevated 2 feet above the FIRM, then the mechanical should not have to be replaced because of flooding.
Timeline:	Three (3) years once approved by MEMA / FEMA, grant is received and the owner of the structure deposits their portion of the required funds. Note that any construction work needs to be done during summer and completed by early fall when the conditions are dry. All development work (survey, design testing and required documentation) should be accomplished when the project is completed during late fall and winter.

ACTION ITEM #18– Ellis Road Living Shoreline and Bank Stabilization						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)		Ongoing
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓
Location:	Ellis Road Shoreline at St. Clements Bay, Seventh District					
Background/Issue:	<p>Due to a historically extensive wave action coupled with littoral drift, the shore adjacent to Ellis Road has eroded and compromised the shoreline bank. If allowed to continue, failure of the shoreline bank will result in the collapse of Ellis Road, resulting in the stranding of residents, disruption of traffic, and the lack of availability for emergency services delivery.</p> <p>Implement structural measures to incorporate climate resiliency, stabilize the bank, and reduce the potential of damage to adjacent properties on Ellis Road.</p>					
Ideas for Integration:	Integration will occur with the existing roadway and shoreline bank to mitigate the potential for collapse					
Responsible Agency:	Department of Public Works and Transportation					
Partners:	Maryland Department of Natural Resources for Technical Assistance					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Program					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Approximately \$250,000, inclusive of design costs and construction of 650 feet of living shoreline measures.					
Timeline:	Shoreline bank stabilization will abate the potential failure of the shoreline and subsequent roadway avoiding the immediate damages to public services provided north of the failure; inclusive of emergency services and stranding of the residents living in these homes.					

ACTION ITEM #19 – Sandgates Road Living Shoreline Stabilization and Roadway Elevation Project.						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)	Ongoing	
		●				
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
					✓	✓
Location:	Sandgates Road and Shoreline on the Patuxent River, Sixth District					
Background/Issue:	<p>Due to extensive wave action coupled with littoral drift, the shoreline adjacent to Sandgates Road has eroded to within 10 feet of Sandgate’s Road. If erosion is allowed to continue at its present rate, seasonal storms excluded, the roadway will fail and disrupt traffic and emergency services to the residents of Sandgate’s Road. Since 2003, the shoreline has eroded thirty-five feet to its current condition.</p> <p>Implement structural measures to incorporate climate resiliency, reducing the potential for damage to adjacent properties and the roadway on Sandgates Road from seasonal storms.</p>					
Ideas for Integration:	Integration will occur with elevation of the existing roadway and shoreline bank structural measures to mitigate the potential for collapse.					
Responsible Agency:	Department of Public Works and Transportation					
Partners:	Maryland Department of Natural Resources for Technical Assistance.					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Program					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Project costs estimated at approximately \$225,000 inclusive of design costs and construction of a 200-foot living shoreline coupled with elevation of the roadway.					
Timeline:	Shoreline bank stabilization will abate the potential failure of the shoreline and subsequent roadway avoiding the immediate damages to public services and property losses in the case of a roadway failure.					

APPENDIX F

AVAILABLE FUNDING SOURCES FOR MITIGATION PROJECTS

The following is a list of Federal and State Grants that may assist in implementing local Hazard Mitigation Plans.

Disclaimer: This information is subject to change at any time, contact the federal or state agency for current grant status.

Database last updated March 16, 2022

Funding Program Name	Contact Information	Key Words	Eligible Activities	Cost Share Requirements	Other Program Characteristics	Application Due Date
<p>Animals: Haying and Grazing</p>	<p>USDA Farm Service Agency Emergency and Non-insured Assistance Programs FSA USDA 1400 Independence Ave, SW Washington, DC 20013 202-720-4053</p>	<p>agriculture; Conservation Reserve Program; CRP; disaster; drought; farm; FSA; haying; grazing; livestock; natural disaster; rural; USDA</p>	<p>Haying and grazing on Conservation Reserve Program (CRP) acreage to provide emergency relief to livestock producers due to certain natural disasters. Emergency haying and grazing on CRP acreage to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.</p>	<p>No information provided</p>	<p>Producers must be enrolled in the USDA Farm Service Agency's Conservation Reserve Program. For more information on the program, visit: https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index</p>	<p>Anytime</p>
<p>Building Blocks for Sustainable Communities</p>	<p>U.S. Environmental Protection Agency (EPA) Office of Community Revitalization (MC 1807I) 1200 Pennsylvania Ave NW Washington, D.C. Abby Hall at hall.abby@epa.gov or 202-631-5915 https://www.epa.gov/smartgrow/h/building-blocks-sustainable-communities</p>	<p>EPA; local government; nonprofits; smart growth</p>	<p>Applications should focus on regional projects that address a disaster risk faced by those communities. Projects should align with and support related efforts and local hazard mitigation plans. Eligible applicants: local, county, or tribal governments, nonprofit organizations.</p>	<p>N/A</p>	<p>This program provides technical assistance to communities using a variety of tools (e.g. smart growth, climate change, disaster resiliency and recovery, etc.). The EPA provides technical assistance through uses teams of experts who conduct workshops in communities related to the tools. Grant focus changes yearly.</p>	<p>November 20, 2020</p>

<p>Capital Project Financial Assistance / Water Quality Improvement Projects - Maryland Water Infrastructure Financing Administration (MWIFA)</p>	<p>Maryland Department of the Environment (MDE) For assistance, please contact Jeff Fretwell at jeffrey.fretwell@maryland.gov https://mde.maryland.gov/programs/water/WQFA/Pages/index.aspx</p>	<p>Chesapeake Bay: drinking water; MS4; MWQFA; restoration; revolving loan; septic system; sewer extension; stormwater; wastewater; wastewater treatment; water quality</p>	<p>Water Quality State Revolving Loan Fund – Low interest rate loan and principal forgiveness (if eligible) for publicly-owned treatment works projects and publicly or privately-owned non-treatment works projects.</p> <p>Drinking Water State Revolving Fund – Low interest rate loan and loan principal forgiveness (if eligible) for public or privately-owned drinking water projects.</p> <p>Bay Restoration Fund Wastewater Program - Grant funds for</p> <ul style="list-style-type: none"> ENR upgrade at major or minor wastewater treatment plants Improvements to existing wastewater conveyance systems Sewer extension to connect homes on septic systems to a BNR/ENR wastewater treatment plant Nitrogen reducing BAT upgrade at shared community septic systems Stormwater (MS4) projects by local governments with a system of charges <p>Water Supply Financial Assistance - Grant funds not to exceed \$1.5 million for drinking projects at publicly-owned facilities; based on system size, compliance, and affordability.</p>	<p>No information provided; N/A for loans</p>	<p>If you previously applied for financial assistance and your project was only partially or not funded, a new/updated application is required. (Applicants with stormwater permits to meet MS4 requirements may (and are strongly encouraged to) submit multiple BMP projects that will start construction within 12 – 18 months of notification of funding as a “program” of projects using a single funding application, as opposed to submitting individual BMP projects in separate applications.) Projects in construction prior to MDE’s verification of competitive procurement and compliance with all programmatic requirements will not be funded. Do not submit applications for projects in construction that have not already had these reviews completed by MDE.</p>	<p>TBD</p>
<p>Certified Local Government (CLG) Program</p>	<p>Maryland Historical Trust (MHT) 100 Community Place, 3rd Floor Crownsville, MD 21032 Nell Ziehl, Chief, Office of Planning, Education and Outreach, nell.ziehl@maryland.gov 410-514-7625</p>	<p>archaeology; archeology; CLG; certified local government; cultural resources; documentation; education; evaluation; heritage; historic; historic building; historic preservation; historic structure; nomination; NPS; National Park Service; NRHP; National Register of Historic Places; planning; preservation; research; studies; training</p>	<p>There are two grant tracks: Education and Training and Projects. Education and Training grants are available for attendance at training, workshops, and conferences. Project grants are available for research, survey, documentation, conservation, planning and educational activities involving historic, architectural, archeological or cultural resources (i.e., the tangible remains of Maryland’s past). Only Certified Local Governments are eligible to apply for funding.</p>	<p>N/A</p>	<p>Education and Training Grant awards do not exceed \$1,000 per Certified Local Government and Program Grants do not exceed \$25,000. Individual awards for Program Grants generally range from \$5,000 to \$15,000. Hazard mitigation planning for cultural resources (historic structures, historic communities, archeological sites) in CLGs may be fundable under this program. Contact Program Administrator prior to submitting a hazard mitigation planning grant to verify project eligibility.</p>	<p>January or February</p>

<p>State Clean Water Commerce Act Grant</p>	<p>Maryland Department of the Environment (MDE) Walid Saffouri walid.saffouri@maryland.gov 410-537-3757 https://mde.maryland.gov/programs/water/WQFA/Pages/index.aspx</p>	<p>Chesapeake Bay; Clean Water Act; environmental; nutrient reduction; sediment load reduction; sediment; water quality</p>	<p>This bill reauthorizes and modifies the Clean Water Commerce Act (CWCA) through June 30, 2030 and requires the Maryland Department of the Environment (MDE) to transfer \$20.0 million annually from the Bay Restoration Fund (BRF) Wastewater Account to the Clean Water Commerce Account (CWC Account), a new account within BRF established by the bill. The CWC Account must be used to purchase “environmental outcomes” to help the State achieve the Chesapeake Bay Total Maximum Daily Load (TMDL). The bill establishes requirements for the provision and verification of environmental outcomes, among other things. MDE may adopt implementing regulations. The bill takes effect June 1, 2021, and terminates June 30, 2030</p>	<p>No information provided</p>	<p>MDE may enter into any contract until June 30, 2030. The contract may last as long as the expected life of the environmental practice resulting from nutrient load reductions.</p>	<p>TBD</p>
<p>Community Assistance Program - State Support Services Element (CAP-SSSE)</p>	<p>Maryland Department of the Environment 160 South Water Street Frostburg, MD 21532 For more information contact: Kevin Wagner Community Assistance Program Manager kevin.wagner@maryland.gov 301-689-1495 https://www.fema.gov/community-assistance-program-state-support-services-element</p>	<p>flood; floodings; flood insurance; flood mitigation; flood openings; flood risk reduction; floodplain management; floodplain mapping; floodplain regulations; hazard mitigation; NFIP; technical assistance</p>	<p>The Maryland Department of the Environment will provide technical assistance on the National Flood Insurance Program (NFIP). Assist with questions about construction in the floodplain, flood insurance, and floodplain mapping to local governments and municipalities.</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
<p>Community Development Block Grant / Disaster Recovery</p>	<p>U.S Department of Housing and Urban Development (HUD) Office of Block Grant Assistance 451 7th Street, SW Washington, DC 20410-7000 202-708-1112 www.hudexchange.info/programs/cdbg-dr/</p>	<p>CDBG-DR; community; disaster; economic revitalization; housing; HUD; infrastructure; recovery</p>	<p>State and local governments may apply for funding. Eligible activities include "...necessary expenses related to disaster relief, long-term recovery, and restoration of infrastructure, housing, and economic revitalization." Each activity must meet these three requirements: (1) Address a disaster-related impact (direct or indirect) in a Presidentially declared area for the covered disaster (2) Be a CDBG eligible activity and (3) Meet a CDBG national objective.</p>	<p>No information</p>	<p>Citizen participation procedures must be followed. At least 70 percent of funds must be used for activities that principally benefit persons of low and moderate income. Formula grants to States for non-entitlement communities.</p>	<p>After a Presidential Disaster Declaration</p>

<p>Community Legacy Program</p>	<p>Maryland Department of Housing and Community Development (DHCD) Contacts vary by region. Community Legacy Contact List available here: https://dhcd.maryland.gov/Communities/Pages/programs/CL.asp</p>	<p>acquisition; business; business retention; community; development; communities; demolition; DHCD; economic revitalization; improvements; open space; revitalization; Sustainable Communities; sustainable; sustainability</p>	<p>Projects should help the local government's implementation of their Sustainable Communities Action Plan. Typical projects/activities include (but are not limited to): mixed-use development consisting of residential, commercial and/or open space; business retention, expansion, and attraction initiatives; streetscape improvements; increasing homeownership and home rehabilitation among residents; residential and commercial façade improvement programs; real estate acquisition, including land banking, and strategic demolition.</p>	<p>State - 100%</p>	<p>Projects must be located in a one of Maryland's designated Sustainable Communities. Eligible applicants are local governments, community development organizations (county councils, community development corporations, main street organizations, downtown partnerships), and groups of local governments sharing a common purpose or goal. There is a Neighborhood Intervention component of the Community Legacy program, to not exceed 15 percent of the Community Legacy fund.</p>	<p>Late Spring</p>
<p>Comprehensive Flood Management Grant Program (FMG)</p>	<p>Maryland Department of the Environment (MDE) 1800 Washington Blvd Baltimore, MD 21230 For more information, please contact Jeff Fretwell at jeffrey.fretwell@maryland.gov</p>	<p>acquisition; capital projects; elevation; flood; flood control; flood damage; flood management plan; MDE; flood mitigation; planning relocation; watershed management; watershed studies; watershed</p>	<p>The grant funds the development of local flood management plans, studies of watersheds, and supports capital projects for flood control and watershed management. This program also provides grants to Maryland counties and municipalities after flood events to implement flood control projects, and for acquisition of flood-damaged owner-occupied dwellings. Elevation and relocation of homes are also eligible for funding. Acquired land is converted to open space in perpetuity.</p>	<p>When federal funds do not participate in the cost of a project, the FMG may fund up to 75% of the cost of the project and the local share would be 25%. If federal funds are participating in the project cost, the FMG can provide 50% of the match requirement and the local share would be 50%.</p>	<p>Only county and municipal governments are eligible to receive grants. During the 2019 Session of the Maryland General Assembly HB 428/SB 269 was passed, which requires at least \$3 million in both fiscal year 2021 and fiscal year 2022, and for fiscal year 2023 at least \$2 million be appropriated.</p>	<p>The solicitation period is typically from December 1 through January 31. Complete applications and supporting documents are due to MDE before the close of the solicitation period</p>
<p>Conservation Reserve Program</p>	<p>USDA Farm Services Administration (FSA) https://www.fsa.usda.gov/programs-and-services/conservation-reserve-program/</p>	<p>agriculture; conservation; CRP; erosion; habitat; habitat restoration; land conservation; open space; protection; restoration; soil erosion protection; soil erosion; USDA; water quality; wildlife habitat</p>	<p>For land to be eligible it must be: Cropland that has been planted or considered planted to an agricultural commodity 4 of the 6 years between 2008 and 2013; and Physically and legally capable of being planted in a normal manner to an agricultural commodity. Alfalfa or other multiyear grasses and legumes grown in a rotation, not to exceed 12 years, also may be eligible. Also, cropland must meet one of the following criteria: Have a weighted average Erodiability Index of eight, or greater; Be expiring CRP; or Be located in a national or State conservation priority area.</p>	<p>N/A</p>	<p>Contracts for land enrolled in CRP are 10-15 year in length.</p>	<p>The General CRP signup runs from Jan. 31, 2022 to March 11, 2022, and the Grassland CRP signup runs from April 4, 2022 to May 13, 2022. The Continuous CRP Signup is ongoing.</p>

<p>Continuing Authorities Program (CAP)</p>	<p>U.S. Army Corps of Engineers (USACE) 441 G Street, NW Washington, DC 20314 202-761-0011 https://www.nae.usace.army.mil/Missions/Public-Services/Continuing-Authorities-Program/</p>	<p>beaches; beach erosion; beneficial use of dredged materials; channel clearing; dredged materials; environmental; erosion; flood control; hazard mitigation; hazard protection; natural hazards; storm damage reduction; navigation improvements; mitigation; protection; public services; public works; streams; streambank; shoreline; USACE; water resources</p>	<p>USACE will plan, design, and implement certain types of water resources projects. Activities are section-dependent: streambank and shoreline erosion protection of public works and non-profit public services; beach erosion and hurricane and storm damage reduction; navigation improvements; shore damage prevention or mitigation caused by Federal navigation projects; beneficial uses of dredged materials; flood control; aquatic ecosystem restoration; removal of obstructions, clearing channels for flood control; project modifications for the improvement of the environment</p>	<p>The feasibility phase is Federally funded up to \$100,000, any remaining feasibility costs are shared 50/50 with the Non-Federal sponsor. The implementation phase costs are shared per the authorizing legislation for that section.</p>	<p>A local sponsor must identify the problem and request assistance. Small flood control projects are also available. Baltimore District, USACE General Information: 1-800-434-0988</p>	<p>Anytime</p>
<p>Emergency Advance Measures for Flood Prevention</p>	<p>U.S. Army Corps of Engineers (USACE) 441 G Street, NW Washington, DC 20314 202-761-0011</p>	<p>advance measures; contamination; disaster; drought; emergency operations; emergency; water; flood control; flood response; post-flood response; preparedness; rehabilitation; response; shoreline protection; USACE</p>	<p>The USACE is authorized to undertake activities including disaster preparedness, Advance Measures, emergency operations (Flood Response and Post Flood Response), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source.</p>	<p>No information provided</p>	<p>There must be an immediate threat of unusual flooding present before advance measures can be considered. Any work performed under this program will be temporary in nature and must have a favorable benefit cost ratio.</p>	<p>Governor of State must request assistance</p>
<p>Emergency Watershed Protection (EWP) Program - Recovery Assistance</p>	<p>Natural Resources Conservation Service (NRCS) 1400 Independence Avenue SW Washington, DC 20250 Shawn Anderson, Acting EWP Program Manager, shawn.anderson@wdc.usda.gov, 202-720-5795</p>	<p>debris removal; conservation; erosion protection; EWP; levee repair; NRCS; recovery; streams; streambank erosion; streambank protection; USDA; watershed</p>	<p>Debris removal from stream channels, roads culverts, and bridges; reshape and protect eroded streambanks; correct damaged drainage facilities; establish vegetative cover on critically eroding lands; repair levees and structures; repair conservation practices</p>	<p>Federal - 75% Non-Federal - 25%</p>	<p>Public and private landowners can apply for assistance for EWP Program – Recovery projects through a local sponsor, or a legal subdivision of state or tribal government. Eligible sponsors include cities, counties, towns, conservation districts, flood and water control districts, or any federally recognized Native American tribe or tribal organization. Does not fund operation and maintenance work or repair private or public transportation facilities or utilities. Any work performed under this program cannot adversely affect downstream water rights and funds cannot be used to install measures not essential to the reduction of hazards.</p>	<p>TBD - Post disaster</p>

<p>Emergency Watershed Protection (EWP) Floodplain Easement Program - Floodplain Easement Option (EWPP-FPE)</p>	<p>Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program – Floodplain Easement (EWPP-FPE) Program Manager Jeff Williams Easement Programs Division, jeff.williams3@usda.gov 202-720-6268 Contact Local NRCS Field Office: www.nrcs.usda.gov/wps/portal/nrcs/main/md/contact/local/</p>	<p>acquisition; demolition; easements; EWP; EWPP-FPE; floodplain; floodplain enhancement; floodplain restoration; NRCS; open space; relocation; restoration; USDA</p>	<p>Permanent easements are available for eligible lands: Agricultural or open lands; lands primarily used for residential house. Individuals and communities can directly contact NRCS about this program.</p>	<p>N/A</p>	<p>A project sponsor is required for lands primarily used for residential housing and for the purchase of the remaining lot after structures are removed. NRCS may purchase EWPP-FPE permanent easements in floodplains for the following reasons: 1) The land has been damaged by flooding at least once during the previous calendar year or subject to flood damage at least twice within the previous 10 years. 2) Other lands within the floodplain may be eligible if they contribute to the restoration of floodwater storage and flow, offer a way to control erosion, or improve the practical management of the floodplain easement. 3) Lands that would be inundated or adversely impacted as a result of a dam breach. If FPE is being offered as recovery for a specific natural disaster, at least one instance of flooding must have occurred because of that natural disaster.</p>	<p>Anytime</p>
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<p>Federal Emergency Management Agency, Flood Mitigation Assistance Program (FMA)</p>	<p>Maryland Emergency Management Agency (MEMA) 5401 Rue Saint Lo Drive Reisterstown, MD 21136 Contact: mitigation.memema@maryland.gov</p>	<p>aquifer; critical facilities; FEMA; FMA; flood; flood control; flood damage; flood mitigation; flood protection; floodwater storage; floodwater diversion; HMA; infrastructure; MEMA; mitigation; NFIP; plan; planning; protection; recovery; repetitive loss; RL; restoration; sanitary sewer system; severe repetitive loss; streams; stream restoration; SRL; stormwater; stormwater management; water system; wetlands; wetland restoration</p>	<p>Infrastructure protective measures; floodwater storage and diversion; utility protective measures; stormwater management; wetland restoration/creation; aquifer storage and recovery; localized flood control project to protect critical facility; floodplain and stream restoration; water and sanitary sewer system protective measures</p>	<p>Federal - 75% Non-Federal - 25% RL: Federal - 90% Non-Federal - 10% SRL: Federal - 100% Non-Federal - 0% Small, Impoverished Community: Federal - 90% Non-Federal - 10% RL = Repetitive Loss Property SRL = Severe Repetitive Loss Property</p>	<p>Projects must be cost effective, located in a participating NFIP Community (in good standing), align with the applicable FEMA-approved hazard mitigation plan, and meet all environmental and historic preservation (EHP) requirements. Repetitive and Severe Repetitive Loss Properties are a high priority. Program is nationally competitive. <i>Sub applicants must submit a Notice of Intent (NOI) to MEMA to apply for funding under this grant and must coordinate with MEMA prior to submission.</i> MEMA submits all grants for the State of Maryland (including sub-grants to local governments). Applicants (the State of Maryland) and sub applicants (local government) must have a FEMA approved hazard mitigation plan as of the application deadline and at the time of obligation of funding for project grants. Some projects may require the property be covered by a flood insurance policy for the life of the structure upon project completion.</p>	<p>Application Opening: Sept. 30, 2021 Application Deadline: Jan. 28, 2022, 3 p.m. EST</p>
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<p>Federal Emergency Management Agency, Hazard Mitigation Grant Program (HGMP)</p>	<p>Maryland Emergency Management Agency (MEMA) 5401 Rue Saint Lo Drive Reisterstown, MD 21136 Contact: mitigation.memema@maryland.gov</p>	<p>acquisition; code enforcement; demolition; disaster; elevation; FEMA; flood; flood risk reduction; floodproofing; generators; hazard mitigation; hazard mitigation plan; hazard mitigation planning; hazard mitigation project; HMA; HMGCP; management costs; mitigation; MEMA; NFIP; planning; plans; protection; reconstruction; relocation; retrofitting; safe rooms; soil stabilization; wildfire; wildfire mitigation; wind retrofit; 5 percent initiative</p>	<p>Acquisition, demolition, relocation, elevation, reconstruction, dry floodproofing, generator purchase, flood risk reduction projects, retrofitting, safe room construction, wind retrofits (1- and 2-family residences), soil stabilization, wildfire mitigation, hazard mitigation planning, management costs, post-disaster code enforcement, 5 percent initiative projects, hazard mitigation planning related planning activities</p>	<p>Federal - 75% Non-Federal - 25%</p>	<p>Projects must be cost effective, environmentally sound and solve a problem. Sub applicants must submit a Notice of Intent (NOD) to MEMA to apply for funding under this grant and must coordinate with MEMA prior to submission. <i>MEMA submits all grants for the State of Maryland (including sub-grants to local governments). Applicants (the State of Maryland) and sub applicants (local government) must have a FEMA approved hazard mitigation plan at the time of obligation of funding for project grants. Some projects may require the property be covered by a flood insurance policy for the life of the structure upon project completion.</i></p>	<p>After a Presidential Disaster Declaration</p>
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<p>Federal Emergency Management Agency, Building Resilient Infrastructure and Communities (BRIC)</p>	<p>Applications are processed through the FEMA GO system. To access the system, go to https://go.fema.gov/. Hard copies of the NOFO can be downloaded at the full NOFO, please submit a request to: Kayed Lakhia Director, Hazard Mitigation Assistance Division, Mitigation Directorate Federal Insurance and Mitigation Administration Federal Emergency Management Agency 400 C Street, SW Washington, DC 20472</p>	<p>acquisition; demolition; elevation; FEMA; flood; flood risk reduction; floodproofing; generators; hazard mitigation; hazard mitigation plan; hazard mitigation planning; hazard mitigation project; HMA; management costs; mitigation; MEMA; NFIP; PDM; planning; plans; protection; reconstruction; relocation; retrofitting; safe rooms; soil stabilization; wildfire; wildfire mitigation; wind retrofit</p>	<p>To achieve these principles, FEMA will provide financial assistance to eligible BRIC Applicants for the following activities: (1) Capability- and Capacity-Building (C&CB) – activities which enhance the knowledge, skills, expertise, etc., of the current workforce to expand or improve the administration of mitigation assistance. This includes activities in the following sub-categories: building codes activities, partnerships, project scoping, mitigation planning and planning-related activities, and other activities; (2) Mitigation Projects – cost-effective projects designed to increase resilience and public safety; reduce injuries and loss of life; and reduce damage and destruction to property, critical services, facilities, and infrastructure; and (3) Management Costs – financial assistance to reimburse the Recipient and subrecipient for eligible and reasonable indirect costs, direct administrative costs, and other administrative expenses associated with a specific mitigation measure or project in an amount up to 15 percent of the total amount of the grant award, of which not more than 10 percent of the total award amount may be used by the Recipient and 5 percent by the subrecipient for such costs. FEMA will also provide non-financial Direct Technical Assistance to communities to build a community's capacity and capability to improve its resiliency to natural hazards and to ensure stakeholders are capable of building and sustaining successful mitigation programs, submitting high-quality applications, and implementing new and innovative projects that reduce risk from a wide range of natural hazards.</p>	<p>Federal - 75% Non-Federal - 25% Small Impoverished Community: Federal - 90% Non-Federal - 10% Insular Areas: For insular areas, including American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands, FEMA automatically waives the non-federal cost share for the Recipient when the non-federal cost share for the entire award is under \$200,000. If the non-federal cost share for the entire award is \$200,000 or greater, FEMA may waive all or part of the non-federal cost share at the request of the Recipient. The Recipient may request the waiver in its application.</p>	<p>The Building Resilient Infrastructure and Communities (BRIC) program makes federal funds available to states, U.S territories, Indian tribal governments, and local communities for pre-disaster mitigation activities. The guiding principles of the program are to (1) support state and local governments, tribes, and territories through capability and capacity-building to enable them to identify mitigation actions and implement projects that reduce risks posed by natural hazards; (2) encourage and enable innovation while allowing flexibility, consistency, and effectiveness; (3) promote partnerships and enable high-impact investments to reduce risk from natural hazards with a focus on critical services and facilities, public infrastructure, public safety, public health, and communities; (4) provide a significant opportunity to reduce future losses and minimize impacts on the Disaster Relief Fund; and (5) support the adoption and enforcement of building codes, standards, and policies that will protect the health, safety, and general welfare of the public, take into account future conditions, and have long-lasting impacts on community risk reduction, including for critical services and facilities and for future disaster costs.</p>	<p>Application Opening: Sept. 30, 2021 Application Deadline: Jan. 28, 2022, 3 p.m. ESTT</p>
<p>Fire Management Assistance Program Fire Management Assistance Grant</p>	<p>Federal Emergency Management Agency (FEMA) FEMA Region III1615 Chestnut Street/One Independence Mall, Sixth Floor/Philadelphia, PA 19106-4404215-931-5500</p>	<p>disaster; FEMA; fire; fire control; forests; grassland; grassland mitigation; management; private land; public land; wildfire</p>	<p>Provides real-time assistance for the suppression of any fire on public (non-Federal) or privately owned forest or grassland that threatens to become a major disaster. Eligible costs may include, but are not limited to, expenses for: field camps, equipment use, equipment repair and replacement, tools, materials, supplies, and mobilization and demobilization activities.</p>	<p>Federal - 75% State - 25%</p>	<p>Prior to award, the State must demonstrate that the total eligible costs for the declared fire meet or exceed the individual fire cost threshold.</p>	<p>After Fire Management Assistance declaration</p>

<p>Oil Spill Liability Trust Fund</p>	<p>U.S. Coast Guard (USCG) Director, USCG National Pollution Funds Center Stop 7605 2703 Martin Luther King Jr. Avenue, SE Washington, DC 20593-7605 202-795-6000 Visit this website for more information: https://www.uscg.mil/Mariners/National-Pollution-Funds-Center/Response/</p>	<p>cleanup; contamination; disposal; hazmat; hazardous materials; NPFC; oil spill; Oil Spill Act; OPA; removal; USCG</p>	<p>Compensation may be available under the Oil Spill Act (OPA) if the claim meets the requirements and all costs and damages from the spill are documented. Funding can be used for Federal removal costs including payment to cleanup contractors, overtime for government personnel, equipment used in removal operations, testing to identify the type and source of oil, disposal of recovered oil and oily debris, and preparation of associated cost documentation.</p>	<p>Reimbursement for eligible activities, cost share does not apply</p>	<p>These agencies/organizations can access the fund: all Federal on-scene coordinators (FOSCs); Federal, State, local, and Tribal government agencies assisting the FOSC; natural resources trustees (designated by the President of the United States, state, territorial governor, or Indian tribal governing authority), claimants (individuals, corporations, and government entities) can submit claims for uncompensated removal costs and OPA damages caused by the oil spill to the USCG's National Pollution Funds Center (NPFC) if the responsible party (RP) does not satisfy their claims.</p>	<p>Anytime</p>
<p>Local Government Infrastructure Program</p>	<p>Maryland Department of Housing and Community Development (DHCD) Charles Day, Program Manager 7800 Harkins Road Lanham, MD 20706 301-429-7891</p>	<p>DHCD; equipment; facilities; infrastructure; infrastructure improvements; landscaping; loan; public services; public safety; public land; refinancing; stormwater; sidewalks; street lighting; vehicles; water treatment; water storage</p>	<p>Project must support an essential physical element of a municipality's public service system. Projects may include (but are not limited to): street lighting, landscaping, sidewalks, and public space improvements; public safety vehicles and equipment; water production, treatment, storage, and distribution systems; stormwater control, and sewer collection and treatment facilities; government office and meeting facilities; police, fire, transportation, education, health, recreation, maintenance, and other service related facilities; refinancing of existing debt for eligible projects as listed above.</p>	<p>N/A (loan) Through funding raised through tax-exempt bonds issued on behalf of counties, municipalities, and/or their instrumentalities, the State uses the bond proceeds to issue a <i>loan</i> to the local government (interest rate depends on market conditions at time of loan issuance).</p>	<p>All Maryland counties, municipalities and/or their agencies are eligible, provided they have legal authority necessary for: constructing, operating and maintaining the proposed project; pledging the security for and repaying the proposed loan, and; pledging income tax payments and various other shared revenue from the state. Local governments must secure local legislative approval(s) to incur the debt, certify the capacity to inspect the project's construction progress, and agree to submit periodic status reports. Additionally, they must ensure adequacy and sufficiency in the project's design and construction, and they must meet credit requirements sufficient to satisfy rating agencies and secure a favorable credit rating.</p>	<p>Applications accepted on an ongoing basis</p>

<p>Maryland Business Recovery Loan Program</p>	<p>Maryland Department of Housing and Community Development (DHCD) Neighborhood BusinessWorks Program 7800 Harkins Road, 4th Floor Lanham, MD 20706 Colleen Cord-Malone Business Lending Programs, Manager II 301-429-7517 Toll Free: 1-800-756-0119 colleen.cord-malone@maryland.gov malone@maryland.gov Aisha K. Taylor Business Lending Programs, Loan Underwriter 301-429-7721 Toll free: 1-800-756-0119 aisha.taylor@maryland.gov</p>	<p>DHCD; disaster; equipment; fixtures; furniture; inventory; leasing expenses; loan; lost revenue; lost operating expenses; nonprofits; recovery; renovation; repair; replacement; small business; working capital</p>	<p>Renovations; repairs and replacement of furniture, fixtures, and equipment; inventory replacement; loss of revenue/operating and leasing expense assistance; certain other costs associated with recovery of a small business, including working capital. Eligible businesses include: retail, manufacturing, goods and services. Business must be located in Baltimore City, Baltimore County, Frederick County, Howard County, or Washington County.</p>	<p>N/A (loan)</p>	<p>Offers assistance up to \$50,000 (amount based on damage assessment) at an interest rate of zero percent (0%). Higher amounts will be considered on a case-by-case basis. Financing may be used in conjunction with other financing, insurance proceeds, etc., and the target loan term is 1-5 years, depending on loan size and affordability.</p>	<p>Available when activated after state declaration of emergency.</p>
<p>Maryland Disaster Housing Assistance Program</p>	<p>Maryland Department of Housing and Community Development (DHCD) Gregory Hare Deputy Director, Multifamily Housing 7800 Harkins Road, Lanham, MD 20706 301-429-7775</p>	<p>assistance; DHCD; disaster; disaster assistance; emergency rental assistance; housing assistance; housing voucher; MDHAP; rental assistance; voucher</p>	<p>Eligible recipients: Families or individuals are assisted on a referral basis through referrals made by MEMA, DHR, local government human resources or emergency management offices, or other designated disaster relief agencies. Generally, all families or individuals displaced by a natural disaster are eligible and can be referred to the program.</p>	<p>None: State funds 100% of costs</p>	<p>The term of the voucher is 90 days, extensions will be considered if the home is not ready for occupancy at the end of 90 days.</p>	<p>Available when activated after state declaration of emergency.</p>

<p>Maryland Energy Administration (MEA), Resilient Maryland</p>	<p>Questions and feedback regarding the Resilient Maryland program should be directed to Brandon Bowser, CHP & Energy Resilience Program Manager, at BrandonW.Bowser@Maryland.gov or via phone at (443) 306-0304.</p>	<p>MEA; clean; efficient; affordable; energy; vulnerable populations.</p>	<p>At a minimum, eligible projects must: Be located within the State of Maryland; Clearly demonstrate the organizational and/or societal benefits of system implementation; Include an Applicant contribution that can be at a minimum an amount of donated work hours (excluding administrative duties related to Grant reporting); Demonstrate clean energy systems that achieve greenhouse gas reductions; and Permit showcasing of project findings and installations by MEA to the public. Applicants must be in Good Standing with the Maryland State Department of Assessments and Taxation (SDAT), when applicable.</p>	<p>Resilient Maryland is provided to help organizations identify potential ways to incorporate DERs into organizational energy management plans that improve resilience and sustainability, reduce energy burden, and safeguard essential infrastructure, services, and businesses from prolonged power outages. In its FY22 year, the program is seeking projects that pursue creative solutions, incorporate innovation, explore potentially replicable and scalable project models, and enhance energy equity to Maryland communities experiencing vulnerabilities and challenges.</p>	<p>Round 2 Program Application Deadline: 5:00 P.M. EST, Thursday, March 31, 2022</p>
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<p>Maryland Energy Administration (MEA), Combined Heat and Power (CHP) Grant Program</p>	<p>Questions or comments regarding the CHP Grant Program should be directed to Brandon Bowser, CHP & Energy Resilience Program Manager. He can be reached via email at BrandonW.Bowser@Maryland.gov or via phone at (443) 306-0304.</p>	<p>CHP; capital costs; energy resilience; energy efficiency; renewable natural gas; RNG;</p>	<p>Commercial businesses, Nonprofit organizations, Critical infrastructure, Industrial and manufacturing, Chemical and pharmaceutical, Institutional (colleges, universities, etc.), Public and private education, Multifamily housing, Agricultural, Maryland State and local government</p>	<p>Anticipated Program Budget: \$3.6 million, restrictions apply. For more information, please see the Funding Opportunity Announcement below</p>	<p>The FY22 CHP Grant Program is provided to further the statewide adoption of CHP technologies that bring energy efficiency, resilience, and enhanced sustainability to Maryland's businesses, supply chains, essential services, critical infrastructure, communities, and institutions. CHP technologies, when strategically implemented, produce energy for the sites they serve in the most efficient manner. This reduces the release of greenhouse gases when compared to emissions for utility-supplied energy. They also help diversify the State's electricity grid and give their implementers more energy autonomy, particularly when they are grid-interconnected and configured to operate in grid outage situations.</p>	<p>Program Application Deadline: Friday, February 11, 2022, 5:00 P.M. EST Accepts applications annually.</p>
<p>Maryland Housing Rehabilitation Program (Single Family; 1-4 Family Rental Units)</p>	<p>Maryland Department of Housing and Community Development (DHCD) Special Loan Programs 7800 Harkins Road, Lanham, 3rd Floor, MD 20706E; DHCD.SpecialLoans@maryland.gov ox: (301) 429-7409 Toll Free (Maryland Only): 1-844-369-4150/TTY: 711 or 1-800-735-225</p>	<p>DHCD; homeowners; landlords; loan; single family; rehabilitation; rental properties</p>	<p>Eligible Applicants: Household income of owner-occupants of single-family homes and all residents of financed rental housing cannot exceed 80 percent of the statewide or Washington, D.C. Metropolitan Statistical Area median income.</p>	<p>Community/Campus Microgrid</p>	<p>\$100,000</p>	<p>Open and ongoing</p>

<p>Maryland Sea Grant (NOAA)</p>	<p>NOAA, Sea Grant, Maryland Fredrika Moser, Director moser@mdsg.umd.edu Michael Allen, Associate Director for Research and Administration mallen@mdsg.umd.edu 301-405-7500 www.mdsg.umd.edu/funding-opportunities</p>	<p>aquaculture; climate change; coastal; coastal ecosystems; economy; economic equity; fisheries; land use; natural hazards; nutrient reduction; outreach; pollution abatement; research; resiliency; resilient communities; resilient economies; seafood safety; sediment reduction; socioeconomic equity; social equity; sustainable; sustainable fisheries; aquaculture; watershed; water quality</p>	<p>Eligible activities are research proposals that provide scientific and socioeconomic information that can inform policy decisions for fisheries management and sustainable aquaculture, climate change adaptation, coastal community resilience, and ecosystem restoration in coastal systems in Maryland. Projects must demonstrate a connection between the proposed research and the focus areas and strategies (one or more) highlighted in the RFP. A proposal must demonstrate integration among its scientific approaches, research outcomes, and outreach plan. Eligible applicants: Principal Investigators (PIs) must be affiliated with an academic institution or research laboratory in Maryland or the District of Columbia. Co-Principal Investigators (Co-PIs) on projects can be from institutions outside of Maryland or the District of Columbia. Single investigators and multiple investigator research teams from different institutions are encouraged to apply. Maryland Sea Grant extension personnel are welcome to serve as Co-PIs or senior personnel but are restricted from requesting salary support.</p>	<p>N/A</p>	<p>N/A</p>	<p>TBD</p>
<p>National Estuary Program (NEP) Coastal Watersheds Grant Program</p>	<p>EPA & Restore America's Estuaries Suzanne Simon NEP Coastal Watersheds Grant Program Director ssimon@estuaries.org 413-695-8922 https://estuaries.org/initiatives/watershedgrants/</p>	<p>adaptation; aquatic; aquatic invasive species; climate adaptation; climate change; climate vulnerability; comprehensive conservation and management plan; CCMP; ecosystems; estuary; green infrastructure; habitat; invasive species; nutrient reduction; pollution reduction; restoration; TMDL; water quality; wetlands</p>	<p>Activities may include: protecting and restoring up to 100,000 acres of estuarine habitat; protecting and restoring estuarine water quality in NEP study areas; supporting core Clean Water Act programs; conducting vulnerability assessments and/or implementing climate adaptation strategies in over 50% of NEP study areas and collaborating with other EPA programs and with agencies like NOAA to build regional, local, and tribal coastal community resilience to impacts of climate change on coastal ecosystems, public health, and economies; building local capacity to reach out to and involve urban community residents who typically may not have had access to water bodies in NEP study areas nor have been actively engaged in urban water body protection and restoration. Eligible applicants include: state agencies; public and nonprofit agencies; institutions; organizations and individuals (Section 320(g)(1)). Profit making organizations are not eligible for grants.</p>	<p>Please refer to: https://estuaries.org/wp-content/uploads/2022/02/2022-CWG-RFP-FINAL-3-1-2022.pdf</p>	<p>RAE will select grantees through a two-step process: 1) letters of intent (LOI); and 2) full proposals by invitation only. Project funding will range between \$75,000 and \$250,000, resulting in roughly three to ten total subawards per funding year depending on the breakdown of the requests. Projects must occur in their entirety within the geographic areas shown below and on this interactive map, which is located at: http://arcg.is/1u19zq.</p>	<p>Deadlines 1. Letters of Intent: due by 5:00 p.m. PT/8:00 p.m. ET on Friday, May 27, 2022 2. Full proposals by invitation only: due by 5:00 p.m. PT/8:00 p.m. ET on Friday, September 23, 2022</p>

<p>National Flood Insurance Program (NFIP)</p>	<p>Maryland Department of the Environment (MDE) 1800 Washington Blvd Baltimore, MD 21230</p>	<p>financial protection; flood; flood insurance; floodplain; floodplain regulations; insurance; MDE; NFIP; regulations</p>	<p>Provides financial protection by enabling persons to purchase insurance against floods, mudslide or flood related erosion. <i>Anyone can purchase flood insurance. You do NOT need to be in a regulatory floodplain to purchase flood insurance.</i></p>	<p>Community Resiliency Hub</p>	<p>\$10,000</p>	<p>Anytime</p>
<p>National Flood Insurance Program - Increased Cost of Compliance (ICC)</p>	<p>Maryland Department of the Environment (MDE) 1800 Washington Blvd Baltimore, MD 21230</p>	<p>acquisition; compliance; demolition; elevation; flood; flood damage; flood insurance; floodplain; floodplain regulations; floodproofing; ICC; increased cost of compliance; insurance; MDE; mitigation; NFIP; regulations; relocation; repetitive loss; RL; SFHA; substantial damage</p>	<p>Increased Cost of Compliance (ICC) coverage is one of several resources for flood insurance policyholders who need additional help rebuilding after a flood. It provides up to \$30,000 to help cover the cost of mitigation measures that will reduce flood risk. ICC coverage is a part of most standard flood insurance policies available under the Federal Emergency Management Agency's (FEMA's) National Flood Insurance Program (NFIP).</p>	<p>*Subject to funding availability and may be adjusted by MEA.</p>	<p>In addition to being insured under the NFIP, a building must meet one of two conditions to be eligible to receive ICC coverage; it must have been either 1) determined to be substantially damaged or 2) meet the criteria of a repetitive loss structure.</p>	<p>After a building in the SFHA is declared substantially damaged or meets the definition of a Repetitive Loss property</p>
<p>Neighborhood Business Works Program</p>	<p>Maryland Department of Housing and Community Development (DHCD) Business Lending Team 7800 Harkins Road Lanham, MD 20706 dhcd.businesslending@maryland.gov 301-429-7408</p>	<p>acquisition; commercial; community; communities; construction; development corporations; DHCD; loan; mixed use; new construction; nonprofits; Priority Funding Areas; rehabilitation; residential; SBA; soft costs; small business; Sustainable Communities; sustainable; sustainability</p>	<p>Eligible projects and uses of funds include: mixed-use projects combining residential and commercial uses in the same building; new construction or rehabilitation; machinery and equipment; certain other costs associated with opening or expanding a small business; real estate acquisition; manufacturing; service providers, and; retail. Projects must be located in a designated Maryland Sustainable Community or Priority Funding Area. Priority is given to projects that strengthen neighborhood commercial districts and are part of a greater revitalization strategy. Eligible applicants include Maryland-based small businesses (as defined by the SBA), local development corporations, and nonprofit organizations.</p>			<p>Open and ongoing</p>

<p>Historic Preservation Non-Capital Grant Program</p>	<p>Maryland Historical Trust (MHT) 100 Community Place, 3rd Floor Crownsville, MD 21032 Contacts: Archeology - Matt McKnight, 410-697-9572 matthew.mcknight@maryland.gov Architectural Survey - Heather Barrett, 410-697-9536 heather.barrett@maryland.gov All other projects - Karen Golder, 410-697-9550 karen.golder@maryland.gov</p>	<p>archaeology; architecture; conservation; cultural resources; documentation; education; historic; historic building; historic preservation; historic structure; MHT; planning; research; survey</p>	<p>Non-Capital grants are available for research, survey, documentation, conservation, planning and educational activities involving historic, architectural, archeological or cultural resources (i.e., the tangible remains of Maryland's past). It is strongly recommended that you contact MHT staff to discuss the project prior to submission of an application.</p>	<p>Entities seeking additional capital support for the equipment and installation of the planned DER system are encouraged to explore other MEA programs that provide funding for equipment and installation incentives. Information on these programs and links to their respective webpages are available in the FY22 Resilient Maryland Funding Opportunity Announcement (FOA) in the Eligibility Requirements section below.</p>	<p>The Historic Preservation Non-Capital Grant Program provides grants of up to \$75,000 to nonprofits (state and federal government entities may apply as nonprofits) and local jurisdictions. Local jurisdictions must provide a dollar-for-dollar match in cash or in-kind contributions.</p>	<p>FY 22 DEADLINE – Intent to Apply Due July 30, 2021 – Completed Application Due</p>
<p>Small Business Administration (SBA) Predisaster Mitigation Loan Program</p>	<p>Small Business Administration (SBA) James Rivera, Office of Disaster Assistance 409 3rd Street, SW, STE 6050 Washington, DC 20416 202-205-6734</p>	<p>business; disaster; economic injury; equipment; homeowners; inventory; loan; military duty; mitigation; machinery; operating expenses; real personal property; real estate; SBA</p>	<p>Business or home must have been affected by disaster. Eligible activities include: repairs and replacements of physical assets damaged in a declared disaster (real estate and personal property) and small business operating expenses (machinery and equipment, economic injury, inventory), and active military duty.</p>	<p>Grants will be awarded on a competitive basis. Award announcements for these funds are expected sometime in quarter 1 (Q1) of 2021.</p>		<p>After SBA disaster declaration</p>

<p>Strategic Demolition Fund - Statewide</p>	<p>Maryland Department of Housing and Community Development (DHCD) Contacts vary by region. Regional Contact List available here: https://dhcd.maryland.gov/Communities/Documents/SRP/PM-Map-ContactInfo.pdf</p>	<p>community; communities; demolition; DHCD; Sustainable Communities; sustainable; sustainability</p>	<p>Eligible projects include: demolition of derelict structures; site acquisition and assembly to create redevelopment-sized parcels for solicitation or planned development; site development, and; construction-level architectural and engineering designs.</p>	<p>State - 100%</p>	<p>Projects must be located within in a designated Maryland Sustainable Community except Baltimore City. The programs helps catalyze activities that accelerate economic development and job production in existing Maryland communities, aims to improve the economic viability of grey field development, which often faces more barriers than sprawling, green field development. The fund focuses on those projects that can have a high economic and revitalization impact in their existing communities.</p>	<p>Varies - once per State Fiscal Year</p>
<p>Strategic Demolition Fund - Project C.O.R.E.</p>	<p>Maryland Department of Housing and Community Development (DHCD) Contacts vary by region. Regional Contact List available here: https://dhcd.maryland.gov/Communities/Documents/SRP/PM-Map-ContactInfo.pdf</p>	<p>Baltimore; CORE; community; communities; DHCD; demolition; Sustainable Communities; sustainable; sustainability</p>	<p>Eligible projects include: demolition of derelict structures; site acquisition and assembly to create redevelopment-sized parcels for solicitation or planned development; site development, and; construction-level architectural and engineering designs. Lead applicants for Strategic Demolition Fund - Project C.O.R.E. are: Maryland Stadium Authority and nonprofit community development organizations working Baltimore City.</p>	<p>State - 100%</p>	<p>Projects must be located within Baltimore City. The programs helps catalyze activities that accelerate economic development and job production in existing Maryland communities, aims to improve the economic viability of grey field development, which often faces more barriers than sprawling, green field development. The fund focuses on those projects that can have a high economic and revitalization impact in their existing communities.</p>	<p>Varies - once per State Fiscal Year</p>
<p>Transportation: Emergency Relief Program</p>	<p>Federal Highway Administration (FHA) 1200 New Jersey Avenue Washington, DC 20590 202-366-4043</p>	<p>bridges; critical infrastructure; damage; disaster; DOT; Federal aid roads; Federal land; FHWA; highway; infrastructure; MDOT; repair; roads; route; transportation</p>	<p>Repair work within the right of way along federal aid highways is generally eligible. Engineering, right of way, and indirect costs may also be eligible. Funding is intended to address immediate needs and to restore damaged facilities to pre-disaster conditions. Permanent construction can cover repairs to bring facilities to current standards and expected traffic requirements. Improvements (betterments) may be eligible if costs are justified.</p>	<p>Emergency Repairs conducted within 180 days of disaster: Federal - 100% Non federal - 0% Emergency Repairs conducted after 180 days of disaster: Federal - 80-90% Non federal - 20-10%</p>	<p>Application is submitted by the MDOT for damages to Federal-aid highway routes, and by the applicable Federal agency for damages to roads on Federal lands. Cause of damages can be due to a natural disaster or a catastrophic failure of bridges or other infrastructure due to external causes. Cost threshold: estimated Federal share for all repairs for an event should be at least \$700,000 and each individual repair should be at least \$5,000 to be eligible.</p>	<p>After serious damage to Federal-aid roads or roads on Federal lands caused by a natural disaster or by catastrophic failure.</p>

<p>U.S Economic Development Administration (EDA), Public Works and Development Facilities</p>	<p>U.S. Department of Commerce Economic Development Administration Curtis Center 601 Walnut Street, Ste 140 South Philadelphia, PA 19106-3323 215-597-4603</p>	<p>access roads; critical infrastructure; economic development; EDA; infrastructure; port improvements; rail spurs; roads; sewer; technology; water</p>	<p>Water and sewer, Industrial access roads, rail spurs, port improvements technological and related infrastructure</p>	<p>Federal - 50-70% Non-Federal - 30-50%</p>	<p>Documenting economic distress, job impact and projects that is consistency with a Comprehensive Economic Development Strategy are important funding selection criteria.</p>	<p>Quarterly Basis</p>
<p>U.S. Economic Development Administration, Economic Adjustment Program</p>	<p>U.S. Department of Commerce Economic Development Administration Curtis Center 601 Walnut Street, Ste 140 South Philadelphia, PA 19106-3323 215-597-4603</p>	<p>critical facilities; economic development; EDA; improvements; public facilities; reconstruction; research</p>	<p>Improvements and reconstruction of public facilities after a disaster or industry closing. Research studies designed to facilitate economic development.</p>	<p>Federal - 50-70% Non-Federal - 30-50%</p>	<p>Documenting economic distress, job impact and proposing a project that is consistent with a Comprehensive Economic Development Strategy are important funding selection criteria.</p>	<p>Anytime</p>
<p>Watershed and Flood Prevention Operations Program</p>	<p>Natural Resources Conservation Service (NRCS) 1400 Independence Avenue, SW Washington, DC 20250 J'Que C. Jones, Maryland State Conservation Engineer jque.jones@wdc.usda.gov 443-482-5543</p>	<p>conservation; erosion; erosion control; flood; flood control; flood damage; flood prevention; land management; natural hazards; natural resources protection; NRCS; protection; sediment; sediment control; sediment reduction; USDA; water quality; watershed; watershed management; watershed protection</p>	<p>NRCS offers financial and technical assistance for these purposes: erosion and sediment control; watershed protection; flood prevention; water quality improvements; rural, municipal, and industrial water supply, water management, fish and wildlife habitat enhancement, and hydropower sources. Federal, state, local, and tribal government entities eligible to apply.</p>	<p>Varies due to project type.</p>	<p>Watershed area must not exceed 250,000 acres. Capacity of a single structure is limited to 25,000 acre-feet of total capacity and 12,500 acre-feet of floodwater detention capacity.</p>	<p>January or February</p>
<p>Watershed Rehabilitation</p>	<p>Natural Resources Conservation Service (NRCS) 1400 Independence Avenue, SW Washington, DC 20250 Jesse Wilson National Watershed Rehabilitation Program Manager jesse.wilson@wdc.usda.gov 202-720-0189</p>	<p>dam; dam rehabilitation; NRCS; plan; planning; rehabilitation; watershed; watershed plan; watershed rehabilitation; USACE</p>	<p>Rehabilitation of aging dams reaching the end of their 50-year design lives.</p>	<p>Cost share exists, but not quantified</p>	<p>Requires development of a watershed plan to address environmental impacts, costs, benefits, planned conservation practices, and responsibilities of each party to complete the rehabilitation project. NRCS provides financial and technical assistance to project sponsors and assists them with the planning, design, and construction of the project.</p>	<p>Anytime</p>

<p>RAISE Discretionary Grants U.S. DoT</p>	<p>U.S. Department of Transportation (US DOT) Office of Infrastructure Finance and Innovation Office of the Secretary of Transportation 1200 New Jersey Ave, SE Washington, DC 20590 United States Email: RAISEgrants@dot.gov Phone: 202-366-0301 https://www.transportation.gov/RAISEgrants/about</p>	<p>bridges; capital projects; DOT; freight rail; infrastructure; intermodal; local government; metropolitan planning organizations; MPO; passenger rail; port authorities; ports; port infrastructure; rail; roads; state government; transportation; transit agencies; Tribal government</p>	<p>The Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives. Previously known as the Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants, Congress has dedicated nearly \$9.9 billion for thirteen rounds of National Infrastructure Investments to fund projects that have a significant local or regional impact.</p>	<p>RAISE Grants may be used for up to 80 percent of the costs of projects located in an urban area and up to 100 percent of the costs of a project located in a rural area. For a project located in an urban area, total Federal assistance for a project receiving a RAISE grant may not exceed 80 percent. Non-Federal financial contributions can include State, local, and private sector funding; or other forms of cost share such as right of way contributions or recycled revenue from the competitive sale or lease of publicly owned or operated assets.</p>	<p>NOFO release: Spring Application Due: Summer</p>
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<p>Alcoa Foundation Grant Program</p>	<p>Alcoa World Location Grants Coordinator 100 Bethlehem Blvd Edgemere, MD 21219 Alcoa Forgings & Extrusions Location Grants Coordinator 1954 Halethorpe Farms Rd, #800 Halethorpe, MD 21227 410-737-6980 Alcoa Concrete & Masonry Location Grants Coordinator 4908 46th Ave Hyattsville, MD 20781 301-699-9300 Alcoa Concrete & Masonry Location Grants Coordinator 786 Sunny Chapel Rd Odenton, MD 21113 301-912-3515</p>	<p>adaptation; Alcoa; capital projects; biodiversity; climate adaptation; climate change; emissions reduction; environmental; environmental literacy; habitat; habitat protection; habitat restoration; natural resources; nonprofits; prevention; protection; resilience; recycling; STEM; sustainability</p>	<p>Promote prevention and resilience of climate change and restore and preserve biodiversity. Projects or organizations must serve communities where Alcoa has operating plants or offices: Edgemere, Halethorpe, Hyattsville, Odenton. Nonprofit-focused, local governments may apply if funds are used for charitable purposes.</p>	<p>N/A</p>	<p>Minimum grant award is \$15,000. Projects must fall with Alcoa Foundation themes and subthemes.</p>	<p>Anytime</p>
<p>Chesapeake Initiative</p>	<p>Campbell Foundation Chesapeake Office 410 Severn Avenue, Suite #210 Annapolis, MD 21403 410-990-0900</p>	<p>capacity building; capital campaign; Chesapeake Bay; environmental; habitat; habitat preservation; habitat restoration; nonprofits; preservation; nutrient reduction; restoration; stormwater; water quality</p>	<p>Activities that promote the health of the Chesapeake Bay region. Grants may be used for general support, capacity building, capital campaigns, and more. Nonprofits only.</p>	<p>N/A</p>	<p>More information, including a list of past grantees and projects is available here: https://www.campbellfoundation.org/chesapeake-what-we-fund/</p>	<p>Cycle 1 - Late Winter/Early Spring Cycle 2 - Late Summer/Early Fall</p>
<p>Capacity Building Coordination & Collaboration Grant</p>	<p>Climate Resilience Fund https://www.climateresiliencefund.org/</p>	<p>adaptation; capacity building; climate adaptation; climate change; climate resiliency; collaboration grants; coordination grants; environmental; sustainability; sustainable</p>	<p>Two grant tracks: Capacity Building and Coordination & Collaboration. Climate resilience planning; policy guidance; adaptation training; funding to facilitate the use of climate service tools and resources. Nonprofits only.</p>	<p>N/A</p>	<p>View past grantees and projects here: https://www.climateresiliencefund.org/grants</p>	<p>No information provided, contact organization</p>
<p>Community Support</p>	<p>Coca-Cola Foundation, Inc. Learn more: https://www.coca-colacompany.com/shared-future/communities Apply here: https://coca-cola-smartsimple.com/s_Login.jsp</p>	<p>capital projects; clean water; environmental; gray water; nonprofits; water; water capture; water conservation; water quality; recycling; reuse</p>	<p>Eligible projects align with these three Priority Areas: empowering women (economic empowerment and entrepreneurship); protecting the environment (access to clean water, water conservation, and recycling); and enhancing communities (education, youth development, other community and civic initiatives). Nonprofits only.</p>	<p>N/A</p>	<p>Fundable project include, but are not limited to: access to clean water, water conservation, recycling; capital projects; nonprofits; capital projects like water capture and grey water reuse.</p>	<p>Anytime</p>

<p>Conservation Acquisition Revolving Fund Conservation Loans Natural Capital Investment Fund Working Forest Fund</p>	<p>Conservation Fund, the 1655 N. Fort Myer Drive, Suite 1300 Arlington, VA 22209 webmaster@conservationfund.org</p>	<p>acquisition; conservation; environmental; forests; forest management; loan; plans; revolving loan; stewardship</p>	<p>Land acquisition and conservation; development and implementation of sustainable forest management plans; transfer of forestland to private ownership.</p>	<p>N/A (revolving fund; loan)</p>	<p>Revolving Fund for land acquisition (conservation). Conservation loans. Working Forest Fund provides bridge capita for projects.</p>	<p>Anytime</p>
<p>U.S. Natural Climate Solutions Accelerator Grant</p>	<p>Nature Conservancy, The (TNC) www.nature.org/ncsaccelerator Contact: NCSAccelerator@TNC.org</p>	<p>adaptation; agriculture; carbon storage; climate change; coastal; coastal wetlands; conservation; emissions reduction; environmental; forests; grassland; greenhouse gas reduction; land management; natural climate solutions; NCS; nature based solutions; nonprofits; reforestation; wetlands</p>	<p>Carbon capture through natural climate solutions (NCS). Examples include, but are not limited to: improving soil health, reforestation, coastal wetlands restoration, and other management practices for natural and working lands (forests, agricultural lands, grasslands, wetlands).</p>	<p>N/A</p>	<p>Applicants may request up to \$250,000 per project. Nonprofit organizations only.</p>	<p>Early 2020</p>
<p>Acres for America</p>	<p>National Fish & Wildlife Foundation (NFWF) Kimberly Shriner Coordinator, Conservation Programs Kimberly.Shriner@nfwf.org https://www.nfwf.org/acresforum/erica/Pages/home.aspx</p>	<p>acquisition; conservation; open space; connecting land; connectivity; easements; forests; habitat; local economy; local government; migration routes; migratory; local government; nonprofits; open space; ranching; recreation; state government; Tribal government</p>	<p>Land conservation of critical habitats, connecting protected lands to unify wild places and protect migration routes; provide access for people to enjoy the outdoors; ensure the future of local economies that depend upon forestry, ranching, and recreation. Project must be linked to a national or state conservation priority. Eligible applicants: nonprofits; state government agencies; local governments; municipal governments; Indian tribes, and educational institutions.</p>	<p>1:1 Cost share - Federal/Applicant (cash, in-kind contribution of goods and donated land value) Federal funds may be used as a match</p>	<p>Competitive grant: full proposal is by invite-only. Acquired land goes into a perpetual conservation easement.</p>	<p>RFP Due April 13, 2021.</p>
<p>Atlantic Flyway Shorebird Initiative</p>	<p>National Fish & Wildlife Foundation (NFWF) C. Scott Hall Senior Scientist, Bird Conservation, Scott.Hall@nfwf.org https://www.nfwf.org/amoy/Pages/home.aspx</p>	<p>American oystercatcher; Atlantic; birds; Chesapeake Bay; beaches; coastal; business; conservation; dunes; educational institutions; habitat; habitat management; individuals; international organizations; migratory; migratory birds; North Atlantic; ocean; red</p>	<p>Focus is on conserve and restore the habitat of the American oystercatcher, red knot, and whimbrel and improve habitat management. Eligible applicants: nonprofits; state government agencies; local governments; municipal governments; Indian tribes, educational institutions, businesses, unincorporated individuals, and international organizations.</p>	<p>1:1 Cost share - Federal/Applicant (match - cash and/or in-kind services)</p>	<p>The majority of awards will range between \$50,000 and \$250,000.</p>	<p>RFP Due April 13, 2021.</p>

<p>Bring Back the Native Fish</p>	<p>National Fish & Wildlife Foundation (NFWF) Hannah Karlan, Coordinator, Regional Programs https://www.nfwf.org/bbn/Pages/home.aspx</p>	<p>knot; restoration; shorebirds; whimbrel; local government; nonprofits; open space; ranching; recreation; state government; Tribal government</p> <p>American shad; assessment; Chesapeake Bay; Chesapeake Bay watershed; Delaware connectivity; conservation; environmental; habitat; habitat restoration; instream; instream; marine resources; local government; native fish; nonprofits; restoration; riparian; riparian habitat; river herring; rivers; schools; special districts; state government; streams; Tribal government; universities; water quality; watershed</p>	<p>Conservation strategies for native fish of eastern U.S. rivers, especially river herring and American shad in the Chesapeake and Delaware watersheds, particularly: restoring connectivity, riparian and instream habitat, and water quality. Invasive species management; and the development of decision support tools and innovative approaches to fish conservation, including landscape-scale assessments, piloting innovative restoration techniques, and identification of key flow restoration thresholds that enhance fish habitat and water quality in low-flood systems.</p>	<p>1:1 Cost share - Federal/Applicant (matching - cash, in-kind donations and/or volunteer labor)</p>	<p>Grant awards generally range from \$50,000 to \$100,000.</p>	<p>RFP Due May 4, 2021.</p>
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<p>Central Appalachia Habitat Stewardship Program</p>	<p>National Fish & Wildlife Foundation (NFWF) Amanda Bassow, Director, Northeastern Regional Office Amanda.Bassow@nfwf.org John Wright, Manager, Northeastern Regional Office John.Wright@nfwf.org https://www.nfwf.org/centralapps/Pages/home.aspx</p>	<p>Appalachia; assessment; cerulean warbler; connectivity; diversity; eastern brook trout; eastern hellbender; educational institutions; environmental; forests; forest management; freshwater mussels; golden winged warbler; habitat diversity; habitat restoration; Laurel Highlands; local government; mussels; native birds; native fish; nonprofits; planning; restoration; riparian; rivers; species; state government; streams; technical assistance; Tribal government; trout; warbler; water quality; wood thrush</p>	<p>Restoration of forest blocks and forest management (assessment/planning - forest management decision support tools). Outreach and technical assistance to engage private landowners in adopting forest management practices. Create forest demonstration projects to accelerate adoption of forest management to improve species habitat and diversity. Eligible applicants: nonprofit organizations, state agencies, local governments, municipal governments, tribal governments, and educational institutions.</p>	<p>Federal/Non-Federal match: 1:1 (match - cash, contributed goods and services, volunteer hours, and/or property raised/or secured and spent for the period of performance)</p>	<p>The program supports projects in portions of the Appalachian regions of Maryland (Garrett County - Laurel Highlands). Grants will range from \$50,000 to \$200,000.</p>	<p>RFP Due April 12, 2021.</p>
<p>Chesapeake Bay Stewardship Fund</p>	<p>National Fish & Wildlife Foundation (NFWF) Jake Reilly, Program Director, Chesapeake Bay jake.reilly@nfwf.org Stephanie Heidebreder, Manager, Chesapeake Programs stephanie.heidebreder@nfwf.org https://www.nfwf.org/chesapeake/Pages/home.aspx</p>	<p>Chesapeake Bay; Chesapeake Bay watershed; habitat; habitat restoration; nutrient reduction; restoration; sediment; sediment reduction; water quality; watershed</p>	<p>See below under Innovative Nutrient and Sediment Reduction Grants and Small Watershed Grants</p>		<p>There are two competitive grant programs; the Innovative Nutrient and Sediment Reduction Grant Program and the Small Watershed Grants Program. These programs benefit the communities, farms, habitats and wildlife of the Chesapeake Bay region.</p>	

<p>Innovative Nutrient and Sediment Reduction Grants</p>	<p>National Fish & Wildlife Foundation (NFWF) https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund/innovative-nutrient-and-sediment-reduction-grants</p>	<p>agriculture; agricultural runoff; Chesapeake Bay; Chesapeake watershed; collaboration; connectivity; conservation; educational institutions; estuary; estuarine habitat; farms; floodplain; floodplain connection; freshwater habitat; green infrastructure; habitat improvement; habitat restoration; local government; local management; local government; Native American Tribal groups; nonprofits; nutrient management; nutrient reduction; partnership; planning; pollution reduction; riparian; riparian habitat; runoff; sediment; sediment reduction; soil health; soil management; state government; stormwater; stormwater improvements; streams; stream restoration; urban; urban runoff; tidal; tidal habitat; Tribal governments; water quality; wetlands; wetland reconnection; whole farm conservation; whole farm; watershed</p>	<p>Through collaboration and partnership, projects that conduct watershed and habitat planning; manage upland agricultural runoff through farm-scale conservation systems and solutions; manage upland urban runoff through green stormwater infrastructure improvements; and/or restore riparian and freshwater habitats through forested buffers, estuarine and tidal habitat restoration, conservation, and management; floodplain and wetland reconnection, stream restoration, and habitat improvement. Eligible applicants include: nonprofit organizations, state government agencies, local governments, municipal governments, Indian tribes, and educational institutions.</p>	<p>1:1 match (Federal / Non-Federal)</p>	<p>This is a competitive grant focused on achieving success through collaboration and partnerships among stakeholders focused on improving water quality in the Chesapeake Bay watershed. All eligible projects must occur wholly within the Chesapeake Bay watershed (which only excludes the western half of Garrett County), and projects located within NFWF's Targeted Rivers and Watersheds will be prioritized. These locations were identified by NFWF as having significant opportunities for shared water quality improvement, habitat restoration and species recovery outcomes.</p>	<p>Annually awarded.</p>
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<p>Small Watershed Grants</p>	<p>National Fish & Wildlife Foundation (NFWF) Jake Reilly, Program Director, Chesapeake Bay Jake.Reilly@nfwf.org Stephanie Heidbreder, Manager, Chesapeake Program, Stephanie.Heidbreder@nfwf.org https://www.nfwf.org/programs/c/chesapeake-bay-stewardship-fund/small-watershed-grants</p>	<p>American black duck; capacity building; Chesapeake; Chesapeake Bay; Chesapeake watershed; connectivity; brook trout; eastern oyster; educational green infrastructure; habitat; habitat planning; habitat protection; habitat restoration; K-12; livestock exclusion; local government; marshes; marsh restoration; local government; Native American Tribal groups; nonprofits; nutrient reduction; planning; protection; oyster reefs; restoration; river herring; sediment; shoreline erosion; state government; stormwater improvements; streams; stream restoration; tidal marsh; Tribal governments; water quality; watershed; wetlands; whole farm; watershed</p>	<p>Projects that: manage upland agricultural runoff through farm-scale conservation systems and solutions; manage upland urban runoff through green stormwater infrastructure improvements including the adoption of new technologies and management approaches; restore riparian and freshwater habitats through forested buffers, floodplain and wetland habitat improvements, and stream restoration and reconnection; increase habitat integrity for Eastern Brook Trout; improve riparian management through livestock exclusion; conserving high-quality riparian corridors; restore large-scale oyster reefs; restoring river herring habitat connectivity; restore and conserve wetland and tidal marsh habitat for American Black Duck; manage shoreline erosion and marsh loss; build capacity for landscape-scale watershed and habitat outcomes, and conduct watershed and habitat planning, prioritization, design, and permitting. SWG-I Eligible Applicants: nonprofit organizations, local governments, municipal governments, Indian tribes, K-12 educational institutions SWG-PTA Eligible Applicants: nonprofit organizations, state government agencies, local governments, municipal governments, Indian tribes, educational institutions, and for-profit entities</p>	<p>There are no non-federal matching requirements for the 2022 SWG program, though NFWF strongly encourages applicants to describe federal and non-federal contributions to the proposed project.</p>	<p>There are two programs under this grant: SWG-Implementation (SWG-I) and SWG-Planning and Technical Assistance (SWG-PTA). All eligible projects must occur wholly within the Chesapeake Bay watershed. Projects located within NFWF's Targeted Rivers and Watersheds will be prioritized.</p>	<p>Small Watershed Grants 2022 Request for Proposals Due February 7, 2022.</p>
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<p>Fisheries Innovation Fund</p>	<p>National Fish & Wildlife Foundation (NFWF) Erika Feller, Director, Marine and Coastal Conservation Erika.Feller@nfwf.org https://www.nfwf.org/fisheriesfund/Pages/home.aspx</p>	<p>aquaculture; business; capacity building; bycatch reduction; educational institutions; environmental; fisheries; individuals; international organizations; local government; marine; marine aquaculture; mitigation; monitoring; local government; Native American Tribal operations; planning; protection; recreational fisheries; reporting; risk reduction; seabed; siting; state government; Tribal governments</p>	<p>Projects should develop or pilot innovative ideas and implement proven ideas at-scale for bycatch reduction and capacity building; address needs identified for recreational fisheries in the NOAA Fisheries National Saltwater Recreational Fisheries Policy Implementation Plan; planning projects and implementation of risk mitigation strategies that help minimize risk factors for marine aquaculture and protect the seabed; planning to improve siting of marine aquaculture operations and avoid environmental risks; and projects that implement regional-scale electronic monitoring and reporting strategies. Eligible applicants include: nonprofit organizations; state government agencies; local governments; municipal governments; Indian tribes; educational institutions; businesses; international organizations, and unincorporated individuals.</p>	<p>1:1 match (Federal / Non-Federal) can be cash and in-kind</p>	<p>The Fisheries Innovation Fund releases two requests for proposals (RFPs) each year to work towards sustainable fisheries in the United States: a Fisheries Innovation Fund RFP and an Electronic Monitoring and Reporting Grant Program RFP. Can be used for all commercial or recreational fisheries in the U.S., but priority is given to projects in the New England groundfish fishery, the Gulf of Mexico reef fish fishery, and the Gulf of Alaska halibut and groundfish fisheries. Marine aquaculture projects can be proposed for fisheries anywhere in the U.S., but priority is given to projects within the four priority areas: New England, Southern California, the Gulf of Mexico, and Alaska.</p>	<p>Fisheries Innovation Fund and Electronic Monitoring and Reporting Grant Program due July</p>
<p>Fishing for Energy</p>	<p>National Fish & Wildlife Foundation (NFWF) Michelle Pico, Program Director Marine Conservation, Pico@nfwf.org https://www.nfwf.org/fishingforenergy/Pages/home.aspx</p>	<p>blue crabs; Chesapeake Bay; coastal; commercial; conservation; derelict fishing gear; derelict fishing gear removal; education and outreach; educational institutions; for-profit; habitat; habitat improvement; individuals; local government; locating derelict gear; marine; local government; Native American Tribal groups; prevention; removal; state government; Tribal governments</p>	<p>Identification of gear accumulation sites and species/habitat concerns for removal; removal of accumulated gear; development of prevention strategies for abandonment of gear; planning that links conservation activities with removal of derelict gear; outreach to raise awareness of the effects of derelict gear on the environment and engagement with local public and fishing communities. Eligible applicants include: nonprofit organizations; state or territorial government agencies; local government; municipal governments; Indian tribes; educational institutions; commercial (for profit) organizations, or unincorporated individuals.</p>	<p>Non-Federal match not required, but encouraged</p>	<p>This is a competitive grant, targeting coastal waters. Priority is given to projects within five focus areas, one of which is the Chesapeake Bay with targeted benefits to the blue crab. Awards generally fall within \$30,000 to \$300,000.</p>	<p>RFP Due April 13, 2021</p>

<p>Five Star and Urban Waters Restoration Grant Program</p>	<p>National Fish & Wildlife Foundation (NFWF) Carrie Clingan, Program Director, Community Stewardship and Youth Carrie.Clingan@nfwf.org Chloe Elberty, Coordinator, Community Stewardship Programs Chloe Elberty@nfwf.org https://www.nfwf.org/fivestar/Pages/home.aspx</p>	<p>BMPPs; best management practices; capacity building; coastal; conservation; education and outreach; educational institutions; green infrastructure; habitat; habitat restoration; invasive species removal; livestock fencing; local government; Native American Tribal groups; nonprofits; partnership; riparian; restoration; runoff; stormwater; stormwater improvements; stormwater management; stormwater runoff; state government; Tribal training; Tribal governments; wetlands; wetlands; wetland restoration</p>	<p>Projects must involve five or more partners (public and private entities, including the applicant). Eligible activities include, but are not limited to: restoration or creation of wetlands, coastal or riparian areas; outreach, education, and/or training involving the restoration or creation activities that advance local watershed and conservation goals. Eligible applicants include: nonprofit organizations, state government agencies, local governments, municipal governments, Indian tribes and educational institutions.</p>	<p>1:1 match (Federal / Non-Federal) at a minimum (in-kind staff contributions, volunteer time, work performed, materials and services donated, cash or other tangible contributions are allowed for the non-federal match)</p>	<p>Under this grant program, three sub-programs are applicable to areas in Maryland: US EPA Five Star Restoration Training Program - available to all communities. The Urban Waters Federal Partnership, US EPA/USDA Forest Service Funding has two eligible locations: the Anacostia Watershed and the Patapsco Watershed (Baltimore Region). The US FWS Urban Partner Funding is available to locations in Maryland within +/- 25 miles of the Service lands or nearby offices in Baltimore City and Washington, D.C. Grant awards under the entire Five Star and Urban Waters Restoration Grant Program range from \$20,000 to \$50,000, with roughly 40-50 grants award per year.</p>	<p>Proposal due January</p>
<p>Hurricane Sandy Coastal Resiliency Competitive Grant Program (CLOSED*)</p>	<p>National Fish & Wildlife Foundation (NFWF) Amanda Bassow, Director, Northeastern Regional Office Amanda.Bassow@nfwf.org Lynn Dwyer, Program Director, Northeast-Coastal Lynn.Dwyer@nfwf.org Claire Flynn, Manager, Northeastern Region Claire.Flynn@nfwf.org https://www.nfwf.org/hurricanesandypages/home.aspx</p>	<p>coastal hazards; coastal storms; disaster; disaster funding; ecosystem protection; ecosystems; education; flood; hazard mitigation; habitat; habitat protection; mitigation; natural hazards; outreach; protection; resiliency; resilience; sea level rise; storm surge; wave velocity reduction</p>	<p>Reduce impacts of coastal storms, sea level rise and associated natural hazards on coastal and inland communities; strengthen ecological integrity and functionality of coastal/inland ecosystems to protect communities and enhance fish and wildlife and their associated habitats; conduct outreach/education to enhance understanding of impacts of storm events; and identify cost-effective resilience tools to mitigate the effects of future storms.</p>	<p>N/A</p>	<p>*Obviously closed, only included here to show that NFWF does occasionally offer grants for disaster assistance. Four projects were award in Maryland: two in central Maryland, one in Southern Maryland, and one on the Eastern Shore.</p>	<p>N/A</p>

<p>Monarch Butterfly and Conservation Fund - Habitat Improvement</p>	<p>National Fish & Wildlife Foundation (NFWF) Todd Hogrefe, Director, Central Regional Office Todd.Hogrefe@nfwf.org Crystal Boyd, Manager, Pollinator Programs Crystal.Boyd@nfwf.org https://www.nfwf.org/monarch/pages/home.aspx</p>	<p>butterfly; conservation; educational institutions; federal government; habitat; habitat conservation; local government; milkweed; monarch butterfly; local government; Native American Tribal groups; native plants; nonprofits; open space; pollinators; restoration; Tribal governments</p>	<p>Restore or enhance monarch butterfly and pollinator habitat; increase native milkweed and native plant resources supply. Eligible applicants include: nonprofit organizations, US federal government agencies, state government agencies, local governments, municipal governments, Indian tribes and educational institutions.</p>	<p>1:1 match (Federal / Non-Federal) can be cash, in-kind contributions of staff and volunteer time, work performed, materials and services donated, or other tangible contributions to the project objectives and outcomes</p>	<p>Competitive grant. Project must be within the monarch butterfly range in the U.S. Priority is given to projects East of the Rockies in these states: Arkansas, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Texas, and Wisconsin. Priority is given to projects in the West located on or adjacent to working lands, important monarch butterfly overwintering sites, and US Forest Service and Bureau of Land Management lands.</p>	<p>RFP Due April 13, 2021</p>
<p>National Coastal Resilience Fund</p>	<p>National Fish & Wildlife Foundation (NFWF) Jessica Grannis, Program Director, Coastal Resilience Arielle Mion, Program Manager, Coastal Resilience https://www.nfwf.org/coastalresilience/Pages/home.aspx</p>	<p>assessment; barrier islands; beaches; capacity building; coastal erosion; coastal storms; commercial; connectivity; conservation; coral reefs; design; dunes; educational institutions; fish; flood; flooding; floodplain; forests; for-profit; habitat; habitat protection; instream restoration; instream; local government; marshes; marsh restoration; monitoring; local government; Native American Tribal group; natural systems; nonprofits; oyster reefs; permitting; project monitoring; protection; restoration; sea level rise; site assessment; stream; wetlands; wildlife restoration; wildlife</p>	<p>Projects that create, expand, and restore natural system in areas that will both increase protection for communities from coastal storms, sea level rise, flood, and coastal erosion, while improving habitat for fish and wildlife species. The grant supports three focus areas: project preliminary design and site assessment; project final design and permitting; and project restoration and monitoring. Eligible applicants include: nonprofit organizations, state and territorial government agencies, local governments, municipal governments, Native Tribal governments, educational institutions, and commercial (for-profit) organizations.</p>	<p>1:1 match (Federal / Non-Federal) match = cash and/or in kind services</p>	<p>Eligible project areas include all coastal Hydrologic Unit Code (HUC) 8 watersheds that drain to the sea and any adjacent HUC 8 Watersheds that are particularly low-lying or tidally influenced. Project awards (in 2019) expected to range from \$125,000 to \$3,000,000.</p>	<p>Pre-Proposal due April Proposal due May</p>

<p>Emergency Coastal Resilience Fund (CLOSED*)</p>	<p>National Fish & Wildlife Foundation (NFWF) Jay Jensen, Director, Southern Regional Office Jay.Jensen@nfwf.org Suzanne Sessine, Program Director, Southern Coastal Programs https://www.nfwf.org/coastalresilience/emergency/Pages/home.aspx</p>	<p>aquatic; aquatic connectivity; beaches; beach restoration; capacity building; coastal; coastal ecosystems; coastal plain; coastal storms; connectivity; coral reefs; debris flow; design; disaster; disaster declaration; dunes; dune restoration; ecosystems; educational institutions; fish; flood; floodplain; floodplain restoration; flooding; forests; habitat; habitat protection; habitat restoration; instream restoration; instream; local government; marshes; marsh restoration; local government; Native American Tribal group; nonprofits; oyster reef; passage improvements; planning; protection; recovery; reforestation; resiliency; resilience; restoration; runoff; sea level rise; state government; storm surge; stormwater; stormwater runoff; streams; Tribal government; wave velocity; wetlands; wetland restoration; wildlife</p>	<p>Ecosystem restoration projects, and the construction of natural, nature-based and green-gray (hybrid) infrastructure to improve community resilience and conserve natural areas. Projects may include, but are not limited to, marsh, beach and dune restoration, living shorelines, stream restoration, including aquatic connectivity projects that reduce flood risk, and innovative stormwater management. In limited instances this program may consider projects that advance community planning and technical assistance to address barriers and increase the capacity of eligible communities to implement projects where there is a demonstrated need in an affected geography. Eligible applicants include: nonprofit organizations, state and territorial government agencies, local governments, municipal governments, Native American tribal governments, and educational institutions.</p>	<p>N/A</p>	<p>*Closed. Similar program to the Hurricane Sandy Coastal Resiliency Competitive Grant Program. The ECRF was established to increase the resilience of coastal communities located within federally declared disaster areas impacted by hurricanes Florence and Michael, Typhoon Yutu and wildfires in 2018. Included on this list to show that disasters may be funded through a similar program and that potential applicants should check the NFWF website for emergency funds after a Presidential Disaster Declaration after a major disaster. The grant funds projects located in the Coastal Plain Physiographic Province in Maryland.</p>	<p>N/A</p>
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<p>Non-Tidal Wetlands Grant Program</p>	<p>Chesapeake Bay Trust https://cbtrust.org/grants/non-tidal-wetlands/ Non-Tidal Wetland Program Grants Manager: Sarah Koser, skoser@cbtrust.org, 410-974-2941, ext. 106</p>	<p>CBT; Chesapeake Bay Trust; creation; endangered species; faith-based organizations; for-profit; habitat; improvements; local government; nontidal; nontidal wetlands; preservation; restoration; threatened species; wetlands; wetlands creation; wetlands preservation; wetlands protection; wetlands restoration</p>	<p>Activities include, but are not limited to: projects that create wetlands; improving the functions of existing wetlands (especially farmed wetlands, partially drained wetlands, or wetlands providing habitat for threatened or endangered species); preservation/protection of existing wetlands if part of a project that includes wetlands creation or restoration. Eligible applicants: nonprofit organizations, local government, for-profit entities, faith-based organizations "and more."</p>	<p>Not required, but cash or in-kind services match is strongly encouraged</p>	<p>Award amounts of up to \$500,000. Eligible Locations: Primary watersheds - Isle of Wight Bay; Secondary watersheds - West River, Severn River, Magothy River, South River, Western Branch, Patuxent River (lower), Assawoman Bay, Sinepuxent Bay, Newport Bay; Tertiary watersheds - Youghioheny River, Casselman River, Northeast River, Deep Creek Lake, Little Youghioheny River, Eastern Bay, Brighton Dam, Rocky Gorge Dam, Lower Chester River, Miles River</p>	<p>This grant program is expected to open in Spring 2022</p>
<p>Green Streets, Green Jobs, Green Towns (G3) Grant Program</p>	<p>Chesapeake Bay Trust https://cbtrust.org/grants/green-streets-green-jobs-green-towns/ G3 Program Grants Manager: Jeffrey Popp, jpopp@cbtrust.org, 410-974-2941, ext. 103</p>	<p>CBT; charrette; Chesapeake Bay; Chesapeake Bay Trust; community; community associations; design; G3; green infrastructure; green streets; implementation; local government; neighborhood associations; nonprofits; planning; project design; project implementation; runoff; stormwater; stormwater runoff; urban; vacant lots; visioning; white paper</p>	<p>Activities include, but are not limited to: green street project design, implementation of green street projects, white papers on innovative ideas for green infrastructure, charrettes to vision/plan a green street project with key stakeholders (incl. citizens). Eligible applicants: nonprofit organizations, local governments, neighborhood/community associations</p>	<p>Not required, but cash or in-kind services match is strongly encouraged</p>	<p>Applicants applying for implementation/ construction and greening of vacant lots must use the G3 Implementation Project Calculator. Grant funding can be applied anywhere in the Chesapeake Bay watershed portion of EPA Region 3. Program goals: reduce stormwater runoff; increase number and amount of green spaces in urban areas, improve the health of local streams and the Chesapeake Bay, enhance quality of life and community livability. Award amounts of up to \$15,000 for conceptual plans; up to \$30,000 for engineered designs, up to \$100,000 for implementation projects, up to \$50,000 for greening communities and urban vacant lots, up to \$20,000 for white papers.</p>	<p>Annual - Spring.</p>

<p>Outreach and Restoration Grant Program</p>	<p>The Chesapeake Bay Trust 108 Severn Avenue Annapolis, MD 21403 (410) 974-2941 https://cbtrust.org/grants/outreach-and-restoration/</p>	<p>agricultural; agricultural best management practices; best management practices; BMPs; community; community engagement; connectivity; engagement; floodplain; floodplain connection; forests; green infrastructure; habitat; habitat establishment; habitat improvement; invasive plant removal; invasive species; meadow; meadow habitat; native plantings; native plants; outreach; plant removal; rain barrels; rain garden; reforest; restoration; riparian buffer; riparian; runoff; streams; stream restoration; shoreline erosion prevention; stormwater; stormwater runoff; volunteers; water quality; water quantity; wetlands; wetland restoration</p>	<p>Activities such as community outreach and engagement increase stewardship ethic of natural resources; restoration activities that demonstrate restoration techniques and engage citizens in the restoration and protection of the Chesapeake Bay and its rivers. Eligible applicants: nonprofit organizations, community and homeowner associations, faith-based organizations, "and more"</p>	<p>Not required, but cash or in-kind services match is strongly encouraged</p>	<p>Grant sponsored in partnership with City of Baltimore Dept of Public Works, Charles Co, Harford Co, Howard Co, the City of Gaithersburg, Queen Anne's Co, and the City of Salisbury and funds projects in partner areas and throughout Maryland. Applicants can request funds from one of the following tracks. Track 1: Outreach/Knowledge Building Projects (up to \$30,000) Track 2: Behavior Change Projects (up to \$50,000) Track 3: Restoration Projects (up to \$50,000) Track 4: Outreach and Restoration Projects (up to \$75,000).</p>	<p>Late Summer / Early Fall</p>
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<p>Watershed Assistance</p>	<p>The Chesapeake Bay Trust https://cbtrust.org/grants/watershed-assistance/ Questions & Technical Support: Emily Stransky, estransky@cbtrust.org, 410-974-2941, ext.101</p>	<p>action plan; agricultural water quality best management practices; BMPs; best management practices; bioretention cells; CBT; Chesapeake Bay; Chesapeake Bay Trust; living shorelines; local government; LID; low impact development; marshes; marsh creation; nonprofits; ordinances; plan; planning; program development; rain garden; streams; stream restoration; stormwater; stormwater management; water quality; water quantity; watershed; watershed action plan; watershed assessment; watershed characterization; watershed planning; watershed restoration; wetlands; wetlands restoration; zoning</p>	<p>Project design for watershed restoration projects identified in WIP milestones, which may include, but are not limited to: bioretention cells, large-scale rain gardens, other low impact development stormwater techniques, environmental site designs, stream restoration, wetland and marsh creation, and agricultural water quality best management practices. Watershed Planning and Program Development projects identified in the existing programmatic milestones submitted to MDE by local governments, including, but not limited to watershed characterization, survey, and stakeholder engagement; creation of watershed action plans; policy development or enhancement to support watershed action plans (e.g. development/enhancement of ordinances or other tools); and development for new programs, or enhancement of existing programs, or establishing new institutional frameworks that promote internal and external stakeholder coordination. Eligible applicants; nonprofits, local governments</p>	<p>Not required, but cash or in-kind services match is strongly encouraged</p>	<p>Projects must support implementation of local milestones developed to advance the Watershed Implementation Plan (WIP) strategies. Type 1: Project Design Generally, requests are up to \$100,000 for design of stormwater best management practices Generally, requests are up to \$150,000 for design of stream restoration practices Type 2: Watershed Planning and Program Development Generally, requests are up to \$75,000</p>	<p>Late Summer / Early Fall</p>
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<p>Exelon Grant</p>	<p>https://www.exeloncorp.com/community/grants</p>	<p>afterschool programs; arts; beautification; clean energy; conservation; education; endangered species; environmental; environmental quality; events; green infrastructure; health; human services; local government; mathematics; membership dues; neighborhoods; nonprofits; preservation; program development; program support; science; STEM; workforce skills; water quality</p>	<p>The grant funds programs that deliver measurable, sustainable improvements in the communities served by Exelon in four areas: education, environment, arts & culture, and neighborhood development. Funds may be used to an event, dues/membership or in-kind requests, and program support/development. Eligible applicants: 501c3 nonprofit organizations which do not discriminate based on age, political affiliation, national origin, ethnicity, gender, gender identity, sexual orientation, disability, HIV/AIDS status or religious belief. Grants are only available to nonprofits in the communities where Exelon has facilities. Grants are only available to organizations that have not received a grant from Exelon or its subsidiaries within the past 12 months. Although only nonprofits are called out as eligible applicants, local governments are among the list of past grant recipients.</p>	<p>No information provided</p>	<p>Education: Programs that encourage students to stay in school and develop their full potential, promote math and science, improve workforce skills, and encourage personal scholarships, mentoring and internships. Environment: Programs that improve the quality of our environment; promote environmental education, conservation and preservation; develop cleaner sources of energy; protect endangered species; and beautify neighborhoods. Arts & Culture: Cultural institutions with broad public exposure and programs designed to make arts and culture more accessible to a wider and more diverse audience. Neighborhood Development: The company makes a limited amount of grants to local nonprofit organizations for programs and nonprofit organizations that support a range of offerings from health and human services to after-school programming.</p>	<p>Anytime</p>
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APPENDIX G

HMPC & Public Meeting Minutes/Outreach Documentation

The following is a list of individuals invited to participate in the hazard mitigation planning process. This process included attending meetings, draft materials, and reviewing the overall planning document.

Hazard Mitigation Plan Participants		
Member Name	Position	Agency/Department
Stephen Walker	Deputy Director	Department of Emergency Services
Gerald Gardiner	Emergency Manager	Department of Emergency Services
Amy Bledsoe	Emergency Planner	Department of Emergency Services
Vince Whittles	SERVPRO Owner	Business Owner in St. Mary's County
Kara Buckmaster	Emergency Management Specialist	Calvert County Emergency Management
Jennifer Neff	Adult Services Program Specialist	Department of Human Services
William Hunt	Director	Department of Land Use & Growth Management
Ben Cohen	Historic Preservation/MPO Planner III	Department of Land Use & Growth Management
Brandy Glenn	Planner IV	Department of Land Use & Growth Management
Courtney Jenkins	Senior Planner	Department of Land Use & Growth Management
Amber Thompson	Permits Manager	Department of Land Use & Growth Management
John Deatrick	Director	Department of Public Works & Transportation
Jim Gotsch	Director	Department of Public Works- Transportation
Gary Whipple	Deputy Director	Department of Public Works- Transportation
Richard Tarr	County Highways	Department of Public Works- Transportation
Donald Mills	Municipal Engineering Deputy Director	Department of Public Works- Transportation
Jeff Reed	CIP Project Manager	Department of Public Works- Transportation
Eric Benson	GIS Supervisor	Information Technology
Mark Stancliff	Network Manager	Information Technology
Nora Lagola	Public Assistance Officer	Maryland Department of Emergency Management
Sara Bender	Disaster Risk Reduction Directorate Director	Maryland Department of Emergency Management
Caitlin Whiteleather	State Hazards Mitigation Officer	Maryland Department of Emergency Management
Kristen Forti	Environmental Planner	Maryland Department of Emergency Management
Kelly McGuire	Southern Region Liaison Officer	Maryland Department of Emergency Management
Kevin Wagner	Community Assistance Program Manager	Maryland Department of Environment
Phillip Burch	Resident Maintenance Engineer	MDOT- Leonardtown
George Bilas	Assistant Supervisor	MDOT- State Highway Administration
Ed Hogan	Chief of Facilities and Operations	St. Mary's County Metropolitan Commission (MetCom)
Roy Copsey	Parks Division Manager	St. Mary's County Recreation & Parks
Arthur Shepard	Director	St. Mary's County Recreation & Parks
Kimberly Howe	Director of Capital Planning	St. Mary's County Public Schools
Kevin Corrigan	ADA Coordinator	St. Mary's County Department of Social Services
Alexis Zoss	Director	St. Mary's County Department of Social Services
Tracy Lumpkins	Capital Planning Program Analyst	St. Mary's County Department of Social Services
Katie Wells	Behavioral Health Division	St. Mary's County Health Department
Quinn Alsheimer	Assistant Public Health Emergency Planner	St. Mary's County Health Department
Tressa Setlak	Division of Preparedness and Response Director	St. Mary's County Health Department

Tammy Loewe	Behavioral Health Division Director	St. Mary's County Health Department
F. Michael Wyant	Chief of Safety and Security	St. Mary's County Public Schools
Tony Wheatley	Town Administration	Town of Leonardtown
Laschelle C. McKay	Town Administrator	Town of Leonardtown
Jason Stick	Baltimore District Geographer	US Army Corps of Engineer

St. Mary's County Hazard Mitigation Planning, Training, and Outreach Initiatives

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
6-Dec-22	Project Kick-Off Mtg.	Core Planning Team	Project SOW & Timeline	Discussed outreach strategy and development of project website. HMP Board and topical small group meetings discussed.
4-Feb-22	McIntosh Run and Town Run Assessment(s)	Town of Leonardtown	Letter from DES to Property Owners informing of stream corridor assessment and opportunity for voluntary property assessment.	The U.S. Army Corps of Engineers will collect stream channel data and conduct building surveys.
1-Feb-22	Website Completed	Public	Online - Link on DES Website www.stmarysmd.com/es/ema/	Website will be updated as plan development progresses.
17-Feb-22	Press Release	Public	New Release- No. 2022 – 36 February 17, 2022, 8:30 a.m.	Included project website, online hazard survey link, contact information, and Facebook.
16-Feb-22	Public Survey Launched	Public	Survey	Launched with press release
17-Feb-22	Facebook & Twitter Post	Public	Project website link and banner posted.	Posted on both the County Gov't. and Dept. of Emergency Services accounts

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
17-Feb-22	Newspaper Article	Public	BayNet Newspaper Article	Information about the HMP Update, public survey and project website.
18-Feb-22	Newspaper Article	Public	Southern Maryland Chronicle Newspaper	Information about the HMP Update, public survey and project website.
20-Feb-22	Newsfeed	Public	Southern Maryland Newsfeed	Information about the HMP Update, public survey and project website.
22-Feb-22	St. Mary's Government Website	Public	A link to the survey has been added to the rotating banner ads on the SMCG webpage.	
22-Feb-22	Facebook Post & Twitter	Public	Survey link posted	
23-Feb-22	Small Group Meeting	St. Mary's County- Land Use & Growth Mgt.	Discussed questionnaire, NFIP & CRS, mitigation & outreach activities for incorporation in HMP Update.	Floodplain Identification, Mapping, Management & Flood Insurance

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
24-Feb-22	County Times Newspaper	Public	Article printed in County Times- <i>Public Input Sought for Hazard Mitigation Plan.</i>	
1-Mar-22	Newspaper Article	Public	The Leader Newspaper	Information about the HMP Update, public survey and project website.
7-Mar-22	Facebook Post & Twitter	Public	Survey link posted	153 surveys were completed on March 7th
14-Mar-22	Municipal Coordination	Town of Leonardtown	NFIP Questionnaire	Completed questionnaire will be included in the plan along with next step recommendations.
19-Mar-22	Social Media Post	Public	Both DES & St. Mary's Government Facebook Post about project website.	
24-Mar-22	St. Mary's County Dam TTX	Representatives from Dam, St. Mary's County, and MD DNR	Exercise Plan and Discussion Questions	

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
25-Mar-22	Social Media Post	Public	Facebook Post on St. Mary's Government about public survey.	
27-Mar-22	Reverse 9-1-1 Message	Public- Within Dam Inundation Areas	Reverse 9-1-1 message citizens who live or work near the St Mary's Dam	<p>You are getting this message because your property has been identified within the dam breach zone. We encourage citizens to visit stmarysmd.com/es/disasters to learn more about Disasters & Hazards in St. Mary's County.</p> <p>We encourage citizens to visit stmarysmd.com/es/disasters to learn more about Disasters & Hazards in St. Mary's County.</p>
11-Apr-22	McIntosh Run and Town Run Assessment(s)	Town of Leonardtown	Letter from DES to Property Owners informing of stream corridor assessment and opportunity for voluntary property assessment.	The U.S. Army Corps of Engineers will collect stream channel data and conduct building surveys week of April 18th.
12-Apr-22	Website Content Upload	Public	YouTube Video: MD Flood Awareness Month Video- Repetitive Flooding Town of Leonardtown	Under "Ways to Engage" tab.
14-Apr-22	GIS Data Exchange	St. Mary's County- DoIT- GIS	Parcel data, building footprints, and facility point data	Use in vulnerability assessment update.
14-Apr-22	Social Media Post	Public	DES Facebook Post about project website.	

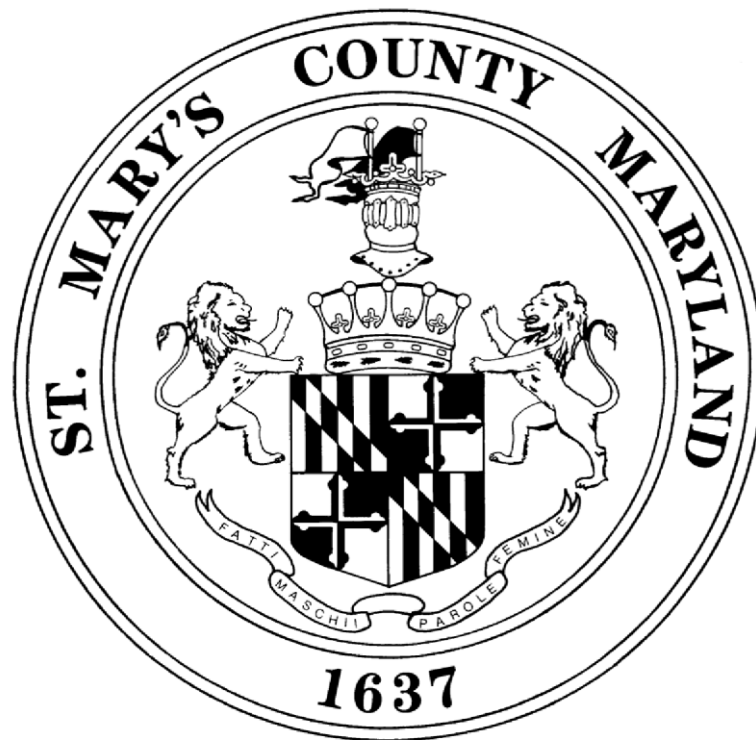
Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
26-Apr-22	Municipal Coordination	Town of Leonardtown	Leonardtown Municipal Survey	Eighteen questions including hazard ranking, social vulnerability, building codes, plans, and mitigation projects (past, current, & future).
20-Apr-22	MDE HAZUS Analysis- Pilot Project	Emergency Services Staff & MDE	HAZUS Fact Sheet and Overview	
28-Apr-22	St. Mary's County Press Release- Lunch with MIA	Public Webinar	Ask the Expert: What you need to know about reducing your flood risk for your home, car or business.	Experts from: MIA, MDE, MDEM, MDOT, and FEMA
17-May-22	Project Update & Coordination	SP&D Staff and Core Planning Team	Coordination and discussion on agenda topics for the HMP Board Meeting.	
17-May-22	Social Media Post	Public	Public Survey- DES Facebook Page	New graphic was developed for this posting.
18-May-22	St. Mary's County HMP Board Meeting	SP&D Staff and Core Planning Team	Agenda topics included HMP Plan Update, MD Silver Jackets Assessment Update, St. Mary's Dam TTX, Reverse 9-1-1 Message, Grant Application for HAZUS work.	Group viewed YouTube Video: MD Flood Awareness Month Video- Repetitive Flooding Town of Leonardtown during the meeting.

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
8-Jun-22	Small Group Meeting	Public Health Stakeholders	Agenda topics included: Infectious disease data and plan(s), CDC Guiding Principles, integration, capabilities, and new ideas.	PowerPoint Slideshow and Meeting Notes
8-Jun-22	Small Group Meeting	Social Equity Stakeholders	Agenda topics included: Joint Resolution on Social Equity, Hazards and Social Vulnerability, Capabilities and new ideas.	PowerPoint Slideshow and Meeting Notes
19-Jul-22	Project Website	Mitigation Status Report	The Mitigation Status Report completed for the previous 5-year planning cycle was uploaded for public review.	PDF under the
19-Jul-22	Project Website	Public Comment Form	Developed and uploaded a fillable form to the project website for public comment.	Public Comment Review Form under "Ways to Engage" tab on project website with draft "Plan Elements."
5-Aug-22	Chapter 4 Review & Comment	Staff	Integrated all review comments.	All staff comments were reviewed and integrated.
5-Aug-22	Project Website	Public Comment Form	Added Draft Sections of the Plan for Public Review and Comment	Hazard Identification and Capability and Plan Integration Sections

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
17-Aug-22	Project Update Mtg.	DES Staff	Plan Update components for review and comment, website, and planning for mitigation workshop	
8-Sep-22	Project Update Mtg.	DES Staff	Mitigation Workshop Invitee Listing, Group Assignments	Proposed Agenda, finalized group assignments
12-Sep-22	Leonardtown Area Assessment	Stakeholders	Progress meeting to discuss the assessment.	Discussed what work has occurred to date, what still needs to be addressed and go through any questions or concerns that anyone may have.
September 23, 2022	Project Website	Public	Flood Risk Maps added	Under "Hazards" tab, clickable button linking to PDF of Maps.
28-Sep-22	Mitigation Workshop	Stakeholders	Draft Mitigation Goals, Hazards Handout, Funding Handout, Actions items, and PowerPoint Slides	Attendees reviewed, modified and added new mitigation goals and actions. New project sheets were started for further development.
30-Sep-22	Mitigation Workshop Meeting Notes	Stakeholders	Meeting Notes distributed for review.	

Date	Meeting, Training, or Outreach Activity	Target Audience	Materials Provided	Comments/Input
4-Oct-22	Mitigation Workshop Meeting Notes	Public	Meeting notes uploaded to project website.	"Ways to Engage"
7-Oct-22	Chapter 5 Mitigation Strategies	Stakeholders	Distributed for review and comment.	
17-Oct-22	Mitigation Prioritization Survey	Stakeholders	Distributed for review and comment.	
31-Oct-22	Draft HMP	Public	Uploaded to project website.	
31-Oct-22	Draft HMP	HMPC	Distributed via email to Stakeholder Group.	

St. Mary's County Hazard Mitigation Planning Committee



2020 Annual Report

ST. MARY'S COUNTY HAZARD MITIGATION PLANNING COMMITTEE 2020 ANNUAL REPORT

Introduction

The Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to prepare and adopt hazard mitigation plans as a condition for receiving Pre- Disaster Mitigation (PDM) grant assistance and Hazard Mitigation Grant Program (HMGP) assistance. St. Mary's Hazard Mitigation Plan was adopted in 2006, updated May 27, 2011 – Resolution No. 2006-35.

The Committee shall serve in an advisory capacity to the Commissioners of St. Mary's County by addressing all matters related to planning and mitigation due to natural hazards, community outreach, coordination of resources and agencies, and any other issues relating to hazard mitigation that the Commissioners of St. Mary's County deem appropriate.

The membership of the Hazard Mitigation Planning Committee consists of ten (10) members.

Current Members	Representing
Gerald Gardiner	Emergency Services
Tony Wheatly	Town of Leonardtown
Bill Hunt	Land Use and Grow Management
John Deatrick	DPW&T
Ed Hogan	METCOM
Frederick Wyant	SMCPS
Mark Stancliff	Information Tech.
Philip Burch	MDOT – Leonardtown
Stephen Walker	Emergency Services
Vince Whittles	Business Owner in St. Mary's County

Meetings

The Hazard Mitigation Planning Committee has quarterly meetings. The Committee had two meetings in 2020 (February 20 and November 18). The regularly scheduled meetings in May and August of 2020 were canceled due to state and county restrictions put in place during the Coronavirus response. Meetings for 2021 are February 17, May 19, August 18, and November 17.

Elections

Election for Chair, Vice-Chair, and Secretary positions were held on November 18, 2020. Gerald Gardiner was elected Chairperson; John Deatruck was elected Vice-Chair.

By-Laws

The St. Mary's County Hazard Mitigation Planning Committee approved the By-Laws on November 18, 2021 and have submitted them to the Commissioners of St. Mary's County.

Hazard Mitigation Plan

The Hazard Mitigation plan was approved by FEMA on November 21, 2017. Per requirement, the plan must be updated every five years. Emergency Services is working on the requirements with potential contractors for obtaining quotes to update the plan. The goal of Emergency Services is to have a contractor in place by July of 2021, and to start the process by early fall of 2021, with a projected draft for public comments by August of 2022.

Tropical Storm Isaias

Tropical Storm Isaias caused record flooding events throughout the county and historical amounts in Leonardtown with McIntosh Run.

On July 30, 2020 we started receiving forecast models showing from the National Hurricane Center the probable path of Isaias to impact the Mid-Atlantic on Monday through Tuesday. A Tropical Storm Watch was issued on Sunday, August 3, 2020 and was upgraded to Tropical Storm Warning on Monday, August 3, 2020. Weather predictions were for possible 40 mph wind gusts, 3 – 5 inches of rain and no storm surge.

It started raining around midnight and ended by 10:00 AM with the heaviest rains in the early morning. From 4:00 AM – 8:30 AM St. Mary's County was placed under four different Tornado Warnings from the National Weather Service.

St. Mary's County rainfall amounts from Tropical Storm Isaias were from 6" to over 9". During the height of the storm we had many roads that were closed due to flooding and or damage. We had two major areas that you could not enter or exit; they were Brenton Bay, Compton area and County Lakes, all for approximately 4 hours you could not enter or exit these areas. The following roads; Route 5 in Leonardtown, Route 5 in Morganza and south bound Route 235 at Thompson Corner Road were closed due to flooding; this affected our transportation routes but also caused our first responders to re-route or take alternate routes for calls of service and transports to MedStar St. Mary's Hospital and caused delays

We were fortunate that we did not get the winds that had been predicted; with the soil already being saturated from previous rains and the rainfall amounts we received, it would have been much worse with trees down and electrical outages. SMECO reported 10,500+/- without electricity in the early afternoon and by 10:00 PM all services were restored.

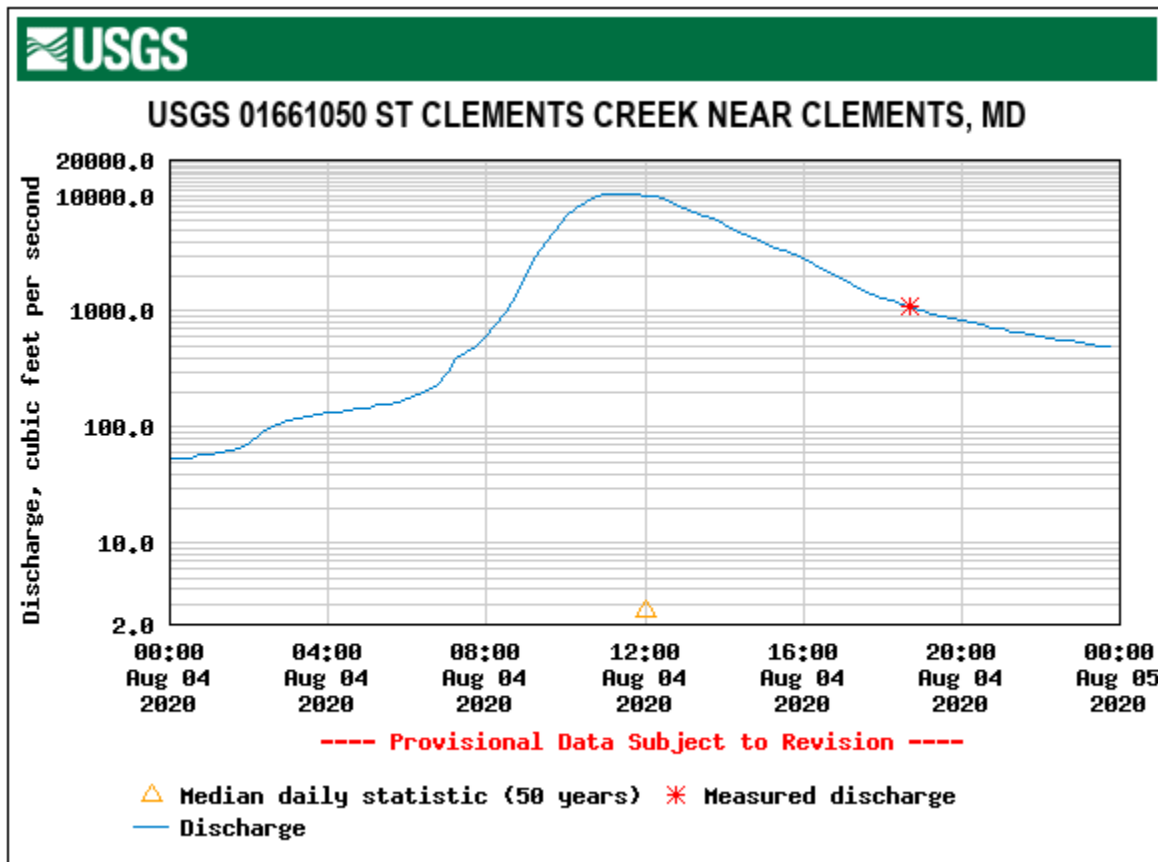
The St. Mary's County Board of Commissioners declared a State of Emergency on Tuesday August 3, 2020 at approximately 3:00 PM.

From MDOT

The judgment on storm event intensity was based on the field data, its comparison to the preliminary model results concerning the 100-yr flood and MDOT SHA studies regarding MD 6 at Persimmon Creek (location where bridge approaches were washed out) hydrology which included the estimate of Isaias. The MD 6 report estimates Isaias as 200 – 500 yr. storm.

USGS Stream gages nearby were reviewed including St. Clements Creek (attached). The USGS gage# 01661050 on St. Clements Creek showed approximately 11,000 to 12,000 CFS for the Aug. 4 storm (attached is the discharge plot). The previous maximum for that gage was 5900 CFS on Aug 28, 2011. That gage has records since 1968 and is approximately 5 miles from the MD5 crossing.

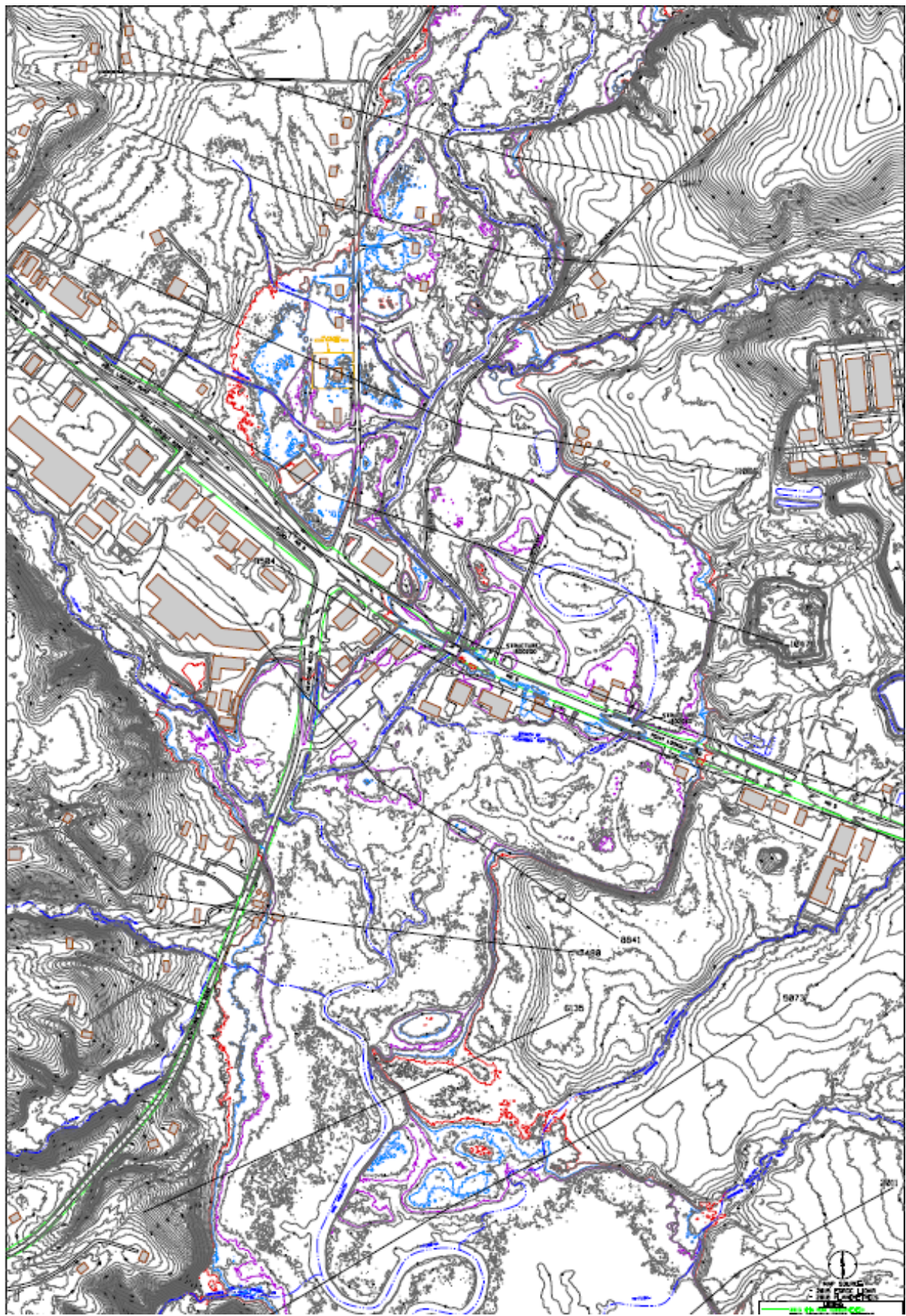
Also attached is a summary table showing elevations for McIntosh Run in the area at cross section 11066 highlighted in blue (this is Maypole Road area). It shows the 100- yr elevation is 13.67 ft and it was estimated that the Isaias elevation in the area of Maypole Road was about 15 ft.



Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Main	12190	P101yr	10538.00	5.08	15.94	13.62	16.18	0.001923	5.73	4400.08	1004.40	0.36
Main	11066	P100yr	7794.00	3.18	13.67	11.38	13.80	0.001135	4.42	3359.18	1188.33	0.27
Main	11066	FW	7794.00	3.18	14.50	11.61	14.65	0.001111	4.66	3167.56	640.00	0.27
Main	11066	P10yr	3040.00	3.18	11.71	9.45	11.80	0.000988	3.44	1810.94	741.60	0.24
Main	11066	P25yr	4547.00	3.18	12.55	10.62	12.65	0.000950	3.67	2449.04	865.08	0.24
Main	11066	P50yr	5992.00	3.18	13.14	10.97	13.24	0.001003	3.97	2912.92	1038.83	0.25
Main	11066	P500yr	13427.00	3.18	15.08	12.19	15.28	0.001343	5.34	4762.63	1658.56	0.30
Main	11066	P101yr	10538.00	3.18	14.43	11.80	14.59	0.001234	4.89	4097.56	1633.15	0.29
Main	10476	P100yr	7794.00	1.88	13.24	9.73	13.27	0.000432	2.69	6991.75	2252.03	0.17
Main	10476	FW	7794.00	1.88	14.20	9.91	14.23	0.000300	2.42	7346.38	1346.00	0.14
Main	10476	P10yr	3040.00	1.88	11.38	8.55	11.41	0.000309	1.90	4179.51	1828.76	0.14
Main	10476	P25yr	4547.00	1.88	12.22	9.12	12.25	0.000317	2.10	5416.60	1910.52	0.14
Main	10476	P50yr	5992.00	1.88	12.77	9.42	12.80	0.000356	2.34	6266.43	2130.14	0.15
Main	10476	P500yr	13427.00	1.88	14.53	10.53	14.59	0.000579	3.44	9026.86	2407.59	0.20
Main	10476	P101yr	10538.00	1.88	13.95	10.18	13.99	0.000500	3.06	8104.43	2328.43	0.18
Main	9677	P100yr	7794.00	1.02	12.83	10.23	12.92	0.000606	3.55	4510.99	1665.39	0.21
Main	9677	FW	7794.00	1.02	13.78	10.17	13.91	0.000668	3.98	3663.62	1004.00	0.22
Main	9677	P10yr	3040.00	1.02	10.72	7.19	10.95	0.001210	4.23	937.66	932.41	0.28
Main	9677	P25yr	4547.00	1.02	11.88	8.39	11.96	0.000526	3.08	3003.45	1432.60	0.19
Main	9677	P50yr	5992.00	1.02	12.42	9.49	12.50	0.000536	3.24	3832.31	1606.16	0.19
Main	9677	P500yr	13427.00	1.02	14.09	11.57	14.19	0.000625	3.93	6626.13	1709.70	0.21
Main	9677	P101yr	10538.00	1.02	13.54	11.27	13.62	0.000593	3.69	5685.33	1680.39	0.21
Main	9590		Full Open									
Main	9504	P100yr	7794.00	1.31	11.18	10.19	11.55	0.002704	6.64	2260.97	952.26	0.42
Main	9504	FW	7794.00	1.31	11.67	10.82	12.44	0.004075	8.49	1537.68	597.44	0.52
Main	9504	P10yr	3040.00	1.31	9.33	7.43	9.90	0.003652	6.42	567.02	510.14	0.47
Main	9504	P25yr	4547.00	1.31	10.08	8.85	10.44	0.002650	5.93	1369.14	696.10	0.41
Main	9504	P50yr	5992.00	1.31	10.61	9.58	10.98	0.002701	6.30	1751.76	780.48	0.42
Main	9504	P500yr	13427.00	1.31	12.45	11.24	12.81	0.002589	7.19	3685.59	1176.43	0.42
Main	9504	P101yr	10538.00	1.31	11.89	10.60	12.25	0.002594	6.89	3026.72	1162.83	0.42
Main	8841	P100yr	7794.00	1.48	9.61	7.40	9.75	0.002125	4.78	3524.80	1340.46	0.35
Main	8841	FW	7794.00	1.48	10.46	7.73	10.59	0.001387	4.24	3586.01	930.00	0.29
Main	8841	P10yr	3040.00	1.48	7.47	6.04	7.61	0.003391	4.40	1317.78	781.56	0.41
Main	8841	P25yr	4547.00	1.48	8.26	6.52	8.40	0.002849	4.62	1993.20	1029.06	0.39
Main	8841	P50yr	5992.00	1.48	8.91	7.02	9.05	0.002460	4.71	2685.06	1215.75	0.37
Main	8841	P500yr	13427.00	1.48	11.28	8.38	11.40	0.001343	4.52	6134.05	1441.69	0.29
Main	8841	P101yr	10538.00	1.48	10.51	7.95	10.65	0.001718	4.75	4723.80	1426.40	0.33
Main	7480	P100yr	8783.00	0.57	8.55		8.60	0.000862	3.53	5883.04	1130.82	0.23
Main	7480	FW	8783.00	0.57	9.37		9.47	0.001211	4.50	4572.01	750.00	0.28
Main	7480	P10yr	3479.00	0.57	6.26		6.29	0.000833	2.68	3324.49	1097.34	0.22
Main	7480	P25yr	5167.00	0.57	7.13		7.16	0.000821	2.97	4285.05	1112.28	0.22
Main	7480	P50yr	6778.00	0.57	7.82		7.86	0.000833	3.23	5056.73	1121.95	0.23
Main	7480	P500yr	14966.00	0.57	10.32		10.40	0.000973	4.35	7904.60	1156.19	0.26
Main	7480	P101yr	11875.00	0.57	9.51		9.57	0.000915	3.96	6968.90	1143.20	0.25
Main	6135	P100yr	8783.00	-0.97	7.47	4.06	7.55	0.000964	3.84	5442.41	1059.23	0.25
Main	6135	FW	8783.00	-0.97	8.02	4.22	8.13	0.001111	4.32	4442.81	711.00	0.27
Main	6135	P10yr	3479.00	-0.97	5.34	3.13	5.38	0.000724	2.65	3242.73	1008.13	0.20
Main	6135	P25yr	5167.00	-0.97	6.17	3.48	6.22	0.000797	3.07	4086.83	1027.12	0.22



*Information from the National Weather Service Forecast Office
Baltimore/Washington*

Monthly Total Precipitation for MECHANICSVILLE 5 NE, MD													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2020	2.77	2.71	2.53	4.49	4.68	2.35	13.95	19.55	7.33	7.80	6.20	6.30	80.86
2018	2.43	6.73	3.07	3.68	11.59	7.06	12.88	4.28	8.98	8.27	6.89	4.92	80.78
2003	1.71	7.41	5.36	2.96	6.80	6.13	3.03	4.76	8.68	3.51	6.17	4.64	61.16
2009	2.39	0.35	3.19	4.93	4.65	4.38	2.22	6.49	3.65	6.92	6.91	10.05	56.13
2015	4.00	4.52	4.22	4.47	3.06	9.56	3.12	1.94	7.84	3.98	2.11	5.73	54.55
1996	5.91	3.07	3.93	2.68	4.72	4.99	7.72	2.89	3.95	5.13	2.54	6.28	53.81
1994	4.88	6.06	9.20	2.60	1.55	5.27	5.90	6.02	6.14	1.01	2.65	1.17	52.45
2016	3.73	3.56	1.29	2.57	9.26	3.94	3.55	3.27	12.42	3.75	0.47	3.10	50.91
2000	3.90	1.56	4.64	4.25	2.98	4.08	9.44	5.35	5.32	0.03	2.62	4.58	48.75
1990	3.66	2.04	3.37	4.08	8.88	5.60	3.98	6.81	1.53	3.49	1.17	3.95	48.56
1992	2.04	2.24	5.93	1.61	4.26	3.60	6.95	4.29	7.63	2.33	3.14	4.43	48.45
2006	3.43	1.73	0.06	3.51	1.87	6.70	4.25	1.14	13.56	5.10	5.65	1.43	48.43
2013	3.03	2.20	3.96	4.49	2.52	7.09	3.06	6.99	0.89	4.74	3.37	5.66	48.00
1999	5.20	2.20	4.82	3.17	0.63	2.23	2.21	6.61	11.75	3.50	1.45	2.25	46.02
2019	3.08	3.90	4.08	1.86	4.34	5.49	6.82	4.61	0.71	5.18	2.04	3.14	45.25
2008	1.27	3.05	2.58	3.92	10.68	6.12	1.89	1.06	4.14	1.17	2.86	5.93	44.67
1993	3.04	2.73	8.81	3.90	4.16	2.20	0.66	4.37	3.50	2.66	4.25	4.07	44.35
2005	3.44	1.70	5.38	3.71	5.13	3.36	2.68	4.46	0.13	7.90	2.46	3.87	44.22
1998	7.31	7.45	6.36	4.04	4.68	6.68	1.23	0.76	0.50	1.28	1.17	2.50	43.96
2004	2.35	2.02	1.52	4.67	5.18	5.97	5.38	2.88	4.03	1.64	5.42	2.86	43.92
1997	2.36	3.00	5.29	3.43	1.33	3.21	4.73	4.92	1.95	3.10	7.28	2.38	42.98
2001	2.86	2.30	5.00	1.61	6.73	5.27	7.73	5.01	2.54	0.88	0.97	1.98	42.88
2017	3.13	0.41	3.16	3.48	6.73	2.50	7.01	9.29	1.18	2.81	2.21	0.56	42.47
2010	2.50	4.27	4.91	1.84	2.36	1.46	1.79	5.61	8.63	3.15	2.13	3.36	42.01
1995	3.78	1.64	2.24	3.16	3.55	3.40	3.59	0.45	2.47	9.55	4.23	2.46	40.52
2014	3.33	4.04	4.86	4.29	5.32	2.56	1.70	1.22	2.27	4.08	2.91	3.67	40.25
2002	2.29	0.61	4.74	2.95	1.82	2.91	1.74	3.47	1.86	7.11	5.01	4.72	39.23
1991	3.65	1.06	4.55	1.33	2.19	2.15	2.02	2.92	2.65	2.98	0.86	5.79	32.15
2007	3.89	3.43	3.14	3.59	1.23	1.46	1.97	1.96	1.35	4.79	1.64	2.87	31.32
2021	1.96	M	M	M	M	M	M	M	M	M	M	M	M
2012	1.62	M	2.37	2.32	M	2.42	3.86	6.06	1.64	8.24	0.89	4.20	M
2011	3.27	1.13	6.07	3.74	2.87	1.22	4.11	12.55	8.47	3.05	3.74	4.66	M
Mean	3.26	2.97	4.21	3.33	4.53	4.24	4.55	4.90	4.77	4.17	3.27	3.98	48.24
Max	7.31 1998	7.45 1998	9.20 1994	4.93 2009	11.59 2018	9.56 2015	13.95 2020	19.55 2020	13.56 2006	9.55 1995	7.28 1997	10.05 2009	80.86 2020
Min	1.27 2008	0.35 2009	0.06 2006	1.33 1991	0.63 1999	1.22 2011	0.66 1993	0.45 1995	0.13 2005	0.03 2000	0.47 2016	0.56 2017	31.32 2007

<https://w2.weather.gov/climate/xmacis.php?wfo=lwx>

Conclusion

The Hazard Mitigation Planning Committee is dedicated to serving the citizens of our community by advising the Commissioners of St. Mary's County on all-hazards that have or could have an impact on St. Mary's County. The state and county restrictions put in place during the Coronavirus response has had an impact on the time that was dedicated to Hazard Mitigation.

This past year has been like no other in the past. Emergency Services has been activated for COVID-19 Response and Recovery since February. With that, we had numerous rain events this summer that caused major flooding throughout the County. The areas and the level of flooding we believe are historical. The committee will be looking at ways to mitigate flooding in the future. This is not one agency's or department's responsibility. It is going to take all parties involved to not only come up with solutions but to look at past solutions/regulations/ordinances to make sure they are being followed and updated.

The committee is eager for 2021 in not only starting the update of our plan but to come up with solutions to mitigate potential disasters.



**Wednesday, September 28, 2022
Hazard Mitigation Planning Board**

THIS AGENDA IS TENTATIVE AND SUBJECT TO CHANGE WITHOUT NOTICE - TIMES ARE APPROXIMATE

Meeting of: Hazard Mitigation Planning Board

Location: Potomac Building, Room 14, 23115 Leonard Hall Drive, Leonardtown, MD. 20650

Time: 9:00 am

Public meetings are now open to the public. For additional information please contact Gerald Gardiner by calling 301-475-4200, ext. 72124

1. 0900 - CALL TO ORDER

2. 0901 - ROLL CALL

A. Review & Approve Minutes

3. 0902 - OLD BUSINESS

A. Hazard Mitigation Plan Update

B. Sliver Jackets

4. 0932 - NEW BUSINESS

A. USGS Agreement

B. Hazard Mitigation Plan Workshop

5. 1159 - BOARD MEMBER TIME

6. 1200 - ADJOURN

A. Adjourn

Appropriate accommodations for individuals with special needs will be provided upon request. In order to meet these requirements, we respectfully ask for one week's prior notice. Please contact Mary Ann Gardiner at 301-475-4200, Ext. 72110. Proceedings are televised live and/or recorded for later broadcast on television. All content of these proceedings is subject to disclosure under the Maryland Public Information Act. Photographic and electronic audio and visual broadcasting and recording devices are used during this meeting. These are public meetings and attendance at these meetings automatically grants St. Mary's County Government permission to broadcast your audio and visual image



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1. 0900 - CALL TO ORDER

2. 0901 - ROLL CALL

Subject	A. Review & Approve Minutes
Meeting	Sep 28, 2022 - Hazard Mitigation Planning Board
Category	2. 0901 - ROLL CALL
Access	Public
Type	Action, Minutes
Recommended Action	I move to accept the minutes from the May 18, 2022 meeting as presented.
Minutes	View Minutes for May 18, 2022 - Hazard Mitigation Planning Board
Name of Individuals/Groups (<i>Identify main presenter & list all who will be attending w/titles</i>):	Gerald Gardiner, Emergency Management
Supporting County Staff to be in Attendance:	N/A
Specific Purpose of Request for Appointment:	To approve the minutes of the May 18, 2022 meeting as presented.
Amount of Time Needed for Presentation:	1 min
Will you be Using Powerpoint?:	N/A
Will you need a Podium?	N/A
Background Issues to be Aware of:	N/A

Motion & Voting

I move to accept the minutes from the May 18, 2022 meeting as presented.

Motion by Ed Hogan, second by Tony Wheatley.

Final Resolution: Motion Carries

Yea: Bill Hunt, Tony Wheatley, Vince Whittles, Ed Hogan, Gerald Gardiner, Eric Benson, James Gotsch, George Bilius

Abstain: Rick Tarr

Not Present at Vote: Phillip Burch, George Erichsen, Mark Stancliff

3. 0902 - OLD BUSINESS

Subject **A. Hazard Mitigation Plan Update**

Meeting Sep 28, 2022 - Hazard Mitigation Planning Board

Category 3. 0902 - OLD BUSINESS

Access Public

Type Information

Name of Individuals/Groups (*Identify main presenter & list all who will be attending w/titles*):
Gerald Gardiner, Emergency Management

Supporting County Staff to be in Attendance:
N/A

Specific Purpose of Request for Appointment:
To give an update on the Hazard Mitigation Plan.

Amount of Time Needed for Presentation:
15 min

Will you be Using Powerpoint?:
N/A

Will you need a Podium?
N/A

Background Issues to be Aware of:
N/A

File Attachments MEMO Hazard Mitigation Update.pdf (177 KB) Public Health 6-8-2022.pdf (64 KB) Social Equity 6-8-2022.pdf (74 KB)
--

Subject **B. Sliver Jackets**

Meeting Sep 28, 2022 - Hazard Mitigation Planning Board

Category 3. 0902 - OLD BUSINESS

Access Public

Type Information

Name of Individuals/Groups (*Identify main presenter & list all who will be attending w/titles*):
Gerald Gardiner, Emergency Management

Supporting County Staff to be in Attendance:
N/A

Specific Purpose of Request for Appointment:

To review the proposal, work completed and the potential causes of flooding.

Amount of Time Needed for Presentation:
15 min

Will you be Using Powerpoint?:
N/A

Will you need a Podium?
N/A

Background Issues to be Aware of:
N/A

File Attachments
MEMO Silver Jackets Update.pdf (176 KB)
Flood Event Silver Jackets.pdf (1,499 KB)

4. 0932 - NEW BUSINESS

Subject **A. USGS Agreement**

Meeting Sep 28, 2022 - Hazard Mitigation Planning Board

Category 4. 0932 - NEW BUSINESS

Access Public

Type Information

Name of Individuals/Groups (*Identify main presenter & list all who will be attending w/titles*):
Gerald Gardiner, Emergency Management

Supporting County Staff to be in Attendance:
N/A

Specific Purpose of Request for Appointment:
To give an update on the agreement.

Amount of Time Needed for Presentation:
11 min

Will you be Using Powerpoint?:
N/A

Will you need a Podium?
N/A

Background Issues to be Aware of:
On Dec 15, 2020, the CSMC signed the U.S. Department of the Interior U.S. Geological Survey Joint Funding agreement for Water Resource Investigations. That agreement outlines the financial responsibilities.
On Sept 20, 2021, Commissioner President Guy signed a second year U.S. Department of the Interior U.S. Geological Survey Joint Funding agreement for Water Resource Investigations.
On Aug 30, 2022, Commissioner president Guy signed a third year U.S. Department of the Interior U.S. Geological Survey Joint Funding agreement for Water Resource Investigations.

File Attachments
USGS Agreement Memo.pdf (134 KB)
Signed ISGS Weather Station agreement 8-31-2022.pdf (2,195 KB)

Subject **B. Hazard Mitigation Plan Workshop**

Meeting Sep 28, 2022 - Hazard Mitigation Planning Board

Category 4. 0932 - NEW BUSINESS

Access Public

Type Information

Name of Individuals/Groups (*Identify main presenter & list all who will be attending w/titles*):
Gerald Gardiner, Emergency Management

Supporting County Staff to be in Attendance:
N/A

Specific Purpose of Request for Appointment:
To update the Hazard Mitigation Plan

Amount of Time Needed for Presentation:
2 hours 16 min

Will you be Using Powerpoint?:
N/A

Will you need a Podium?
N/A

Background Issues to be Aware of:
Every 5 year the Hazard Mitigation Plan is updated with stakeholders involvement.

File Attachments
MEMO Hazard Mitigation Workshop.pdf (192 KB)
Mitigation Idea Form.pdf (97 KB)
Hazard Mitigation Goals Handout.pdf (108 KB)
St. Mary's Appendix E Mitigation Status Report.pdf (927 KB)

5. 1159 - BOARD MEMBER TIME

6. 1200 - ADJOURN

Subject **A. Adjourn**

Meeting Sep 28, 2022 - Hazard Mitigation Planning Board

Category 6. 1200 - ADJOURN

Access Public

Type Action

Recommended Action I move to adjourn the meeting.

Name of Individuals/Groups (*Identify main presenter & list all who will be attending w/titles*):
Gerald Gardiner, Emergency Management

Supporting County Staff to be in Attendance:
N/A

Specific Purpose of Request for Appointment:
N/A

Amount of Time Needed for Presentation:

1 min

Will you be Using Powerpoint?:

N/A

Will you need a Podium?

N/A

Background Issues to be Aware of:

N/A

Motion & Voting

I move to adjourn the meeting.

Motion by Tony Wheatley, second by Eric Benson.

Final Resolution: Motion Carries

Yea: Phillip Burch, Tony Wheatley, Vince Whittles, Ed Hogan, Gerald Gardiner, Eric Benson, George Erichsen, George Biliias

Abstain: Rick Tarr

Not Present at Vote: Bill Hunt, James Gotsch, Mark Stancliff

Appropriate accommodations for individuals with special needs will be provided upon request. In order to meet these requirements, we respectfully ask for one week's prior notice. Please contact Mary Ann Gardiner at 301-475-4200, Ext. 72110. Proceedings are televised live and/or recorded for later broadcast on television. All content of these proceedings is subject to disclosure under the Maryland Public Information Act. Photographic and electronic audio and visual broadcasting and recording devices are used during this meeting. These are public meetings and attendance at these meetings automatically grants St. Mary's County Government permission to broadcast your audio and visual image

Hazard Mitigation Planning Board
Wednesday, May 18, 2022

1. CALL TO ORDER

Meeting called to order at 10:00 AM

2. ROLL CALL

Members present

Stephen Walker, Director of Emergency Services
Eric Benson, IT Department
Bill Hunt, LUGM
Gerald Gardiner, Emergency Management
Ed Hogan, METCOM
George Biliias for Phillip Burch, SHA District 5

Members not present

Mike Wyant, Public Schools
Tony Wheatley, Town of Leonardtown
Vince Whittles, Community Member, Out of the State

3. PRESENTATIONS

A. Review & Approve Minutes

I move to accept the minutes from the November 17, 2021 meeting as presented.

Motion by Stephen Walker, second by Ed Hogan.

Final Resolution: Motion Carries

Yea: Stephen Walker, Bill Hunt, Ed Hogan, Gerald Gardiner, Eric Benson, George Biliias

4. COMMITTEE REPORTS

No Committee Reports

5. OLD BUSINESS

A. Hazard Mitigation Plan Update

Gerald Gardiner shared that the Hazard Mitigations Plan is still in the process of being updated and should be completed by the end of the year. He also provided options on providing feedback on the Plan. The Hazard Risk Identifications Assessment has been completed.

Eric Benson added that the IT Department has provided all the requested GIS data to the contractor.

B. Sliver Jackets

Gerald Gardiner gave in update on the Silver Jackets and the letter that was sent out to Watershed Residents and business to do the necessary surveys in the area of McIntosh Run.

C. St Mary's Dam Plan

Gerald Gardiner informed the board of a Code Red message that was sent out on May 26, 2022 to all residence in a dam breach area. He also shared the participation Emergency Services had in a tabletop exercise sponsored by Maryland Department of the Environment on March 24, 2022. MDE has also updated their St. Mary's Dam Plan.

6. NEW BUSINESS

A. Annual Report

I move to approve the 2021 Hazard Mitigation Planning Board Annual report as presented and forward to CSMC.

Motion by Stephen Walker, second by Ed Hogan.

Final Resolution: Motion Carries

Yea: Stephen Walker, Bill Hunt, Ed Hogan, Gerald Gardiner, Eric Benson, George Bilias

B. Election Vice-Chairperson

Motion 1 - I move to enter elections of office for the position of Vice-Chairperson for the Hazard Mitigation Planning Board for the remainder of the year of 2022.

Motion by Gerald Gardiner, second by Stephen Walker.

Final Resolution: Motion Carries

Yea: Stephen Walker, Bill Hunt, Ed Hogan, Gerald Gardiner, Eric Benson, George Bilias

Motion 2 - I move to elect Ed Hogan for the position of Vice-Chairperson of Hazard Mitigation Planning Board for the remainder of this year.

Motion by Stephen Walker, second by Eric Benson.

Final Resolution: Motion Carries

Yea: Stephen Walker, Bill Hunt, Ed Hogan, Gerald Gardiner, Eric Benson, George Bilias

C. Pilot MDE HAZUS Analysis

Gerald Gardiner gave an update on the involvement of Emergency Services with the Maryland Department of Environment on a Pilot HAZUS Analysis Project.

7. BOARD MEMBER TIME

Ed Hogan advised that METCOM has completed a risk and resilience plan for the water system within the county and are currently undergoing a study for the Marly Taylor facility which should be completed this year.

Steve Walker updated the Board on the where was in the budget process for the for the department. The only impact on Emergency Management on the Hazard Mitigation Board is the moving of the grant funded Emergency Planner to a full time county position.

8. ADJOURN

A. Adjourn

I move to adjourn the meeting.

Motion by Stephen Walker, second by George Bilias.

Final Resolution: Motion Carries

Yea: Stephen Walker, Bill Hunt, Ed Hogan, Gerald Gardiner, Eric Benson, George Bilias

Darlene Mund Recorder

Minutes approved by Hazard Mitigation Planning Board on September 28, 2022



Date: September 28, 2022

To: Hazard Mitigation Planning Committee
From: Gerald Gardiner, Emergency Management Manager
Subject: Hazard Mitigation Plan Update

Completed this past quarter:

- Chapter 1 Introduction- In Process as this chapter documents the planning process from start to finish.
- Chapter 2 Hazard Identification- Complete
- Chapter 3- Vulnerability Analysis- In Process, this chapter will be sent as “read ahead” material for the September Mitigation Workshop.
- Chapter 4- Plan Integration & Community Capabilities- Complete
- Chapter 5- Mitigation Strategies- In Process
- Chapter 6- Action Plan- Need to hold Mitigation Workshop in order to complete.

- Held meeting with Public Health and Social Equity on June 8, 2022

- In addition, the HIRA and Mitigation Status Report have been completed and uploaded to project website. In addition, the Critical & Public Facilities data tables and methodology appendices have been updated.

- Public Survey as of this date: 306 surveys have been completed
 - Most concerned about hurricane/tropical storm, shoreline erosion, and flood
 - Least concerned about wildfire and dam failure
 - 172 indicate that do not have flood insurance and of those 100 indicated it was “too expensive.”





Date: September 28, 2022
To: Hazard Mitigation Planning Committee
From: Gerald Gardiner, Emergency Management Manager
Subject: Silver Jackets Update

Leonardtown Area Flood Mitigation Assessment
September 12, 2022, 10:00 a.m. – 11:30 a.m.
Via Webinar/Conference Call

I. Introductions

II. Review of Proposal

III. Work Completed to Date

- a) MacIntosh Run bathymetric data collection
- b) Stream corridor assessments
- c) Building surveys and stream cross sections

IV. Potential Causes of Flooding

- a) Extreme rainfall events
- b) Beaver pond breach
- c) Siltation of downstream channel
- d) Siltation on right overbank just downstream of MD-5
- e) Timing of releases from new SWM ponds

V. Schedule and Path Forward

- a) Possible LiDAR capture above Secretariate Drive
- b) Hazard Mitigation Committee meeting – Sept. 28
- c) Community Outreach

VI. Wrap Up/Actions

- a) Schedule next meeting date



**St. Mary's County
Department of Emergency Services**

Stephen Walker, Director



Commissioners of St. Mary's County

James R. Guy, President
Eric Colvin, Commissioner
Michael L. Hewitt, Commissioner
Todd B. Morgan, Commissioner
John E. O'Connor, Commissioner

Individuals in attendance:

Jason Stick, USACE

Kevin Wagner, MDE

Laschelle McKay, Town of Leonardtown

Gerald Gardiner, St. Mary's County Dept. of Emergency Services

Amy Bledsoe, St. Mary's County Dept. of Emergency Services

Jeremy Geiger, NWS

Jim George, MDE

Ginny Smith, Smith Planning & Design

Alison Santoro, DNR

Allison Burnett, Southern Maryland Resource Conservation & Development

Bill Hunt, St. Mary's County Dept. of Land Use and Growth Management

Ashton Rogers, GHD

Stacy Clements, St. Mary's County Dept. of Land Use and Growth Management

Jim Gotsch, St. Mary's County Dept. of Public Works & Transportation

Donnie Mills, St. Mary's County Dept. of Public Works & Transportation (with Jim Gotsch)

Dave Guignet, MDE

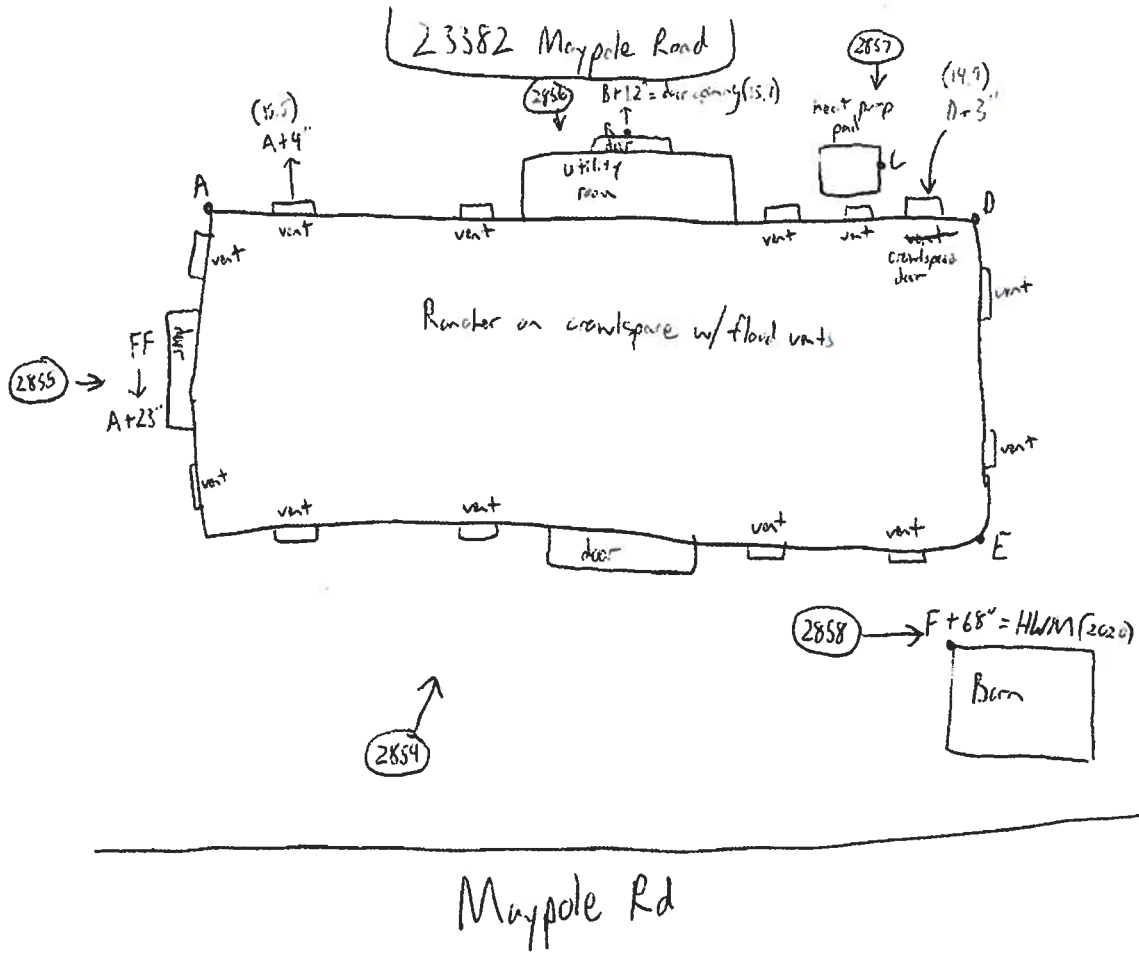
Valerie Caswell, St. Mary's County Dept. of Land Use and Growth Management

Jeremy Mondock, MDOT SHA (came in late)



Building Surveys

Surveyed buildings at 22382 Maypole Road, 23315 Maypole Road and 25995 Point Lookout Road



A = 15.25
B = 14.46
C = 15.47
D = 14.6
E = 14.22
F = 12.0

BFE @ barn = 15.63 (NAVD88) *
(125' ds of RS 12190) 500 year @ barn = 17.35 (NAVD88)

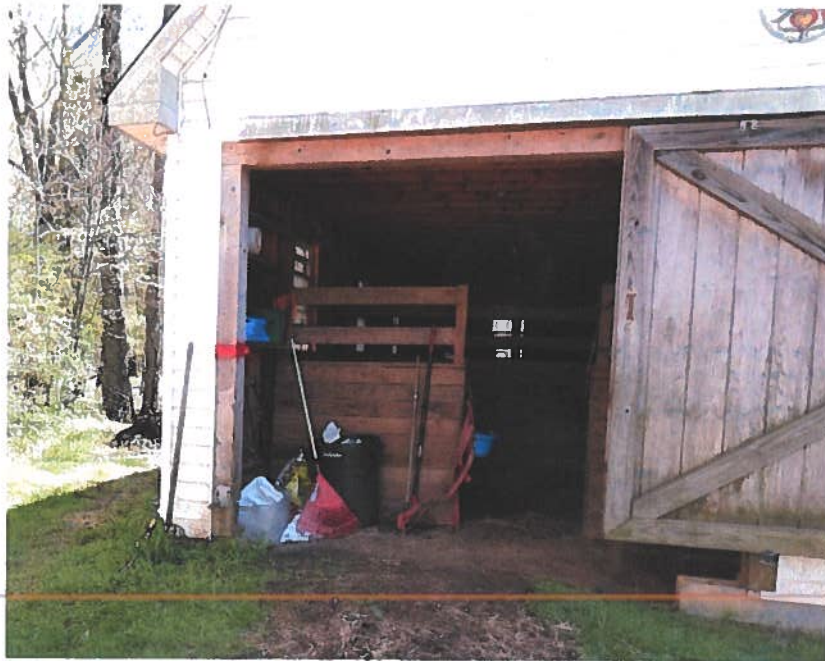
BFE @ house = 15.74 (NAVD88) *
(50' ds of RS 12190)

* based on FEMA prelim. model

FF = 17.17
LO = 15.2
LAG = 14.22

HWM = 17.7 (NAVD88) BFE = 15.63
(Barn) 500 year = 17.35

Lat. 38° 18' 35.49" N
Long. 76° 38' 24.96" W



Potential Causes of Flooding

- Extreme rainfall events

Rainfall amounts taken from wunderground station KMDLEONA22

July 24, 2018

Rainfall Data:

7/21 – 4.03”

7/22 – 0.18”

7/23 – 0.6”

7/24 – 0.82”

August 4, 2020 (TS Isaias)

Rainfall started at midnight and ended at 10 AM

In 10 hours, a total of 7.75” of rain – *in 12 hours this would exceed NOAA Atlas 14 100-year rainfall event (7.3”)*

November 11-12, 2020

Rainfall started at 11 AM 11/11 and ended at 1:30 PM 11/12

In a little over 24 hours, a total of 8.31” of rain (*NOAA Atlas 14 – between 50 and 100 year rainfall event*)

Between 8 PM and 9:50 PM on 11/11, 3.85” of rain (*NOAA Atlas 14 – between 50 and 100 year rainfall event*)

Besides extreme rainfall events, what else could be causing flooding?

- Beaver Dam breach at Secretariate Drive
-



- Siltation of downstream channel on McIntosh Run



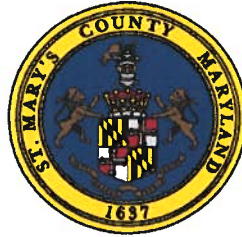
- Siltation of right overbank just downstream of MD-5



Who bears responsibility?

- Timing of releases from new SWM ponds

**ST. MARY'S COUNTY GOVERNMENT
HAZARD MITIGATION ADVISORY
BOARD**



Commissioners of St. Mary's County
James R. Guy, President
Eric Colvin, Commissioner
Michael L. Hewitt, Commissioner
Todd B. Morgan, Commissioner
John E. O'Connor, Commissioner

Date: September 28, 2022, 2021
To: Hazard Mitigation Planning Committee
From: Gerald Gardiner, Emergency Management Manager
Subject: Updated USGS Agreement

Attached is the agreement from the United State Department of the Interior, US Geological for the McIntosh Run site. The cost for this year is \$11,919.00. It is projected to cost \$12,514.00 for FY 2024.



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Maryland, Delaware and the District of Columbia Water Science Center
5522 Research Park Drive
Baltimore, MD 21228

August 18, 2022

Mr. Gerald Gardiner
Emergency Management Manager
St. Mary's County
PO Box 653
Leonardtown, MD 20650

Dear Mr. Gardiner:

Enclosed is the signed original of our standard joint-funding agreement for the project(s) Maryland, Delaware and the District of Columbia Water Science Center Water Resources Investigations, during the period October 1, 2022 through September 30, 2023 in the amount of \$11,919 from your agency. Please sign and return one fully-executed original to Joseph Jenkins at the address above.

Federal law requires that we have a signed agreement before we start or continue work. Please return the signed agreement by **October 1, 2022**. If, for any reason, the agreement cannot be signed and returned by the date shown above, please contact Jeffrey Kvech by phone number (443) 498-5544 or email jjkvech@usgs.gov to make alternative arrangements.

This is a fixed cost agreement to be billed annually via Down Payment Request (automated Form DI-1040). Please allow 30-days from the end of the billing period for issuance of the bill. If you experience any problems with your invoice(s), please contact Yaushadia Coleman at phone number (443) 498-5538 or email at ycoleman@usgs.gov.

The results of all work performed under this agreement will be available for publication by the U.S. Geological Survey. We look forward to continuing this and future cooperative efforts in these mutually beneficial water resources studies.

Sincerely,

Digitally signed by ETHAN
WEIKEL
Date: 2022.08.19 14:10:57
-04'00'

Ethan Weikel Acting for Mary K Foley
Director, MD-DE-DC Water Science Center

Enclosure
23LFJFA03297200

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 3000032972
Agreement #: 23LFJFA03297200
Project #:
TIN #: 52-6001015

Fixed Cost Agreement YES[X] NO[]

THIS AGREEMENT is entered into as of the October 1, 2022, by the U.S. GEOLOGICAL SURVEY, Maryland, Delaware and the District of Columbia Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the St. Mary's County party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Water Resource Investigations (per attachment), herein called the program. The USGS legal authority is 43 USC 36C, 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of \$0.00

- (a) \$0 by the party of the first part during the period
October 1, 2022 to September 30, 2023
- (b) \$11,919 by the party of the second part during the period
October 1, 2022 to September 30, 2023
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: \$0
Description of the USGS regional/national program:
- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www.usgs.gov/about/organization/science-support/science-quality-and-integrity/fundamental-science-practices>).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 3000032972
Agreement #: 23LFJFA03297200
Project #:
TIN #: 52-6001015

9. Billing for this agreement will be rendered annually. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name: Jeffrey Kvech
Supervisory Hydrologic Technician
Address: U.S. Geological Survey 5522 Research
Park Drive
Catonsville, MD 21228
Telephone: (443) 498-5544
Fax: (443) 498-5510
Email: jkvech@usgs.gov

Customer Technical Point of Contact

Name: Gerald Gardiner
Emergency Management Manager
Address: PO Box 653
Leonardtown, MD 20650
Telephone: (301) 475-4200
Fax:
Email: gerald.gardiner@stmarysmd.com

USGS Billing Point of Contact

Name: Yaushadia Coleman
Budget Analyst
Address: U.S. Geological Survey 5522 Research
Park Drive
Catonsville, MD 21228
Telephone: (443) 498-5538
Fax: (443) 498-5510
Email: ycoleman@usgs.gov


Customer Billing Point of Contact

Name: Gerald Gardiner
Emergency Management Manager
Address: PO Box 653
Leonardtown, MD 20650
Telephone: (301) 475-4200
Fax:
Email: gerald.gardiner@stmarysmd.com


U.S. Geological Survey
United States
Department of Interior

St. Mary's County

Signature

 Digitally signed by ETHAN
WEIKEL
Date: 2022.08.19 14:11:30
-04'00'
By _____ Date: _____
Name: Ethan Weikel Acting for Mary K Foley
Title: Director, MD-DE-DC Water Science Center

Signatures

By  Date: 8/30/22
Name: James R. Guy Commissioner President
Title: Commissioners of St. Mary's County

By _____ Date: _____
Name:
Title:

By _____ Date: _____
Name:
Title:

Scope of Work for Continuous Stage and Precipitation Monitoring on McIntosh Run at Point Lookout Road (MD Route 5) in Leonardtown, St. Mary's County, Maryland

Prepared by:

Jeffrey J. Kvech, Supervisory Hydrologic Technician
U.S. Geological Survey, Baltimore, Maryland

October 26, 2020

Revised: August 18, 2022

Recent and recurring storm-related floods in St. Mary's County, Maryland have necessitated numerous road closures and have resulted in damage to both public and private property. These flooding events have prompted discussions between the St. Mary's County Department of Emergency Services and the U.S. Geological Survey, Maryland-Delaware-D.C. Water Science Center (USGS) regarding the potential benefits of continuous stage (aka water-level) and precipitation monitoring at strategic locations. The USGS currently operates two continuous stage-discharge monitoring stations in the county: St. Clements Creek near Clements, MD (01661050) and St. Marys River at Great Mills, MD (01661500). The data from these stations are transmitted hourly via satellite communications and are served to public-facing web pages. Note that these transmitted data might also be incorporated into National Weather Service (NWS) products for near-realtime presentation on their web pages, as well as possibly used for NWS predictive products

The USGS proposes to continue operation of continuous stage and precipitation monitoring station McIntosh Run near Leonardtown, MD (01661350).

Maintenance and Operation: The station operates autonomously, routinely transmitting data once per hour for presentation on USGS public-facing "realtime" web pages. USGS personnel conduct daily remote checks of transmitted data, to include battery voltage and other internal quality-control parameters. Any problems that might occur, and in many cases, any signs of impending problems that have not yet adversely affected the station's operation, will be addressed by USGS, usually within 24-48 hours, to ensure continued station operation.

Routine station visits will be made by USGS, approximately every 8 weeks, to inspect all equipment and conduct necessary maintenance, which would include:

- Inspection of stage sensor and maintenance of related operating environment to ensure reliable operation
- Inspection and reading of wire-weight reference gage (WWT) to ensure accuracy of stage sensor readings
- Inspection and reset of the crest-stage gage (CSG), to ensure accuracy of sensed and recorded peak stages since last visit

- Inspection, cleaning and calibration checks of precipitation gage
- Manual download of logged DCP data
- Elevation surveys will be made at least annually for the first several years of station operation to ensure accuracy of stage sensors and reference gages, as well as to check/verify elevations of reference marks/points.

Processing, analysis, and approval of stage and precipitation data with subsequent publication to NWISweb.

Provisional stage and precipitation data will be presented on public web pages on an hourly basis. Note that thresholds based on the data can be established to automatically enabling sub-hourly data transmissions during potential flooding events. These thresholds might be derived from precipitation data (accumulation; intensity) or stage data (level; rate of rise) to suit customer needs. USGS also offers mechanisms for receiving alerts via various digital communication pathways based on user-specified criteria. For example, users might specify a stage value at or above which they receive hourly email or text-message notifications.

Any needed equipment repairs or replacement is included in the attached pricing.

Budget for Installation and Operation of McIntosh Run stage and precipitation station for October 1, 2022 through September 30, 2023:

USGS Monitoring Station	Stage Station Operation and Maintenance	Precipitation Monitoring Operation and Maintenance	FFY2023 Total
McIntosh Run near Leonardtown, MD (01661350)	\$7,561	\$4,358	\$11,919

**St. Mary's County
Department of Emergency Services**

Stephen Walker, Director



Commissioners of St. Mary's County
James R. Guy, President
Eric Colvin, Commissioner
Michael L. Hewitt, Commissioner
Todd B. Morgan, Commissioner
John E. O'Connor, Commissioner

Date: September 28, 2022
To: Hazard Mitigation Planning Committee
From: Gerald Gardiner, Emergency Management Manager
Subject: Hazard Mitigation Plan Workshop

MITIGATION WORKSHOP AGENDA

- INTRODUCTION
- PLAN UPDATE STATUS
- MITIGATION WORKSHOP
 - 2022 MITIGATION GOALS
 - MITIGATION ACTIONS & PROJECT DEVELOPMENT
- MITIGATION SELECTION & GROUP REPORTS
- NEXT STEPS



St. Mary's Multi-Jurisdiction Hazard Mitigation Plan

Mitigation Idea Form

Name

Department/Agency/Organization

Email

New Mitigation Idea

Responsible entity or entities for this mitigation idea

Timeframe for Implementation:

1-2 yrs.

3-5 yrs.

5+

Ongoing

Hazard Mitigation Goals

Multi-hazard mitigation goals were developed to represent St. Mary's County long-term hazard mitigation priorities. Goals identified are consistent with the hazards and vulnerabilities identified within the Hazards Identification, Risk and Vulnerability Assessment sections of this plan.

The goal of the St. Mary's County Hazard Mitigation Plan is to - To protect life, property, and the environment from hazard events through:

- 1. Increased public awareness of hazards, mitigation, preparedness, and resiliency.**
- 2. Promote diverse community participation.**
- 3. Enhanced coordination with local agencies and organizations for mitigation efforts.**
- 4. Protection of local assets, infrastructure, and critical facilities.**
- 5. Promote actions that protect natural resources, while enhancing hazard mitigation and community resiliency.**
- 6. Efficient use of local resources.**
- 7. Integration of nature-based solutions into hazard mitigation and resilience projects, as feasible.**
- 8. Reduce lifeline vulnerability through mitigation activities. A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.**

Goals are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.

Note: Community Lifeline include:

- **Safety and Security - Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety**
- **Food, Water, Shelter - Food, Water, Shelter, Agriculture**
- **Health and Medical - Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management**
- **Energy - Power Grid, Fuel**
- **Communications - Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch**
- **Transportation - Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime**
- **Hazardous Material - Facilities, HAZMAT, Pollutants, Contaminants**

Mitigation goals form the foundation of actions developed by the Hazard Mitigation Planning Committee (HMPC).

APPENDIX E

MITIGATION STATUS

REPORT

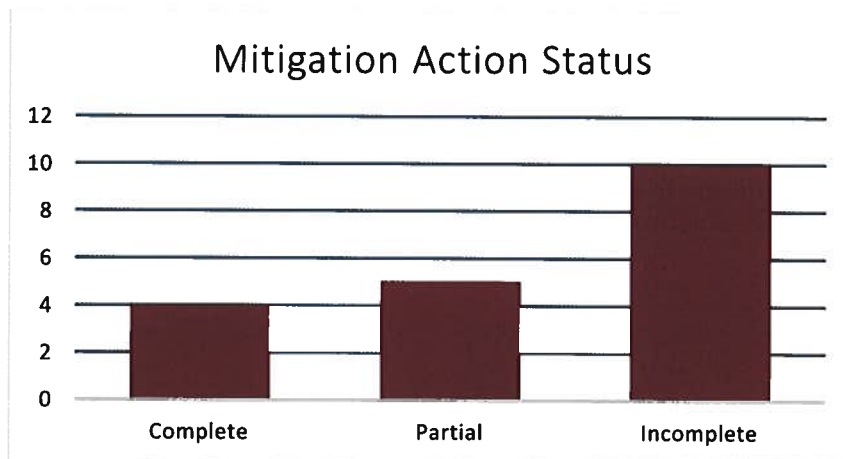
MITIGATION STATUS REPORT

The purpose of hazard mitigation action items and associated strategies is to reduce or eliminate long-term risk to people and property from hazards and their effects. During the 2017 Plan Update process, action items and strategies were developed. As part of this Plan Update, a mitigation action status report was created to determine the present status of these action item strategies. Each action item strategy within this status report included the following information:

Mitigation which is action taken to reduce or eliminate long-term risk to hazards.

- Action # & Title
- Status
- 2022 Status Update
- FEMA Mitigation Categories
- Location
- Background
- Ideas form Integration
- Responsible Entity
- Partners
- Potential Funding
- Cost Estimate
- Benefits
- Timeline

A total of nineteen (19) action items were evaluated as part of the plan update process; five (5) of these action items were ranked as “high priority” in the previous plan. Members of the Hazard Mitigation Planning Committee (HMPC) provided important feedback regarding the progress of these action items/strategies. Based on this feedback, the following was determined: four (4) strategies are “completed,” six (5) strategies are “partially” completed, and ten (10) projects are “incomplete.” The graph below further illustrates the present status of the 2017 mitigation action strategies based upon stakeholder feedback.





The mitigation action strategies identified as “completed” are listed below. One of the high priority mitigation action strategy was designated as “completed”; this mitigation action is identified in red.

- ACTION ITEM #1 - Encourage 2 feet of freeboard for structures within tidal influenced floodplains.
- ACTION ITEM #7 – Targeted Hazard Mitigation Outreach to Mobile Home Parks.
- ACTION ITEM #12 - Mitigate damage to power lines from falling trees.
- ACTION ITEM #14 - Water loop from Washington Street to Fenwick Street.


The HMPC will determined if mitigation actions/strategies identified as being “incomplete” will be carried forward into the current Plan Update. The table on the following pages provides full status details for each mitigation action strategy.


Mitigation Action Implementation Strategy Worksheets are presented with worksheets #3, #7, #9, #14, and #16 designated as “high” priority for St. Mary’s County.

ACTION ITEM #1 - Encourage 2 feet of freeboard for structures within tidal influenced floodplains.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
	●					
2022 Status Update	<p>According to Chapter 76 Floodplain Regulations, three feet of freeboard has been adopted. Excerpt from Chapter 76:</p> <p>Flood Protection Elevation (FPE): <i>The base flood elevation plus three (3) feet of freeboard. Structures in the Special Flood Hazard Area shall have the lowest floor, including basement, elevated to the Flood Protection Elevation. The Flood Protection Elevation also applies to all mechanical and electrical equipment, including duct work, electrical utility service entrance, meters, panels, outlets, and switches.</i></p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Coastal Areas					
Background/Issue:	<p>Historically, Maryland has experienced a relative sea level rise of approximately 1 foot over the past 100 years. In the future, however, due to the combined forces of regional land subsidence and global climate change, Maryland may experience 3 - 4 feet of sea level rise over the next century. Since elevations on FIRMs do not include sea level rise, freeboard will help keep structures above floodwaters as storm surge elevations increase. For this reason, the Maryland Commission on Climate Change recommends 2 or more feet of freeboard above the standard one foot for structures located in tidally influenced floodplains.</p> <p>Encourage property owners to elevate their building’s lowest floor above predicted flood elevations by a small additional height (generally 1-3 feet above the National Flood Insurance Program (NFIP) minimum height requirements.) Elevating a home a few feet above legally mandated heights has very little effect on its overall look, yet it can lead to substantial reductions in flood insurance, significantly decrease the chances the home will be damaged by storms and flooding and help protect it against the impacts of sea level rise.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Without Freeboard</p> <p>Annual flood insurance \$7,750</p> </div> <div style="text-align: center;">  <p>With 2' of Freeboard</p> <p>Annual Flood Insurance \$3,440</p> </div> </div> <p><i>Note: NFIP premiums based on October 2010 rates for a one-floor residential structure with no basement built after a FIRM was issued for the community (post-FIRM rates differ from pre-FIRM rates). \$500 deductible/\$250,000 coverage for the buildings/\$100,000 for contents.</i></p>					
Ideas for Integration:	Building Codes					

Responsible Agency:	Land Use and Growth Management
Partners:	Emergency Services
Potential Funding:	CoastSmart Communities Grant Program
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	<p>The expense of incorporating freeboard into new structures is surprisingly low, generally adding only about 0.25 to 1.5 percent to the total construction costs for each foot of added height, according to a 2006 FEMA-commissioned study (Evaluation of the National Flood Insurance Program’s Building Standards).</p> <p>The minor resulting increase in monthly mortgage payments (often less than \$20 a month) is generally more than offset by savings on NFIP premiums. Consequently, adding freeboard typically saves homeowners money, sometimes over \$200 a month.</p> <p><i>Note: For specific information on good construction practices (including freeboard), see FEMA’s Home Builder’s Guide to Coastal Construction, http://stsm.us/md1.</i></p>
Timeline:	Ongoing

ACTION ITEM #2 - Freeboard increase in Moderate and Minimal Flood Risk Area						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
2022 Status Update	According to the St. Mary's County NFIP Community Questionnaire, no additional regulations are planned at this time.					
FEMA Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	County-wide					
Background/Issue:	Add at least 1 foot of freeboard above nearest regulated floodplain for structures in the 0.2% or 500-year floodplain which is flooding both due to sea level rise and to increased major storm events. Currently, no floodplain management regulations exist within Moderate (0.2%) and Minimum (500-year) floodplain areas.					
Ideas for Integration:	An increase in the freeboard requirement can be implemented simply by modifying the Flood Protection Elevation definition.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Emergency Services					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Reduce Loss to Property and Life					
Timeline:	1-2 Years					

ACTION ITEM #3 - Adkins Mobile Home Park Flood Mitigation						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Adkins Road					
Background/Issue:	<p>The Adkins Mobile Home Park is in close proximity to the St. Mary's River and therefore flooding is an issue. Twenty-seven (27) mobile homes are located in Zone AE with an average flood depth ranging from 8-9 feet. In fact, the southern portion of the Adkins Mobile Park is located within the floodway.</p>  <p>The Adkins Mobile Home Park is located in a Category 1 Storm Surge inundation area, as shown on the map below.</p>					

	 <p>Furthermore, an overflow or breach from the St. Mary's Dam could impact the Adkins Mobile Home Park, located downstream of the dam.</p>
Ideas for Integration:	Strengthen regulations pertaining to mobile home placement within the floodway.
Responsible Agency:	Emergency Services
Partners:	Public Works & Transportation
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Grant Program Maryland Community Development Block Grant
Cost Estimate:	Project Dependent
Benefits: (Losses Avoided)	Reduce the loss of property.
Timeline:	1-2 Years
Priority:	HIGH

ACTION ITEM #4 - Apply for NFIP Community Rating System						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	According to the Department of Land Use & Growth Management, the County is plans to engage in the Community Rating System (CRS) incentive program. A Community Assist Visit was conducted in 2017. The County is currently addressing corrective actions.					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide and/ Town of Leonardtown					
Background/Issue:	<p>Applying for the NFIP Community Rating System would lower the cost of insurance premiums for the residents of St. Mary's County. In fact, changing St. Mary's County CRS rating from a 10 to a 9 would result in a 5% reduction. A 5% reduction across the board in flood insurance premiums would result in an annual saving of \$54,380 for all policy holders. Note: St. Mary's County policy holders, including municipalities spend 1,087,616 dollars annually in flood insurance premiums.</p> <p>Other benefits of participating in the CRS program include:</p> <ul style="list-style-type: none"> • Residents and property owners in CRS communities have increased opportunities to learn about risk, evaluate their individual vulnerabilities, and act to protect themselves, as well as their homes and businesses. • CRS floodplain management activities provide enhanced public safety, reduced damage to property. • Technical assistance in designing and implementing some activities is available to community officials at no charge. • CRS communities have incentives to maintain and improve their flood programs over time. 					
Ideas for Integration:	Increase awareness of flooding potential and hazards by expanding outreach projects.					
Responsible Agency:	Land Use and Growth Management					
Partners:	Emergency Services Public Works and Transportation Non-Governmental Organizations					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	\$35,000					
Benefits: (Losses Avoided)	Reduced flood insurance premiums, increase preparedness and understanding.					
Timeline:	On-going					

ACTION ITEM #5 – EOC Glass Upgrade						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	<p>EOC Glass Upgrade is complete, but expansion is in permitting phase, please see below.</p> <p>The Emergency Communications Center Expansion Project was detailed in the FY23-FY28 Capital Improvement Plan. The project description:</p> <p><i>Expand the Emergency Operations Center to account for additional mission requirements and greater space needs. The expansion includes approximately 2,360 SF, consisting of 1,000 SF for office and administrative space, 820 SF to increase the lobby area, and 540 SF to increase the conference room/EOC. New construction planning phase estimate for unit cost is \$568/SF, based upon a \$3,210,000 estimate to construct the Sheriff District 4 Office, which is 5,650 SF. The District 4 Office is similar in construction type. This equates to a preliminary planning phase estimate of construction cost at \$1,340,000. Utility relocation to move waterline and sewer line in front of building is estimated at \$75,000. Design and Construction Management costs are estimated to be \$100,000 each. Geotechnical engineering and other third-party testing is estimated at \$75,000. Additional furnishings and network infrastructure costs are estimated to be \$50,000 and \$65,000 respectively. A 5% planning phase contingency has been added as of February 2021, which will be revised accordingly as the project progresses. Design completion anticipated in third quarter FY2022 with construction funding in FY2023. \$100,000 of prior approved construction management funded was returned to the FIN22 on 10-19-2021 for other capital project needs. The remaining balance is sufficient to proceed with design. Recommend replacing the funding in the FY2023 budget.</i></p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	St. Mary's County Emergency Operations Center					
Background/Issue:	<p>Glass in the Emergency Operations Center is currently 1/4" tempered glass. Replace the existing glass with 1" laminated bullet – impact resistant glass. Protective glass mitigates high wind damage from tornadoes, hurricanes, and other severe storm events. FEMA tornadoes windows:</p> <p>FEMA 361-2008 & Hurricane Certified Minimum of 6" Aluminum Framing 2 1/2" x 6" Mullion and Intermediate Horizontal Members Available</p> <p>Codes and standards use the term <i>glazing</i> to address all windows and openings containing glass. Specifically, ASCE 7-05 (which is incorporated by reference into both the IBC and IRC).</p>					
Ideas for Integration:	Evaluate other essential facilities to determine the need for protective glass.					
Responsible Agency:	St. Mary's County Building Services					
Partners:	Emergency Services					
Potential Funding:	State Homeland Security Grant Program Emergency Management Program Grant Hazard Mitigation Grant Program					

	Pre-Disaster Mitigation Grant Program
Cost Estimate:	\$80,000
Benefits: (Losses Avoided)	Continuity of Operations & Resiliency - enables staff to remain at Emergency Operations Center during an incident event.
Timeline:	18 months

ACTION ITEM #6 - Complete elevation certificates for flood prone water pump station and wastewater pump stations.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
FEMA Mitigation Categories		✓				
Location:	Countywide					
Background/Issue:	<p>Flood prone water pump station and wastewater facilities include:</p> <ul style="list-style-type: none"> Water Station <ul style="list-style-type: none"> 45271 Bloch Avenue 7 Wastewater Stations <ul style="list-style-type: none"> 20208 Point Lookout Rd 20540 Pershing Drive 45271 Bloch Avenue 16668 Piney Point Road 35277 Golf Course Drive 35420 Army Navy Drive 45574 Aspen Lane <p>In order to complete a FEMA Hazard Mitigation Grant applications for these facilities types an elevation certificate is necessary.</p>					
Ideas for Integration:						
Responsible Agency:	METCOM					
Partners:	Emergency Services Land Use and Growth Management					
Potential Funding:	N/A					
Cost Estimate:	Average cost of FEMA Elevation Certificate is \$350.00. Eight facilities at \$350.00 totals \$2800.00.					
Benefits: (Losses Avoided)						
Timeline:	12 Months					

ELEVATION CERTIFICATE
 U.S. DEPARTMENT OF HOMELAND SECURITY
 Federal Emergency Management Agency
 National Flood Insurance Program

Form No. 1000-0008
 Revision Date: November 26, 2013

One of pages of this Elevation Certificate will be submitted by (1) electronically, (2) via regular mail, and (3) by hand carrier.

SECTION 1 - PROPERTY INFORMATION

A1. Building Owner's Name: _____ Pump Number: _____
 A2. Building Street Address (Including Apt., Unit, Suite, or Box No.) (If P.O. Box, use Box No.): _____ Community NAFC Number: _____
 City: _____ State: _____ ZIP Code: _____

A3. Property Description (Lot and Block Number, Tax Parcel Number, Legal Description, etc.): _____

A4. Building Use (e.g., Residential, Non-Residential, Accessory, etc.): _____ Residential District: RHD 1001 RHD 1002
 A5. Latitude/Longitude: Lat: _____ Long: _____
 A6. Attach at least 1 photograph of the building if the certificate is being used to obtain flood insurance.

A7. Building Elevation Number: _____
 A8. For a building with a basement or crawlspace:
 a) Number of basement floor openings in the enclosed garage (none = 0) that above adjacent ground: _____
 b) Total net area of flood openings in A8: _____ sq ft
 c) Elevation flood opening? Yes No
 A9. For a building with an attached garage:
 a) Number of openings of attached garage: _____ sq ft
 b) Number of basement floor openings in the attached garage (none = 0) that above adjacent ground: _____
 c) Total net area of flood openings in A8: _____ sq ft
 d) Elevation flood opening? Yes No

SECTION 2 - FLOOD INFORMATION


B1. FEMA Community Name & Community Number: _____ B2. County Name: _____ B3. Date: _____
 B4. Elevation Number: _____ B5. Building Number: _____ B6. FEMA Flood Zone: _____ B7. Flood Panel Number: _____ B8. Flood Panel Date: _____ B9. Date Flood Determination Made (A.C. use Date Flood Determination Made): _____

B10. Verify the elevation of the Base Flood Elevation (BFE) zone or base flood depth entered in Item B9:
 FFE Point FFE Line Community Observation Other Source: _____
 B11. Provide elevation datum used for BFE = Mean Sea Level (MSL) NAVD 83 Other Source: _____
 B12. Is the building located in a Coastal Barrier Resources System (CBRS) zone or otherwise Protected Area (OPA)? Yes No
 Designation Date: _____ CBRS OPA

Form No. 1000-0008 (7/13) Replaces all previous editions. Form Page 1 of 4

ACTION ITEM #7 – Targeted Hazard Mitigation Outreach to Mobile Home Parks						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)	Ongoing	
	●					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
				✓		✓
Location:	Countywide					
Background/Issue:	Hazards such as high winds, hurricanes/tropical storms and tornados may be mitigated to protect life and safety. Mobile homes are particularly susceptible to these hazards. All mobile homes in the county have been identified and mapped to determine the most appropriate mitigation alternatives to reduce wind and flood damage. There are 17 mobile home parks within St. Mary’s County and contain over 900 mobile homes. Residents within these communities must be educated on the hazards of living in these structures.					
Ideas for Integration:	Building Codes					
Responsible Agency:	Land Use and Growth Management					
Partners:	Emergency Services					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Grant Program					
Cost Estimate:	Staff Time \$2,000 Print Cost Note: Include publication(s) on county website					
Benefits: (Losses Avoided)	Reduce loss to property and life.					
Timeline:	Short Term					
Priority:	HIGH					

ACTION ITEM #8 - Identify, draft, and submit ordinance to the County Commission/Leonardtwn Commissioners to assure cleared floodplain land remains open space in perpetuity.						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)	Ongoing	
				●		
2022 Status Update	Currently working with Silver Jackets					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓			✓		
Location:	Countywide					
Background/Issue:	The properties can be enhanced to make better use of wetland or ecological habitat, but in no case, should any type of structure be allowed, except perhaps for elevated walkways through wetlands to facilitate providing access to these areas for the purposes of learning about wetland habitat and ecology. Parcels should be identified and mapped. Those parcels that are either or large or contiguous should be evaluated for open space and recreational opportunities.					
Ideas for Integration:	Creation of recreational open space including parks, playgrounds, and trails.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Recreations and Parks					
Potential Funding:	Maryland Program Open Space Maryland Green Infrastructure Resiliency Maryland Community Parks and Playgrounds Program Maryland Recreational Trails Program					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Flood prone property would remain in "open space" in perpetuity.					
Timeline:	Planning 1-2 Years Acquisition of prioritized flood prone parcels 3-7 Years					

ACTION ITEM #9 - Development of Cultural & Historical Resources Plan				
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing
			●	
2022 Status Update	<p>According to the Historic Preservation Commission Annual Report, January – December 2020, 2021 Outlook and Future plans included the following:</p> <ul style="list-style-type: none"> • Apply for competitive CLG grants. A grant could support a local plan update and would give the Commission and planners an opportunity to revisit questions of potential new landmark designations, as well as integrate hazard mitigation planning and newer efforts into the overall local strategy. • Follow up the work in IT as the Maryland Historic Site Files are being scanned so that they will be put on the County GIS for a quick reference with respect to floodplain. <ul style="list-style-type: none"> ○ 2022 Update: Historic Districts, Historic Places-National Register, and Historic Trust Sites-MHT are available for preview on the St. Mary's County Full GIS Map. • The Maryland Department of Planning recommended an update to LUGM's webpage referencing the Historic Preservation Commission. Efforts are underway to update the Historic Preservation Commission section to include direct links to its preservation code, preservation plan, ordinance, and property tax information. In addition, updates will include information for historic property owners who may wish to nominate a property for local landmark status. <ul style="list-style-type: none"> ○ 2022 Update: LUGM site provides general information at the bottom of the homepage and includes a link to the Historic Preservation Commission(HPC) site. The HMC site includes links to the Historic Preservation Guidelines and appendices. The site also provides links to applications for historic district designation, historic area work permit, and historic preservation tax credit. <div style="margin-top: 20px;"> <p>Historic Preservation Commission </p> <ul style="list-style-type: none"> • Annual Report • Contact Us • Meeting Agendas • Meeting Minutes • Membership Roster / Terms / Volunteer • Meeting Schedule </div> <div style="margin-top: 20px;"> <p>Authority & Local Historic District Information</p> <ul style="list-style-type: none"> • By-Laws • Resolution / Ordinance / Plan of Action • Historic Landmarks Tax Credit • Tax Credit in St. Mary's County Code • Historic District Designation Application • Historic Area Work Permit Instructions • Historic Area Work Permit Application • Historic Preservation Tax Credit Application • Historic Preservation Guidelines • Appendices to Historic Preservation Guidelines • Historic Rural Roads Pamphlet </div> <div style="margin-top: 20px;"> <p>Historic Maps</p> <ul style="list-style-type: none"> • Link to St. Mary's County GIS map • Local Historic Districts on GIS map • Maryland Historic Trust Sites on GIS map • National Register of Historic Places in St. Mary's County • National Register of Historic Places on GIS map </div> <div style="margin-top: 20px;"> <p>Historic Preservation Awards</p> <ul style="list-style-type: none"> • HPC Award Nomination Form 2021 </div> <div style="margin-top: 20px; text-align: right;"> <p>Committees, Boards, and Commissions Questions?</p> <p>Diane.Gleissner@stmarysmd.com 301-475-4200 ext. 71707 Fax: 301-475-4660</p> <p>Looking to apply for a board?</p> <p style="background-color: #0070C0; color: white; padding: 5px; display: inline-block;">Apply Now</p> </div>			

FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide					
Background/Issue:	<p>St. Mary's County has more than 900 sites registered on the Maryland Historical Trust Inventory of Historic Places, 32 sites listed in the National Register of Historic Places, eight sites in National Register Historic Districts, four National Historic Sites, three local historic districts, and over 500 archaeology sites. There are 148 historic sites – standing structures – at risk to flooding, erosion, and sea level rise.</p> <p>This will reduce the impacts of flooding on its historic resources by integrating historic property and cultural resource protection into hazard mitigation planning. These sites need to be evaluated as candidates for Hazard Mitigation projects.</p>					
Ideas for Integration:	<p>We are requesting a grant to hire an architectural historian to survey and document additional cultural resources that are located within the floodplains and/or storm surge areas around the county. The St. Mary's County Historical Preservation Commission will assist with the identification of sites and work with architectural historian. The architectural historian selected will be qualified to develop the hypotheses outlined in the Demonstration Value under Public benefit.</p> <p>Also, the Architect historian, along with members of the St. Mary's County Historic Preservation Commission, will then review the existing sites, along with the new sites that have been added, and evaluate their historical significance to the county. These records will become a party of the local Hazard Mitigation Plan.</p>					
Responsible Agency:	Land Use & Growth Management					
Partners:	Maryland Historical Trust Emergency Service and Technology Historical Preservation Commission					
Potential Funding:	Historic Preservation: Repair and Restoration of Disaster-Damaged Historic Properties Hazard Mitigation Program Grant					
Cost Estimate:	\$35,000 for a single jurisdiction. Regional and multi-jurisdictional projects may request more than \$35,000.					
Benefits: (Losses Avoided)	Mitigate losses to historical structures within the state of Maryland to continue to preserve the history and culture of the citizens in the County.					
Timeline:	Grant Preparation and Processing – 1 year Plan Development – 1-2 years					
Priority:	HIGH					

ACTION ITEM #10 - "Repetitive Loss" be added to the definitions.						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)	Ongoing	
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓					
Location:	Countywide					
Background/Issue:	This will allow extension of the Increased Cost of Compliance (ICC) coverage in flood insurance policies that pays up to \$30,000 in additional coverage to bring repetitive loss as well as substantially damaged properties into compliance with the floodplain ordinance. The community must be willing to treat repetitive loss properties the same as new and substantially improved structures to qualify. If this is adopted, they must require that repetitive loss properties meet all code requirements as new structures, but they will be making ICC payments available to these structures. Point of contact: Kevin Wagner, State National Floodplain Coordinator, MDE. Email: Kevin Wagner at kwagner@maryland.gov .					
Ideas for Integration:	Integration into County Floodplain Ordinance. Include with Mitigation Action Items #1 & #2.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Department of Public Works & Transportation Commissioners of St. Mary's County					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Note: See Action Mitigation Action Items #1 & #2.					
Benefits: (Losses Avoided)	Reduce the loss of property and life.					
Timeline:	Note: See Action Mitigation Action Items #1 & #2.					

ACTION ITEM #11 - Modify Substantial Improvement Standards						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)			Ongoing
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Countywide					
Background/Issue:	Return cumulative value for revisions of structure in floodplains to the calculations for substantial improvements (perhaps limited to a 10-year window to account for inflated costs of repairs and assessments.)					
Ideas for Integration:	Complete modification during floodplain ordinance revision process.					
Responsible Agency:	Land Use & Growth Management					
Partners:	Emergency Services					
Potential Funding:	CoastSmart Communities Grant Program					
Cost Estimate:	Note: See Action Mitigation Action Items #1 & #2.					
Benefits: (Losses Avoided)	Property protection through the enforcement of current building codes and floodplain management regulations.					
Timeline:	Note: See Action Mitigation Action Items #1 & #2.					

ACTION ITEM #12 - Mitigate damage to power lines from falling trees.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
	●					
2022 Status Update	<p>According to Southern Maryland Electric Cooperative (SMECO) website:</p> <p><i>SMECO manages vegetation along the Co-op's rights-of-way on a four-year cycle. We prune and remove trees, clear brush, and apply herbicides to maintain our rights-of-way. Our goal is to control the vegetation that threatens power lines so that we can maintain a safe and reliable electric system.</i></p> <p><i>SMECO's vegetation management program follows best management practices for the utility arboriculture industry and adheres to federal and state regulations. At least seven days before working in a specific area, we use door hangers to notify customers about vegetation maintenance so that they will have an opportunity to ask questions or voice their concerns to SMECO.</i></p> <p>The website also offers a number for residents to call and report trees that are overhanging powerlines. The website also states where maintenance crews are currently working.</p> <div style="border: 1px solid black; padding: 5px;"> <p>St. Mary's County:</p> <ul style="list-style-type: none"> ■ Maintenance tree trimming crews are currently working in the following areas: Redgate and Valley Lee. ■ One mowing crew is currently working in the following area: Redgate. <p>Three tree trimming crews are reserved for danger trees and customer service calls.</p> </div>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓	✓				
Location:	Countywide					
Background/Issue:	Earth gives way causing trees to collapse and fall to the ground. "Land Subsidence". Due to high content of clay within the soil, diminished water will cause clay like soils to shrink. Trees and other vegetation draw water from the soil which then causes soil shrinkage. This shrinkage may lead to "falling trees". Trees need to be cut back near power lines to avoid potential damage.					
Ideas for Integration:	Work with Southern Maryland Electric Cooperative (SMECO).					
Responsible Agency:	Public Works and Transportation					
Partners:	State Highway Administration Southern Maryland Electric Cooperative (SMECO)					
Potential Funding:	N/A					
Cost Estimate:	Staff Time					
Benefits: (Losses Avoided)	Continuity of Power Supply and Improved Resiliency.					
Timeline:	On-going					

ACTION ITEM #13 - MD 5, Point Lookout Road Safety Improvement Project

Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing
			●	

2022 Status Update

The Maryland Department of Transportation’s State Highway Administration (SHA) is constructing MD 5 (Point Lookout Road) Intersection Improvements at Abell Street and Moakley Street (SM2025218). Preliminary work includes installing erosion and sediment controls and temporary traffic signs.

Overall project improvements include:

- Constructing bicycle-compatible shoulders in each direction that will also accommodate travel needed by the Amish community.
- Reconstructing sidewalks and pedestrian ramps.
- Constructing left-turn lanes at the MD 5 intersection with Abell/Moakley Streets.
- Resurfacing and/or restriping roadway pavement.
- Installing drainage systems and stormwater management facilities.
- Adding landscaping and planting trees.
- Employing stream relocation and restoration.



Improvements began October 2019 and are currently still in progress. The latest update was provided for May 2022 stating:

MDOT SHA’s contractor has completed the storm drain and pipe installation within the work zone. Crews are also nearing completion of the work at the driveway entrances and the sidewalk reconstruction along southbound MD 5. Remaining work along southbound MD 5 would then include base paving, which would take place at night.

Updates and additional information about the project are available on MD SHA’s website: <https://mdot-sha-md5-intrs-at-abell-st-and-moakley-sm2025218-maryland.hub.arcgis.com/>

FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓

Location: At Abell/Moakley (Phase 1)

Background/Issue: Intersection improvements at MD 5 (Point Lookout Road) and Moakley Street/Abell Street. Constructing northbound and southbound MD 5 left-turn lanes at Abell Street/Moakley Street and associated MD 5 widening. Geometric improvements to the intersection and mainline MD 5 to improve vehicular safety, pedestrian/bicyclist safety and traffic operations. A two-way center turn lane between Clarks Rest and the entrance of St. Mary’s Hospital entrance adjacent to MD 5 is included.

Ideas for Integration:	Install traffic lights
Responsible Agency:	Public Works and Transportation
Partners:	State Highway Administration Maryland Department of Transportation
Potential Funding:	Maryland Department of Transportation
Cost Estimate:	\$13,709,000.00
Benefits: (Losses Avoided)	Life Safety
Timeline:	Spring 2018

ACTION ITEM #14 - Water loop from Washington Street to Fenwick Street						
Status	Complete	Incomplete (No Work Completed)		Partial (Some Work Completed)		Ongoing
	●					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓
Location:	MD RTE 5 – 12” Watermain Installation along MD Rt. 5					
Background/Issue:	This will allow more commercial & residential properties to have water due to a breakage, using the inherent redundancy built into a loop system rather than a linear line system.					
Ideas for Integration:	Water & Sewer Plan					
Responsible Agency:	Town of Leonardtown					
Partners:	Public Works and Transportation					
Potential Funding:	Town of Leonardtown					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Continuity of Water Supply					
Timeline:	Spring 2017					
Priority:	HIGH					

ACTION ITEM #15 - Identify areas throughout the county where water reuse projects may be feasible (e.g., golf courses, non-potable domestic, commercial, and industrial uses).						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
2022 Status Update	<p>The Comprehensive Water and Sewerage Plan (CWSP) 2017 Update identifies recommendations for the Water Policy Task Force which included the following:</p> <ul style="list-style-type: none"> • Conduct an evaluation of potential substitutes for ground water such as rainwater, gray water, desalinated water and, for certain purposes, sewage treatment plant effluent (recycled wastewater). Obtain necessary state and legislative changes needed to make gray water systems and recycled wastewater both legal and encouraged in Maryland. • Consider restricting non-potable water users to unconfined aquifers or other non-potable sources. For large commercial/industrial potable water application permits, require in-depth study to insure that every feasible alternative is explored before potable water for non-potable usage is allowed. 					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
				✓		
Location:	Countywide					
Background/Issue:	<p>Comprehensive Water and Sewerage Plan managed by Land Use & Growth Management discusses water shortage and reuse issues. Corps of Engineers which is supported by Land Use & Growth Management oversaw the Water Policy Task Force and Corp of Engineers recommendations regarding this item. Water reuse provides an effective means for conserving limited high-quality freshwater supplies and meeting everyday water demands. According to the EPA's <i>2004 Guidelines for Water Reuse</i>, water reuse can be an alternate source for several applications including landscaping, agricultural irrigation, industrial processing and power plant cooling. Therefore, areas in the county that would benefit from water reuse should be identified and analyzed for the possible use of this practice.</p>					
Ideas for Integration:	Water & Sewer Plan Comprehensive Plan – Community Facilities					
Responsible Agency:	Land Use and Growth Management					
Partners:	Department of Public Works & Transportation Recreation & Parks					
Potential Funding:	Corp of Engineers					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Water Reuse					
Timeline:	1-3 Years					

ACTION ITEM #16 - Develop Flood Mitigation Plan						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
		✓				
Location:	Countywide					
Background/Issue:	<p>The purpose of a Flood Mitigation Plan is to assist State and local governments in funding cost-effective actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other insured structures. The long-term goal of FMA is to reduce or eliminate claims under the National Flood Insurance Program (NFIP) through mitigation activities. The program provides cost-shared grants for three purposes: Planning Grants to States and communities to assess the flood risk and identify actions to reduce that risk; Project Grants to execute measures to reduce flood losses; and Technical Assistance Grants that States may use to assist communities to develop viable Flood Mitigation Assistance (FMA) applications and implement FMA projects. FMA also outlines a process for development and approval of Flood Mitigation Plans.</p>					
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System					
Responsible Agency:	Emergency Services					
Partners:	Land Use and Growth Management Public Works and Transportation					
Potential Funding:	Flood Mitigation Assistance Program					
Cost Estimate:	\$30,000-\$40,000					
Benefits: (Losses Avoided)	Prioritized and technically feasible grant funded projects.					
Timeline:	Short Term					
Priority	HIGH					



MY TOWN

Public Input Sought For Multi-Jurisdictional Hazard Mitigation Plan

by **ST. MARY'S COUNTY GOVERNMENT**
FEBRUARY 17, 2022



LEONARDTOWN, Md. – The Department of Emergency Services seeks public input on its Multi-Jurisdictional Hazard Mitigation Plan. The Hazard Mitigation Plan identifies potential hazards and lists future projects to reduce or eliminate damage before a disaster strikes.

Mitigation not only saves lives but also reduces disaster costs. For every \$1 spent on disaster mitigation, more than \$6 are saved through preventive efforts rather than response and recovery.

Input from residents, community members, workers, and business owners will help ensure the success of the County's hazard mitigation plan and projects. There are a variety of ways community members and stakeholders can participate:

- **Public Survey:** *Take a survey* to provide feedback on local hazards and disaster risk concerns. The survey is under 20 questions and takes around 10 minutes to complete. The survey is located on www.stmaryshazardplan.org.
- **Follow Us:** Follow us on Facebook at <https://www.facebook.com/SMCEmergencyServices>

or <https://www.facebook.com/StMarysCountyGovernment> for hazard mitigation updates and other emergency preparedness, response and recovery information.

- **Spread the Word:** Tell your St. Mary's County family, friends, and neighbors about the plan and how they can help!
- **Reach Out:** For questions regarding the plan, contact Amy Bledsoe, Department of Emergency Services, at amy.bledsoe@stmarysmd.com.

Learn more about the St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan at www.stmaryshazardplan.org.

ACTION ITEM #17 – Elevate Repetitive Loss Properties						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)	Ongoing		
			●			
2022 Status Update	<p>The FY22-27 Capital Improvement Plan (CIP) identified the Piney Point Road Shore Erosion project which consisted of Design and construct approximately 500 feet of shore erosion protection along the Piney Point Road/ Island Creek waterfront to provide the needed shore erosion protection to the County maintained road. Also, within the CIP, the MD 249 St. George Island Shore Erosion/Flooding project was discussed. A meeting with State and Federal agencies was conducted in 2019 and concluded that SHA would fund, design, and construct mitigation measures.</p> <p>In March 2021, Maryland State Highway presented a roadway profile improvement and shoreline protection study for MD 249 Saint George Island. The study results were:</p> <ul style="list-style-type: none"> • Roadway Study: <ul style="list-style-type: none"> ○ Recommends raising the road 3.8’ 4’ ○ Drainage improvements ○ Pavement reconstruction and overlay • Shoreline Protection Study: <ul style="list-style-type: none"> ○ Living Shoreline for 3 sites which includes combination of: <ul style="list-style-type: none"> ▪ Stone Sill ▪ Tidal Marsh ▪ Sand Dunes/Levee ▪ Gabion Flood Protection Barriers ▪ Tide Valves <p>This project will assist with mitigation the flood issues in the Piney Point Road, however the repetitive loss properties should still be evaluated for elevation.</p>					
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
	✓	✓				✓
Location:	Repetitive Loss Properties, specifically those located in Piney Point and Tall Timbers					
Background/Issue:	Structures experiencing repetitive loss from flooding, hurricanes, tropical storms, and Nor’easter should be evaluated for potential elevation projects. These types of storms and storm surges have caused damages to structures on both the interior and exterior. Additionally, all repetitive loss properties located within the FEMA Special Flood Hazard Areas and are currently located next to tidal waters should be a priority for flood mitigation projects such as elevation.					
Ideas for Integration:	Hazard Mitigation Plan NFIP – Community Rating System					
Responsible Agency:	Land Use and Growth Management Public Works and Transportation					
Partners:	Emergency Services					
Potential Funding:	Hazard Mitigation Grant Program Flood Mitigation Assistance Program					
Cost Estimate:	Project Dependent					

<p>Benefits: (Losses Avoided)</p>	<p>Flood insurance and personal property insurance premiums cost are greatly reduced. No damage to the interior of the structure (living quarters). If the mechanical and electrical equipment is elevated 2 feet above the FIRM, then the mechanical should not have to be replaced because of flooding.</p>
<p>Timeline:</p>	<p>Three (3) years once approved by MEMA / FEMA, grant is received and the owner of the structure deposits their portion of the required funds. Note that any construction work needs to be done during summer and completed by early fall when the conditions are dry. All development work (survey, design testing and required documentation) should be accomplished when the project is completed during late fall and winter.</p>

ACTION ITEM #18 – Ellis Road Living Shoreline and Bank Stabilization						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
						✓
Location:	Ellis Road Shoreline at St. Clements Bay, Seventh District					
Background/Issue:	<p>Due to a historically extensive wave action coupled with littoral drift, the shore adjacent to Ellis Road has eroded and compromised the shoreline bank. If allowed to continue, failure of the shoreline bank will result in the collapse of Ellis Road, resulting in the stranding of residents, disruption of traffic, and the lack of availability for emergency services delivery.</p> <p>Implement structural measures to incorporate climate resiliency, stabilize the bank, and reduce the potential of damage to adjacent properties on Ellis Road.</p>					
Ideas for Integration:	Integration will occur with the existing roadway and shoreline bank to mitigate the potential for collapse					
Responsible Agency:	Department of Public Works and Transportation					
Partners:	Maryland Department of Natural Resources for Technical Assistance					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Program					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Approximately \$250,000, inclusive of design costs and construction of 650 feet of living shoreline measures.					
Timeline:	Shoreline bank stabilization will abate the potential failure of the shoreline and subsequent roadway avoiding the immediate damages to public services provided north of the failure; inclusive of emergency services and stranding of the residents living in these homes.					

ACTION ITEM #19 – Sandgates Road Living Shoreline Stabilization and Roadway Elevation Project.						
Status	Complete	Incomplete (No Work Completed)	Partial (Some Work Completed)		Ongoing	
FEMA Mitigation Categories	Prevention	Property Protection	Public Education & Awareness	Natural Resources Protection	ES & EM Activities	Structural Projects
					✓	✓
Location:	Sandgates Road and Shoreline on the Patuxent River, Sixth District					
Background/Issue:	<p>Due to extensive wave action coupled with littoral drift, the shoreline adjacent to Sandgates Road has eroded to within 10 feet of Sandgate’s Road. If erosion is allowed to continue at its present rate, seasonal storms excluded, the roadway will fail and disrupt traffic and emergency services to the residents of Sandgate’s Road. Since 2003, the shoreline has eroded thirty-five feet to its current condition.</p> <p>Implement structural measures to incorporate climate resiliency, reducing the potential for damage to adjacent properties and the roadway on Sandgates Road from seasonal storms.</p>					
Ideas for Integration:	Integration will occur with elevation of the existing roadway and shoreline bank structural measures to mitigate the potential for collapse.					
Responsible Agency:	Department of Public Works and Transportation					
Partners:	Maryland Department of Natural Resources for Technical Assistance.					
Potential Funding:	Hazard Mitigation Grant Program Pre-Disaster Mitigation Program					
Cost Estimate:	TBD					
Benefits: (Losses Avoided)	Project costs estimated at approximately \$225,000 inclusive of design costs and construction of a 200-foot living shoreline coupled with elevation of the roadway.					
Timeline:	Shoreline bank stabilization will abate the potential failure of the shoreline and subsequent roadway avoiding the immediate damages to public services and property losses in the case of a roadway failure.					



ST. MARY'S COUNTY GOVERNMENT COMMISSIONERS OF ST. MARY'S COUNTY
PUBLIC INFORMATION OFFICE

ALisa Casas, Communications Director
SMCG TV 95 Station Manager
Media Inquiries: 301-475-4200 ext. 1342 or pio@stmarysmd.com

James R. Guy, President
Eric Colvin, Commissioner
Michael L. Hewitt, Commissioner
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NEWS RELEASE *for Immediate Release*

No. 2022 – 36

February 17, 2022, 8:30 a.m.

Public Input Sought for Multi-Jurisdictional Hazard Mitigation Plan

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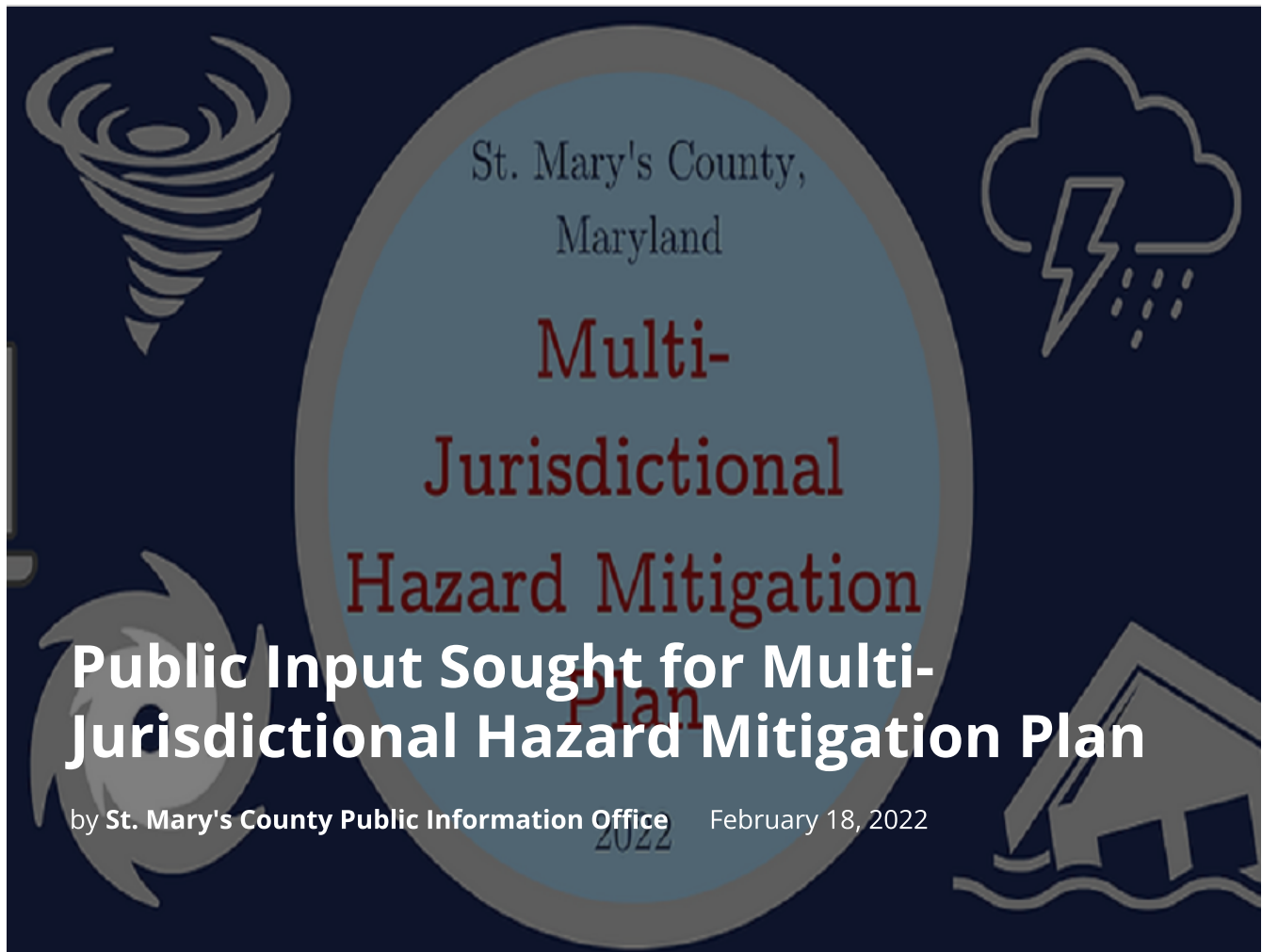
Input from residents, community members, workers, and business owners will help ensure the success of the County's hazard mitigation plan and projects. There are a variety of ways community members and stakeholders can participate:

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Learn more about the St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan at www.stmaryshazardplan.org.

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The Southern Maryland Chronicle



St. Mary's County,
Maryland

**Multi-
Jurisdictional
Hazard Mitigation
Plan**

**Public Input Sought for Multi-
Jurisdictional Hazard Mitigation Plan**

by St. Mary's County Public Information Office February 18, 2022

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St. Mary's County Department of Emergency Services

3 hrs · 🌐



Please help our Emergency Management Division in collecting information for Hazard Planning!.



St. Mary's County Department of Emergency Services

April 14 · 🌐



St. Mary's County Government

March 19 · 🌐

Did you know for every \$1 spent on disaster mitigation, more than \$6 are saved through preventive efforts rather than response and recovery?

How can you help us update our Hazard Mitigation Plan?

☁️ Take our survey at <https://www.stmaryshazardplan.org/> to help provide feedback on local hazards and disaster risk concerns

☁️ Follow St. Mary's County Department of Emergency Services and [St. Mary's County Government](#) for hazard mitigation updates and other emergency preparedness, response and recovery information.

☁️ Tell your St. Mary's County family, friends, and neighbors about the plan and how they can help!

Posted March 19, 2022 and April 14, 2022



St. Mary's County Government

March 19



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Tell your St. Mary's County family, friends, and neighbors about the plan and how they can help!



St. Mary's County Department of Emergency Services

March 7



WE NEED YOUR HELP! TAKE THE SURVEY! CLICK THE LINK - <https://www.surveymonkey.com/r/C9PVJ9G>

Your Input is requested for the Multi-Jurisdictional Hazard Mitigation Plan.

Learn more about the St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan at www.stmaryshazardplan.org.

LEONARDTOWN, MD - The Department of Emergency Services seeks public input on its Multi-Jurisdictional Hazard Mitigation Plan. The Hazard Mitigation Plan identifies potential hazards and lists future projects to reduce or eliminate damage before a disaster strikes. Mitigation not only saves lives but also reduces disaster costs. For every \$1 spent on disaster mitigation, more than \$6 are saved through preventive efforts rather than response and recovery.

Input from residents, community members, workers, and business owners will help ensure the success of the County's hazard mitigation plan and projects. There are a variety of ways community members and stakeholders can participate:

• Public Survey: Take a survey to provide feedback on local hazards and disaster risk concerns. The survey is under 20 questions and takes around 10 minutes to complete.

The survey is located at <https://www.surveymonkey.com/r/C9PVJ9G>

• Follow Us: Follow us on Facebook at <https://www.facebook.com/SMCEmergencyServices> or <https://www.facebook.com/StMarysCountyGovernment> for hazard mitigation updates and other emergency preparedness, response and recovery information.

• Spread the Word: Tell your St. Mary's County family, friends, and neighbors about the plan and how they can help!

• Reach Out: For questions regarding the plan, contact Amy Bledsoe, Department of Emergency Services, at amy.bledsoe@stmarysmd.com.





St. Mary's County Government

March 25 · 🌐



Please help up with our 2022 Hazard Mitigation Plan?

Take our survey at <https://www.stmaryshazardplan.org/> to help provide feedback on local hazards and disaster risk concerns.

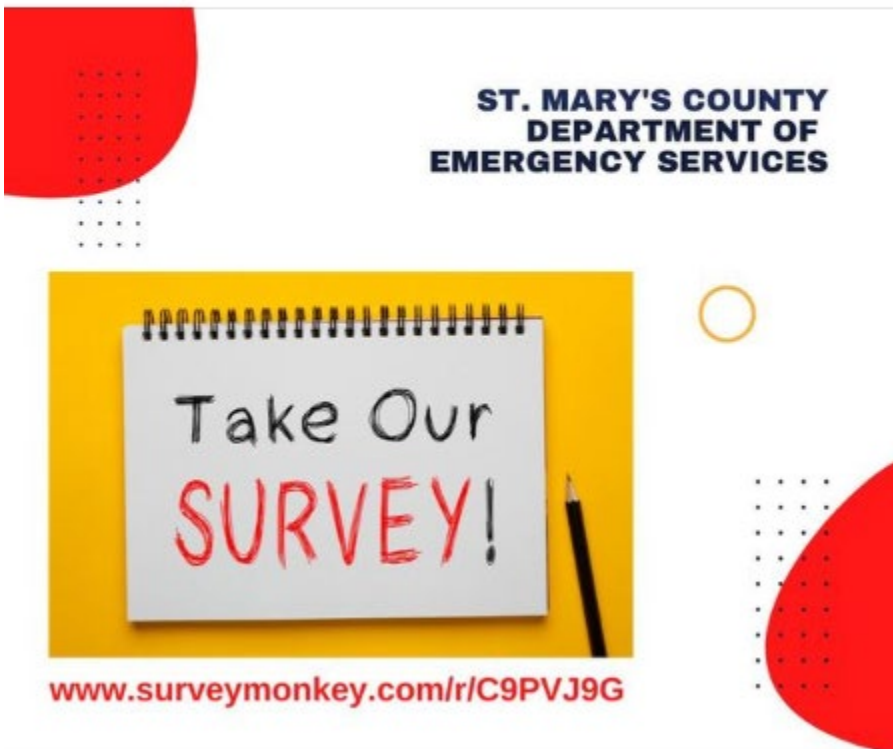


St. Mary's County Department of Emergency Services

February 22 · 🌐



Please take our survey pertaining to hazard mitigation. We are seeking the public's input. www.surveymonkey.com/r/c9PVJ9G



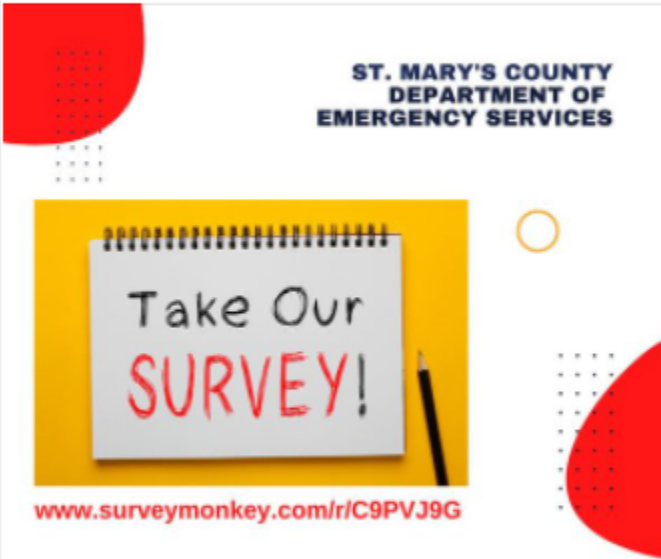


St. Mary's County Government

February 23 · 🌐

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Don't forget to do the hazard mitigation survey! We need to hear from you!



St. Mary's County Department of Emergency Services

February 22 · 🌐

Please take our survey pertaining to hazard mitigation. We are seeking the public's input. www.surveymonkey.com/r/C9PVJ9G



St. Mary's County Government

February 17 · 🌐

...

Public Input Sought for Multi-Jurisdictional Hazard Mitigation Plan

<https://www.stmarysmd.com/.../2022...>



Like

Comment

Share



St. Mary's County Government

February 16 · 🌐

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This is to advise that Governor Larry Hogan ordered the United States Flag and Maryland Flag be lowered to half-staff effective immediately and returned to full-staff at sunset on the day of interment, tomorrow, February 17, 2022. This action is in honor of EMT Wayne Fisher of the Harford County Fire and EMS Foundation, assigned to Darlington Volunteer Fire Company, who died in the line of duty on February 6, 2022.



St. Mary's County Government

April 20 at 11:33 AM



Thursday, April 28, 2022, the [Maryland Insurance Administration \(MIA\)](#) will present "Lunch with MIA" at noon. This interactive virtual presentation will provide information about flooding in Maryland and offer proactive tips for protecting homes and property.

Register for the online event at <http://ow.ly/BebB50INIEU>

For more information see our news release here:

<https://www.stmarysmd.com/.../2022...>



Lunch with *MIA*

Ask the Expert: What you need to know about reducing your flood risk for your home, car or business

Join experts from the **Maryland Insurance Administration**, the **Maryland Department of the Environment**, the **Maryland Department of Emergency Management**, the **Maryland Department of Transportation** and the **Federal Emergency Management Agency (FEMA)** to learn about the increased risk of flooding and what you can do to protect yourself, your loved ones and your property. We hope to see you there!



Date: Thursday, April 28

Time: 12 pm - 1 pm

Registration Link: <https://tinyurl.com/272czhdj>

Zoom Link: www.zoomgov.com/j/1611772344

St. Mary's Co. Public Input Sought for Multi-Jurisdictional Hazard Mitigation Plan

Editor · Feb 20, 2022



Editor
somd.com Editor

Staff member

PREMO Member

Patron

Feb 20, 2022

🗨️ #1

LEONARDTOWN - The Department of Emergency Services seeks public input on its Multi-Jurisdictional Hazard Mitigation Plan. The Hazard Mitigation Plan identifies potential hazards and lists future projects to reduce or eliminate damage before a disaster strikes.

Mitigation not only saves lives but also reduces disaster costs. For every \$1 spent on disaster mitigation, more than \$6 are saved through preventive efforts rather than response and recovery.

Input from residents, community members, workers, and business owners will help ensure the success of the County's hazard mitigation plan and projects. There are a variety of ways community members and stakeholders can participate:

- **Public Survey:** *Take a survey* to provide feedback on local hazards and disaster risk concerns. The survey is under 20 questions and takes around 10 minutes to complete. The survey is located on www.stmaryshazardplan.org.
- **Follow Us:** Follow us on Facebook at <https://www.facebook.com/SMCEmergencyServices>
- **Spread the Word:** Tell your St. Mary's County family, friends, and neighbors about the plan and how they can help!
- **Reach Out:** For questions regarding the plan, contact Amy Bledsoe, Department of Emergency Services, at amy.bledsoe@stmarysmd.com.

Learn more about the St. Mary's County Multi-Jurisdictional Hazard Mitigation Plan at www.stmaryshazardplan.org.

Please unblock somd.com or purchase an [inexpensive subscription](#) so we can continue to bring you this resource as we have since 1996.

You must log in or register to reply here.

Input Sought on Hazard Mitigation Plan

Posted by *Lexi Leader* on Tuesday, March 1, 2022 - [Leave a Comment](#)



The St. Mary's County Department of Emergency Services is seeking public input on its [Multi-Jurisdictional Hazard Mitigation Plan](#).

The plan identifies potential hazards and lists future projects to reduce or eliminate damage before a disaster strikes.

Mitigation not only saves lives but also reduces disaster costs. For every \$1 spent on disaster mitigation, more than \$6 are saved through preventive efforts rather than response and recovery.

Input from residents, community members, workers, and business owners will help ensure the success of the county's plan and projects. There are a variety of ways community members and stakeholders can participate:

- **Public Survey:** Take a survey to provide feedback on local hazards and disaster risk concerns. The survey is under 20 questions and takes around 10 minutes to complete. The survey is located [here](#).
- **Follow on Social Media:** Follow on [Facebook](#).
- **Spread the Word:** Tell St. Mary's County family, friends, and neighbors about the plan and how they can help.
- **Reach Out:** For questions regarding the plan, contact Amy Bledsoe at amy.bledsoe@stmarysmd.com.

Share this:



Filed under [Leader Features](#) - Tagged with [Amy Bledsoe](#), [Hazard Mitigation Plan](#), [St. Mary's County Department of Emergency Services](#)

[Leave A Comment](#)



EVENTS



GREENWELL FOUNDATION OFFERS FOUR SUMMER CAMPS



TICKETS ON SALE FOR JAZZ & SEAFOOD FEST

LEADER MEMBERS



The Patuxent Partnership
Industry * Government * Academia

LEADER MEMBERS



LEADER MEMBERS



Three Oaks Center

APPENDIX H

Municipal Input

MUNICIPAL INPUT

Municipal representatives from the Town of Leonardtown participated in two or more of plan update activities. Examples of municipal plan update activities are provided below.

Documentation of Municipal Plan Update Activities	
Municipality	Documentation Examples
Town of Leonardtown	Attended Small Group Floodplain Meeting & HMPC Mitigation Workshop – <i>Appendix G</i>
	Participated in the Municipal Online Survey – <i>Below</i> Completed NFIP Survey – <i>Appendix I</i>

St. Mary's County Hazard Mitigation Municipal Survey

Q1

Please indicate your level of concern for each hazard using the drop down menu.

	Level of Concern
Hurricane, Tropical Storms & Storm Surge - Although St. Mary's County has not been directly hit by a hurricane, it is very vulnerable to one, by virtue of being a peninsula. The county is subject to the wind and flooding effects from hurricanes that hit the east coast and travel inland.	Somewhat Concerned
Sea Level Rise - Maryland has 3,100 miles of tidal shoreline and low-lying rural and urban lands that will be impacted. The experts' best estimate for the amount of sea level rise in 2050 is 1.4 feet. It is unlikely to be less than 0.9 feet or greater than 2.1 feet.	Somewhat Concerned
Shoreline Erosion - St Mary's County has 534 miles of shoreline, which less than 7% of the has any significant risk for erosion. Some of the impacts from shoreline erosion include the direct loss of land and its economic, cultural, and ecological values as well as the offsite impacts caused by increased sediment.	Somewhat Concerned
Winter Storm - All areas of St. Mary's County are subject to the effects of winter storms. These storms may include snow, freezing rain, sleet, and extreme cold. Major winter storms and occasional blizzard conditions bring bursts of heavy snow accumulating 3-6 inches in short periods or 1-2 feet in 12-24 hours.	Somewhat Concerned
Flood - FEMA designated floodplains results in a high level of vulnerability to flood hazards. Given the large number of people that can be affected by flooding, high economic costs and moderate response costs, the vulnerability to flooding is high in St. Mary's County.	Somewhat Concerned
Wind- The primary hazard caused by wind is the transport of debris, which can cause casualties and property loss or even the dislodging of manufactured homes from their foundations or vehicles.	Somewhat Concerned
Tornado - Tornadoes have occurred in St. Mary's County in the past and are expected to occur in the future. Tornadoes often result in buildings with missing roofs, uprooted road signs, fallen powerlines and trees, destroyed homes and water towers, and damaged cars.	Somewhat Concerned
Thunderstorm - The thunderstorm hazard includes lightning and hail events. Impacts from severe storms have been moderate, with localized flooding occurring from severe thunderstorms, minor damages from high wind events, and power and transportation disruptions from winter storms. The impact from hail and lightning has been limited to minor damages at specific locations. Severe storms could have a major economic impact on St. Mary's County when utility systems, including electricity, are disrupted for an extended period.	Somewhat Concerned
Drought & Extreme Heat - Problems of drought can affect St. Mary's County with implications for the availability of water for agricultural, industrial, and household uses, as well as, recreational purposes such as boating and fishing.	Somewhat Concerned

St. Mary's County Hazard Mitigation Municipal Survey

Level of
Concern

Wildfire - According to the DNR, the urban- wildland interface fire threat potential to the St. Mary's County forestlands is considered very high, due to the pressure to develop large tracts of open land. The probability of wildfires in St. Mary's County would also be tied to periods of prolonged drought when forests are more vulnerable to ignite from lightning strikes or human carelessness or arson.

**Somew
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Concer
ned**

Emerging Infectious Disease -Emerging Infectious Diseases can be considered as part of a broad hazard category that could be termed "public health emergencies." In addition to disease epidemics, such events can take the form of large scale incidents of food or water contamination, infestations of disease bearing insects or rodents, or extended periods without adequate water or sewer service.

**Somew
hat
Concer
ned**

Dam Failure - A dam failure is simply an uncontrolled release of water from a reservoir through a dam as a result of structural failures or deficiencies in the dam. There is one dam (St. Mary's River Watershed Dam, Site 1, on the western branch of the St. Mary's River) located just west of Great Mills with a high downstream hazard rating. A dam with a high downstream hazard rating means there is a potential loss of life or property damage downstream due to flood waters being released or structure failure.

**Not
Concer
ned**

Q2

Flooding

Please choose from the below list to indicate which hazard events you feel may particularly affect the Town. (Please check all that apply.)

Q3

Are you concerned with any other hazards not identified in this survey?

No

Q4

Medical Issues and Disability

In terms of social vulnerability, do you feel that a specific group, or groups, in Leonardtown that are particularly at risk for, or could be harmed by, any of the hazards events listed in question 5? This could be due to age, location, occupation etc. This question is not intended to be limited to certain groups - we are eager to learn of any and all types and sizes of groups you think might be at particular risk.

Q5

Based on the group(s) you have selected in the previous question, please select which hazard events you feel may particularly affect those group? (Multiple options may be chosen.)

- Flood,**
- Winter Storm,**
- Tornado,**
- Drought & Extreme Heat,**
- Emerging Infectious Diseases**

Q6

Which of the following mitigation project types do you believe should focused on to reduce disruptions of services and strengthen the community (check all that apply)?

- Work on improving the damage resistance of utilities (electricity, communications, water/sewer, etc.)**
- Buyout flood prone properties and maintain as open space**
- Retrofit infrastructure, such as elevating roadways and improving drainage systems**
- Inform property owners of ways they can mitigate damage to their property**

Q7

Do you support polices to restrict or prohibit development in designated hazard zones?

Yes

Q8

In the last 10 years, has there been an evacuated from the Town of Leonardtown as a result of a disaster (ex. flooding, power, water failure)? If so, how long were citizens displaced? Was a shelter setup?

No

Q9

In your opinion, what steps could be undertaken to reduce or eliminate the risk of future hazard damages?

Respondent skipped this question

Q10

Do you have any mitigation action items specific for Leonardtown for inclusion in the 2022 Plans? If so, please provide action item and provide details, as available.

Respondent skipped this question

St. Mary's County Hazard Mitigation Municipal Survey

Q11

The Town of Leonardtown's Comprehensive Plan was developed in 2010. Are there plans to update the Comprehensive Plan within the next 5 years?

Yes, in 2023

Q12

Does Leonardtown have an emergency operations plan? If so, what year was it adopted?

Same as County

Q13

What Building Code/Year is your municipality using?

2018

Q14

Has Leonardtown acquired land for open space or public recreation in the past 5 years? Or plans to in the next 5 years?

Yes

Q15

Respondent skipped this question

Does your jurisdiction plan to expend funding, including grant funding, on hazard mitigation and resilience projects within the next five years? If so, please provide amount and project description.

Q16

Has Leonardtown completed any flood acquisitions or elevation projects? If so, please provide funding source, year and project description(s).

No

Q17

Does Leonardtown work with any local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, and vulnerable populations, etc.?

Just County Government

Q18

Does your jurisdiction have any ongoing public education or information program (e.g., responsible water use, fire safety, household emergency preparedness, or environmental education)?

No

APPENDIX I

REGION 3 HMP GUIDANCE CHECKING IN ON THE NFIP – COMMUNITY WORKSHEETS

The Region 3 HMP Guidance Checking in on the NFIP – Community Worksheets were completed for St. Mary's County and the Town of Leonardtown.

St. Mary's County NFIP Community Questionnaire

FLOODPLAIN IDENTIFICATION AND MAPPING

1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.	Mr. William Hunt, Director Department of Land Use & Growth Management 23150 Leonard Hall Drive Leonardtown, MD 20650 301-475-4200, ext. 71508 bill.hunt@stmarysmd.com
2. Where do you keep your FIRM and FIS report?	Hard copies of the FIRM, FIS, & LOMC are available in the LUGM office. Digital versions are available for review at www.mdffloodmaps.net and www.stmarysmd.maps.arcgis.com
3. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? Has your community updated the floodplain ordinance language to include the current FIRM and FIS?	St. Mary's County adopted the most recent FIRM in November of 2014. The County Floodplain Ordinance language is in compliance with the current FIRM and FIS and is located in Chapter 76 of the County Ordinance.
4. Does your jurisdiction support requests for map updates?	Yes. The County's LUGM Department reviews applications for LOMC's.
5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs?	Yes, the St. Mary's County Department of Land Use & Growth Management tracks and updates LOMC's.
6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA?	Yes. The County's LUGM Department collects and reviews technical and/or scientific modeling data when applicable. Copies are provided to FEMA during the LOMC process.
7. Does your jurisdiction provide assistance with local floodplain determinations? If yes, specify how.	Yes. The County's LUGM Department assists homeowners and potential applicants in determining if their property is located within or near the SFHA by providing mapping resources and information, both lateral and vertical determination information.
8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?	Yes. The County LUGM Department utilizes multiple tools for NFIP information dissemination and education, including the County's website, and other tools such as www.mdffloodmaps.com and www.floodsmart.gov .
Floodplain management requires that you understand the mapping and data side when working with the public.	

FLOODPLAIN MANAGEMENT

1. Does your jurisdiction issue permits for all proposed development in the SFHA? What office/position is responsible?	Yes. The Department of Land Use & Growth Management is responsible for permit issuance within the SFHA.
2. Does your jurisdiction require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?	Yes. However, new development/subdivision lots within the SFHA is prohibited. Furthermore, a 25' BRL, or setback, has been established from the contour equal to the BFE.
3. How does your community identify substantially improved structures? When do they intervene?	Yes. Applicants must complete a Substantial Improvement Worksheet for review prior to construction commencement. This worksheet is completed for all residential improvements.
4. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the jurisdiction conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?	Yes. The County ordinance specifies that the FPA shall administer the requirements related to work on existing structures that are located within the SFHA and have been substantially damaged, and to notify owners of substantially damaged structures to obtain permits and prohibit non-compliant repair of damaged buildings. The FPA and/or authorized/designated LUGM personnel (Damage Assessment Team) conducts damage assessments.
5. Does your jurisdiction require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible?	Yes. Applicants for construction within the SFHA must submit an Elevation Certificate prepared by a licensed engineer or surveyor. The Department of Land Use & Growth Management reviews the applications and certificates. The LUGM is responsible for the review and final Elevation Certificate.
6. How does the jurisdiction enforce the floodplain ordinance sections? How does the jurisdiction address SI/SD violations?	The County FPA and LUGM makes periodic inspections of properties, structures, and utilities for compliance with the ordinance and can issue violations, stop work orders, and penalties. The LUGM has a 3-year rotating inspection team who inspects all structures in the floodplain.
7. Has your jurisdiction had a Community Assistance Visit? If so, were any corrective actions required?	A Community Assist Visit was conducted in 2017. The County is currently addressing corrective actions.
8. Does your jurisdiction have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented.	St. Mary's County Flood Protection Elevation is the base flood elevation plus three feet of freeboard. No additional regulations are planned at this time.
9. Are any local officials/departments in your community interested in a training? What topics relate most to your community?	Certified Floodplain Manager, Course 278, will be completed in March 2023. Two (2) LUGM personnel, Stacy Clements and Valerie Caswell will be attending this course.

Floodplain management reduces flood risk and protects floodplain health.

FLOOD INSURANCE

1. How does the jurisdiction educate community members about the availability and value of flood insurance?	The County and the FPA educate the community and property owners regarding the value of flood insurance through press releases, public service announcements, and/or direct contact with property owners within the SFHA.
2. Does the jurisdiction inform community property owners about changes to the FIRM that would impact their insurance rates?	Yes, the County notifies property owners within the SFHA regarding changes to the FIRM through press releases, public service announcements, social media posts, and where applicable, direct correspondence.
3. How does the jurisdiction provide general assistance to community members regarding insurance issues?	The FPA and the LUGM Department is available to advise, assist and answer any questions of community members regarding the NFIP program and/or floodplain regulations.
4. Does the jurisdiction keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?	Yes. A database of the number of residential and non-residential structures is maintained by the LUGM Department. According to the 2017 HMP, there are 1,255 NFIP policies within the County. The GIS Department developed an Application for the Code Enforcement Team for maintaining this database.
5. Does the jurisdiction have any levees or levee systems in its jurisdiction?	There are no levees located within St. Mary's County.
6. Is the levee or levee system certified and accredited?	N/A
7. Is the levee or levee system a Provisionally Accredited Levee (PAL)?	N/A
8. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program?	N/A
9. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?	The County has a total of eight (8) dams within its jurisdiction. Only one (1) is listed as a high hazard, and three (3) are categorized as significant hazards. The County has not applied for FEMA's High Hazard Potential Dam grant. The High Hazard Dam located in St. Mary's County is State owned.

Flood risk communication to the public is vital for a community to be truly resilient.

NEXT STEPS

- What are your short- and long-term action items?
 - Engage in the Community Rating System (CRS) incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). In designated CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk. The County is currently addressing corrective actions required prior to verification visit.
- If you need help identifying trainings or other resources, consider contacting your State Hazard Mitigation Officer or State NFIP Coordinator.
 - Conduct several flood insurance training/workshops for the public, real estate agents, surveyors, and insurance agents. Offer continuing education credits for professionals.

Town of Leonardtown NFIP Community Questionnaire

FLOODPLAIN IDENTIFICATION AND MAPPING

1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.	Mrs. Laschelle C. McKay, Town Administrator Town of Leonardtown 22670 Washington Street Leonardtown, MD 20650 301-475-9791 Laschelle.mckay@leonardtownmd.gov
2. Where do you keep your FIRM and FIS report?	Hard copies of the FIRM, FIS, & LOMC are available in the Town office. Digital versions are available for review at www.mdfloodmaps.net and www.stmarysmd.maps.arcgis.com
3. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? Has your community updated the floodplain ordinance language to include the current FIRM and FIS?	The Council of the Town of Leonardtown adopted the most recent FIRM in November of 2014. The Town Floodplain Ordinance No. 166 language is in compliance with the current FIRM and FIS and is located in Chapter 78 of the Town Code.
4. Does your jurisdiction support requests for map updates?	Yes. The Town of Leonardtown's Planning & Zoning (P&Z) personnel reviews applications for LOMC's.
5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs?	Yes, the Town's Planning and Zoning personnel tracks and updates LOMC's.
6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA?	Yes. The Town's P&Z Department collects and reviews technical and/or scientific modeling data when applicable. Copies are provided to FEMA during the LOMC process.
7. Does your jurisdiction provide assistance with local floodplain determinations? If yes, specify how.	Yes. The Town's P&Z Department assists homeowners and potential applicants in determining if their property is located within or near the SFHA by providing mapping resources and information, both lateral and vertical determination information.
8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?	Yes. The Town P&Z Department utilizes multiple tools for NFIP information dissemination and education, including the Town's website, County website, and other tools such as www.mdfloodmaps.com and www.floodsmart.gov .
Floodplain management requires that you understand the mapping and data side when working with the public.	

FLOODPLAIN MANAGEMENT

1. Does your jurisdiction issue permits for all proposed development in the SFHA? What office/position is responsible?	Yes. The P&Z Department is responsible for permit issuance within the SFHA.
2. Does your jurisdiction require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?	Yes. However, new development/subdivision lots within the SFHA are prohibited, unless a permit is issued by the Town. Furthermore, the Town Code stipulates a Flood Protection Setback for nontidal waters.
3. How does your community identify substantially improved structures? When do they intervene?	Yes. Substantially improved structures are determined based on several factors, such as the year of construction, market value prior to damage, and actual cash value of proposed work. The Town FPA intervenes during the permitting process and/or if a violation is suspected.
4. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the jurisdiction conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?	Yes. The Town ordinance specifies that the FPA shall administer the requirements related to work on existing structures that are located within the SFHA and have been substantially damaged, and to notify owners of substantially damaged structures to obtain permits and prohibit non-compliant repair of damaged buildings. The FPA and/or authorized/designated P&Z personnel may conduct damage assessments.
5. Does your jurisdiction require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible?	Yes. Applicants for construction within the SFHA must submit an Elevation Certificate prepared by a licensed engineer or surveyor. The P&Z Department reviews the applications and certificates. The P&Z Department is responsible for the review and final Elevation Certificate.
6. How does the jurisdiction enforce the floodplain ordinance sections? How does the jurisdiction address SI/SD violations?	The County FPA and/or P&Z personnel makes periodic inspections of properties, structures, and utilities for compliance with the ordinance and can issue violations, stop work orders, and penalties.
7. Has your jurisdiction had a Community Assistance Visit? If so, were any corrective actions required?	
8. Does your jurisdiction have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented.	The Town of Leonardtown's Flood Protection Elevation is the base flood elevation plus two feet of freeboard. No additional regulations are planned at this time.
9. Are any local officials/departments in your community interested in a training? What topics relate most to your community?	

Floodplain management reduces flood risk and protects floodplain health.

FLOOD INSURANCE

1. How does the jurisdiction educate community members about the availability and value of flood insurance?	The Town and the FPA educate the community and property owners regarding the value of flood insurance through press releases, public service announcements, and/or direct contact with property owners within the SFHA.
2. Does the jurisdiction inform community property owners about changes to the FIRM that would impact their insurance rates?	Yes, the Town notifies property owners within the SFHA regarding changes to the FIRM through press releases, public service announcements, social media posts, and where applicable, direct correspondence.
3. How does the jurisdiction provide general assistance to community members regarding insurance issues?	The FPA and the P&Z Department are available to advise, assist and answer any questions of community members regarding the NFIP program and/or floodplain regulations.
4. Does the jurisdiction keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?	Yes. A database indicating the number of residential and non-residential structures is maintained by the P&Z Department. According to www.nfipservices.floodsmart.gov/reports-flood-insurance-data there are 21 NFIP policies within the Town.
5. Does the jurisdiction have any levees or levee systems in its jurisdiction?	There are no levees located within St. Mary's County or the Town of Leonardtown.
6. Is the levee or levee system certified and accredited?	N/A
7. Is the levee or levee system a Provisionally Accredited Levee (PAL)?	N/A
8. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program?	N/A
9. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?	The Town of Leonardtown does not have any dams within its jurisdiction. The Town has not applied for FEMA's High Hazard Potential Dam grant.
Flood risk communication to the public is vital for a community to be truly resilient.	

APPENDIX J

ACRONYMS

List of Acronyms

- Advance Life Support (ALS)
- Base Flood Elevation (BFE)
- Code of Federal Regulations (CFR)
- Community Rating System (CRS)
- Continuity of Operation Plan (COOP)
- Department of Natural Resources (DNR)
- Digital Elevation Model (DEM)
- Digital Flood Insurance Rate Maps (DFIRMs)
- Emergency Management Accreditation Program (EMAP)
- Emergency Numbers System Board (ENSB)
- Emergency Service Committee (ESC)
- Enhanced Fujita (EF)
- Erosion Vulnerability Assessment (EVA)
- Federal Emergency Management Agency (FEMA)
- Flood Insurance Rate Maps (FIRMs)
- Flood Insurance Study (FIS)
- Flood Risk Report (FRR)
- Geographic Information System (GIS)
- Hazard Mitigation Planning Committee (HMPC)
- Hazard Mitigation Grant Program (HMGP)
- Hazard Mitigation Plan (HMP)
- Increased Cost of Compliance (ICC)

- Light Detection and Ranging (LiDAR)
- Maryland Department of the Environment (MDE)
- Maryland Department of Public Works and Transportation (DPWT)
- Maryland Department of Planning (MDP)
- Maryland Department of Emergency Management (MDEM)
- Maryland Geological Survey (MGS)
- Maryland Institute of Emergency Medical Services System (MIEMSS)
- Maryland State Police (MSP)
- National Center for Environmental Information (NCEI)
- National Flood Insurance Program (NFIP)
- National Oceanic Atmospheric Administration (NOAA)
- Naval Air Warfare Center Aircraft Division (NAWCAD)
- Repetitive Loss (RL)
- Repetitive Loss List Community Certification (CC-RL)
- Repetitive Loss Property (RLP)
- Sea, Lake and Overland Surges from Hurricanes (SLOSH)
- Severe Repetitive Loss (SRL)
- Southern Maryland Electric Cooperative (SMECO)
- Special Flood Hazard Areas (SFHA)
- US Army Corps of Engineers (USACE)
- US Naval Air System Command (NAVAIR)
- Virginia Institute of Marine Science (VIMS)

APPENDIX K

NFIP & CRS

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