

**2020 MML Building Community Resilience Through Better Flood Response
Resilience Resources**

Funding			
Resource	Description	Source	Issue Focus
Federal Resources for Nature-Based Solutions to Climate Change	This fact sheet provides a survey of federal funding and technical assistance available to implement nature-based solutions for climate resilience.	Environmental and Energy Study Institute (EESI)	Flooding/ Stormwater
National Coastal Resilience Fund	Invests in conservation projects that restore or expand natural features such as coastal marshes and wetlands, dune and beach systems, oyster and coral reefs, forests, coastal rivers and floodplains, and barrier islands that minimize the impacts of storms and other naturally occurring events on nearby communities.	National Fish and Wildlife Foundation (NFWF)	Coastal
Resilient Communities Program	Designed to prepare for future environmental challenges by enhancing community capacity to plan and implement resiliency projects and improve the protections afforded by natural ecosystems by investing in green infrastructure and other measures.	Wells Fargo and National Fish and Wildlife Foundation (NFWF)	Coastal
FY20 Resilient Maryland Pilot incentive program (“Resilient Maryland”)	Provides an opportunity to identify potential ways to incorporate clean energy and distributed energy by providing grant funding for eligible organizations and governments to identify, plan and design microgrids, resilient facility power systems, advanced CHP and resiliency hubs.	Maryland Energy Administration (MEA)	Energy
Commercial Clean Energy Rebate Program	Provides Clean Energy Rebates for the following qualified clean energy systems: Solar Photovoltaic (“PV”) Systems, Solar Thermal (Water Heating) Systems, Geothermal Heat Pumps	Maryland Energy Administration (MEA)	Energy
Solar Resiliency Hubs	Provides funding for development and construction of combined solar and energy storage systems	Maryland Energy Administration (MEA)	Energy
Maryland Smart Energy Communities	The goal of the Maryland Smart Energy Communities program is to support local governments as they adopt smart-energy policies and commit to them for the long term. Communities will benefit from sustained reduction of energy usage, cost savings, and additional opportunities for renewable energy development.	Maryland Energy Administration (MEA)	Energy
Chesapeake Bay Stewardship Fund	Two grant programs - 1) Innovative Nutrient and Sediment Reduction Grant Program and 2) the Small Watershed Grants Program	National Fish and Wildlife Foundation (National Fish and Wildlife Foundation (NFWF))	Flooding/ Stormwater

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Water & Waste Disposal Loan & Grant Program	This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in rural areas.	United States Department of Agriculture (USDA)	Flooding/ Stormwater
Watershed Assistance Grant Program	This program will support watershed restoration project design assistance, watershed planning, and programmatic development associated with protection and restoration programs and projects that lead to improved water quality in the Maryland portion of the Chesapeake Bay watershed, the Maryland portion of the Youghiogheny watershed, and the Maryland Coastal Bays.	Chesapeake Bay Trust (CBT), Maryland Department of Natural Resources (DNR)	Flooding/ Stormwater
Pre-Disaster Mitigation Grant Program	Designed to assist local communities in implementing a sustained pre-disaster natural hazard mitigation program.	Federal Emergency Management Agency (FEMA)	Resilience
Shore Erosion Control	Provides technical and financial assistance for design and installation of shoreline stabilization and streambank restoration projects	Maryland Department of Natural Resources (DNR)	Coastal
Maryland's Chesapeake and Coastal Grants Gateway	Technical and financial assistance to restore local waterways, increase their resilience to climate impacts, strengthen local economies and develop the next generation of environmental stewards.	Maryland Department of Natural Resources (DNR)	Coastal
CoastSmart Resource Center	Provides web-based planning tools, storm surge inundation and sea level maps, training programs, information on changing flood insurance, and other media.	Maryland Department of Natural Resources (DNR)	Coastal
Watershed and Flood Prevention Operations Program	Financial and technical assistance for projects such as erosion and sediment control, watershed protection, flood prevention, etc.	Natural Resources Conservation Service (NRCS), United States Department of Agriculture (USDA)	Flooding/ Stormwater
Green Streets, Green Jobs, Green Towns (G3)	Grant program helps communities develop and implement plans that reduce stormwater runoff, increase the number and amount of green spaces in urban areas, improve the health of local streams and the Chesapeake Bay, and enhance quality of life and community livability.	United States Environmental Protection Agency (EPA), Chesapeake Bay Trust (CBT)	Flooding/ Stormwater

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Technical Assistance and Training			
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Municipal Online Stormwater Training Center	Online platform to provide stormwater education and training that includes tools, resources, and brief educational videos for the purpose of increasing awareness and empowering its stakeholders to take action toward effective stormwater management.	Environmental Finance Center	Flooding/ Stormwater
Center for Climate Preparedness & Community Resilience Webinar Series	Holds monthly webinars that contain solutions for strong communities. Each webinar is also posted at website for viewing.	Antioch University New England	Resilience
Maryland Climate Leadership Academy	Continuing education and executive training to advance the capacity of state and local stakeholders to develop and implement sound climate change initiatives.	Association of Climate Change Officers	Resilience
Hazard Planning Information Exchange	There are different webinars such as Planning Integration for Resilience webinars and different publications on the website.	American Planning Association	Resilience
Habitat Restoration and Conservation	Innovative best management practices that reduce harmful run-off from entering the State's waters	Maryland Department of Natural Resources (DNR)	Flooding/ Stormwater
NFWF Field Liaisons	NFWF offers complimentary technical assistance through a cadre of field liaisons that support local governments and organizations interested in pursuing watershed restoration and protection projects through NFWF Stewardship Fund grants.	National Fish and Wildlife Foundation (National Fish and Wildlife Foundation (NFWF))	Flooding/ Stormwater
Maryland Sea Grant	Maryland Sea Grant Extension's specialists work with local governments, community groups, and citizens to help improve water quality on the local level and in the Bay. projects regarding watershed restoration and stormwater management ponds.	University System of Maryland	Flooding/ Stormwater
Weather It Together: Protecting Maryland's Historic Places from Natural Hazards	To help protect historic places, archeological sites, and cultural landscapes from the effects of natural hazards, the Maryland Historical Trust offers a Weather It Together program, providing technical assistance to aid local governments in three key areas: hazard mitigation planning, disaster response and recovery, and climate change adaptation.	Maryland Department of Planning Maryland Historical Trust	Flooding/ Stormwater

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IISD CRISTAL - Community-Based Risk Screening Tool	IISD designed a project planning and management tool that helps users to integrate risk reduction and climate change adaptation into their community work.	International Institute for Sustainable Development (IISD)	Equity
U.S. Climate Resilience Toolkit	<p>The U.S. Climate Resilience Toolkit is a website designed to help people find and use tools, information, and subject matter expertise to build climate resilience. The Toolkit outlines five key steps and offers information from all across the U.S. federal government in one easy-to-use location.</p> <p>This provides a very comprehensive step-by-step guide for building climate resilience, and includes videos and case studies to help in the process. It also provides mechanisms for connecting with experts and training courses. It is unique because it is extremely comprehensive and user friendly.</p>	National Oceanic and Atmospheric Administration (NOAA)	Resilience
Sustainable Maryland	A “one-stop-shopping” program helping municipalities choose a direction for their sustainability efforts, improve access to resources needed to implement action, measure their progress, and gain recognition for their accomplishments	Environmental Finance Center	Resilience
Climate Adaptation Knowledge Exchange	shared knowledge base for managing natural and built systems in the face of rapid climate change. Searchable database of case studies, documents, and tools	EcoAdapt	Resilience

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General Guidance

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When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities	<p>Looks at the impact rising sea levels caused by global warming will have on coastal regions across the country. Provides estimates on how soon this could happen.</p> <p>Identifies 167 communities in 13 states that by 2035 will face chronic inundation (high tides flooding 10 percent or more of the community's usable, non-wetland area at least 26 times per year). Twenty-two of those communities are in Maryland, most on the Eastern Shore, which is coping with sinking land and rising sea levels.</p>	Union of Concerned Scientists	Coastal
Coastal Resilience Index: A Community Self-Assessment - Understanding how prepared your community is for a disaster	to provide community leaders with a simple and inexpensive method of predicting if their community will reach and maintain an acceptable level of functioning after a disaster.	Sea Grant Consortium	Coastal
Maryland and the Surging Seas	<p>Vulnerability assessment that integrates historical local sea level trends and flood statistics with global sea level rise scenarios. Specifically includes information about the risk that sea level rise poses to Maryland's infrastructure, land, and vulnerable populations</p> <p>This goes into a lot of depth about the way that sea level rise will impact Maryland's infrastructure.</p>	Climate Central	Coastal
Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use	Describes 18 different land-use tools that can be used to preemptively respond to the threats posed by sea-level rise.	Georgetown Climate Center	Coastal
Maryland Coastal Resiliency Assessment	Contains reports, data and training documents that are available for free use.	Maryland Department of Natural Resources (DNR)	Coastal
Mainstreaming Sea Level Rise Preparedness in Local Planning and Policy on Maryland's Eastern Shore	Inform decision makers and residents about local risks associated with the combination of sea level rise and coastal storm flooding and guide communities towards policies and practices that will reduce flood and sea level rise risk. The report provides local government leaders and staff with data, analyses, policy options, and implementation guidance.	Eastern Shore Land Conservancy	Coastal

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Nuisance Flood Plan Development Guidance	This document is meant to provide guidance on potential ways that a jurisdiction can meet the nuisance flood plan (NFP) Explains the MDOT Climate Change Vulnerability Viewer. Tools to Forecast and Predict Nuisance Flood Events	Maryland Department of Natural Resources (DNR)	Flooding/ Stormwater
CRS for Community Resilience	Guidance on actions that increase a community's rating, and works directly with communities to increase their resiliency through the CRS process.	Association of State Floodplain Managers	Flooding/ Stormwater
Flood Resilience Checklist	Checklist includes overall strategies to improve flood resilience as well as specific strategies to conserve land and discourage development in river corridors; to protect people, businesses, and facilities in vulnerable settlements; to direct development to safer areas; and to implement and coordinate stormwater management practices throughout the whole watershed.	Environmental Protection Agency (EPA)	Flooding/ Stormwater
Naturally Resilient Communities	Interactive web-based guide of nature-based solutions and included case studies of successful projects from across the country to help communities learn more and identify which nature-based solutions might work for them.	Naturally Resilient Communities Partnership	Flooding/ Stormwater
Green Infrastructure for Chesapeake Stormwater Management- Legal Tools for Climate Resilient Siting	A report that examines and addresses the potential legal obstacles and describes the most promising pathways within the existing legal framework. For state and municipal leaders looking to go even further, the report recommends specific actions that legislative and regulatory bodies can take to modify the current stormwater management regime so as to more easily incorporate pragmatic consideration of climate change impacts	Environmental Law Institute	Flooding/ Stormwater
Carbon-Free City Handbook	Reveals 22 actions—and associated resources—for cities globally to move toward climate-neutrality and see results within a year.	Rocky Mountain Institute	Resilience
A Framework for Local Action on Climate Change	A guide that provides 9 ways to build resilient and just communities. Provides solutions that build resilient communities, create new economic opportunities, and support racial justice.	Center for American Progress	Resilience
Georgetown Climate Center Adaptation Clearing House	An online database and networking site that serves policymakers and others who are working to help communities adapt to climate change.	Georgetown Climate Center	Resilience

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MOVING FORWARD: Guide to Building Momentum on Climate Solutions in Your Community	<p>A guide is for civic leaders in smaller and mid-size communities that want to lead on climate and sustainability but may lack full-time sustainability staff.</p> <p>Website has great resources for action steps, communicating to residents, working with congregations, and mental health. Review and include resources.</p>	<p>National League of Cities (NLC), Local Government Commission (LGC), and ecoAmerica</p>	<p>Resilience</p>
Ready for Tomorrow: Seven Strategies for Climate-Resilient Infrastructure	<p>Seven Strategies for Climate-Resilient Infrastructure</p>	<p>Hoover Institution Essay - Stanford University</p>	<p>Resilience</p>
Climate Resilience Funding Guide	<p>A guide that helps communities identify financial support for climate adaptation projects. It will help you learn about established funding programs that have evolved to provide funding for climate adaptation activities, and to match those funding sources with local adaptation goals.</p>	<p>Model Forest Policy Program</p>	<p>Resilience</p>
Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans	<p>Step-by-step application of a risk management methodology to climate change adaptation.</p> <p>Great Tables of potential climate change risks, risk analysis, probability matrix, risk management approaches, assess actions, and more.</p>	<p>Environmental Protection Agency (EPA) Climate Ready Estuaries</p>	<p>Resilience</p>
Hazus	<p>A nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, hurricanes, and tsunamis. This free software can be used for preparedness planning, mitigation, and recovery.</p>	<p>Federal Emergency Management Agency (FEMA)</p>	<p>Resilience</p>
Preparing for Climate Change in Maryland	<p>Outlines the steps Maryland is taking to prepare for the impacts of climate change - Policies, Plans, Resources. Not sure when this has been updated. Ask them.</p>	<p>Georgetown Climate Center</p>	<p>Resilience</p>
MDOT SHA Climate Change Vulnerability HVI Viewer	<p>ArcGIS Online (AGOL) web application which highlights sea level change and the potential impact on Maryland's transportation infrastructure.</p>	<p>Maryland State Highway Administration (MDOT SHA)</p>	<p>Resilience</p>

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Comprehensive Strategy for Reducing Maryland’s Vulnerability to Climate Change Phase II: Building societal, economic, and ecological resilience	<p>The Phase II Adaptation Strategy is the product of over 80 experts from the governmental, NGO, and private sectors. It synthesizes the most recent (2011) climate change literature to evaluate adaptation options and recommend adaptation strategies to reduce the Maryland’s overall vulnerability to climate change. It outlines adaptation strategies to reduce the impacts of climate change, including sea level rise, increased temperature and changes in precipitation within the following sectors: Human Health; Agriculture; Forest and Terrestrial Ecosystems; Bay and Aquatic Environments; Water Resources; and Population Growth and Infrastructure.</p>	<p>Maryland Commission on Climate Change Adaptation and Response Working Group</p>	<p>Resilience</p>
Our Communities, OUR POWER: Advancing Resistance and Resilience in Climate Change Adaptation ACTION TOOLKIT	<p>Toolkit specifically designed for NAACP units and their Environmental and Climate Justice (ECJ) Committees. Through a series of individual modules—each devoted to a specific topic—this toolkit guides NAACP units through the process of establishing an ECJ Committee and developing a climate adaptation plan. Each community is different so some modules may apply more than others. We designed the toolkit so that modules can be used by themselves or together with the other modules so that every community can develop the adaptation plan that best meets their needs.</p>	<p>National Association for the Advancement of Colored People (NAACP)</p>	<p>Equity</p>
Social Vulnerability Index	<p>Tract-level data to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster.</p>	<p>Agency for Toxic Substances and Disease Registry</p>	<p>Equity</p>

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Mapping Tools

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Maryland Coastal Atlas	Allows you to explore and analyze data for coastal and ocean planning activities.	Maryland Department of Natural Resources (DNR)	Coastal
Coastal Flood Exposure Mapper	Coastal Flood Exposure Mapper-	National Oceanic and Atmospheric Administration (NOAA)	Coastal
Sea Level Rise Viewer	Map that shows areas with different scenarios of sea level rise.	National Oceanic and Atmospheric Administration (NOAA)	Coastal
Digital Coast	Website is focused on helping communities address coastal issues and has become one of the most-used resources in the coastal management community. Data sets range from economic data to satellite imagery. The site contains visualization tools, predictive tools, and tools that make data easier to find and use.	National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management	Coastal
Climate Explorer	Sea Level Rise, Demographics, Critical Facilities, Wetlands, and Explore where sources of pollution may contaminate ecosystems if affected by sea level rise.	U.S. Climate Resilience Toolkit and ACIS	Coastal
SmartDG+	Helps developers and officials identify promising areas for the location of new wind, solar, and CHP (combined heat and power) projects in Maryland.	Maryland Energy Administration (MEA)	Energy
emPOWER Map	A map of electricity-dependent Medicare populations by ZIP Code.	US Department of Health and Human Services	Energy
EJSCREEN: Environmental Justice Screening and Mapping Tool	An environmental justice (EJ) mapping and screening tool based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports.	Environmental Protection Agency (EPA)	Equity
Maryland Environmental Public Health Tracking Program	Gateway to environmental and health data resources. On this tracking site, you can create data Tables and Maps or view a Gallery of different health topics in Maryland.	Maryland Department of Health	Equity
Storm Surge Inundation and Hurricane Strike Frequency Map	Map illustrates historical hurricane tracks, strike frequency, and potential areas of coastal flooding and inundation from storms.	Environmental Protection Agency (EPA)	Flooding/ Stormwater

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Watershed Resource Registry - Maryland	An interactive mapping tool to characterize and prioritize natural resource management opportunities using a Watershed Approach. assess both restoration and preservation suitability.	Environmental Protection Agency (EPA) Region 3 Water Protection Division	Flooding/ Stormwater
How to Map Open Space for Community Rating System Credit	An online “how-to” training that provides a step-by-step approach for earning this credit (CRS Activity 420) in areas that are already protected, and identifying places where additional credit could be earned through future preservation efforts. Relates to FEMA's Community Rating system.	National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management	Flooding/ Stormwater
National Stormwater Calculator	Software application that estimates the annual amount of rainwater and frequency of runoff from a specific site. Estimates are based on local soil conditions, land cover, and historic rainfall records. It is designed to be used by anyone interested in reducing runoff from a property, including site developers, landscape architects, urban planners, and homeowners.	Environmental Protection Agency (EPA)	Flooding/ Stormwater
Maryland GreenPrint	This map displays Targeted Ecological Areas (TEAs), lands and watersheds of high ecological value that have been identified as conservation priorities by the Maryland Department of Natural Resources (DNR).	Maryland Department of Natural Resources (DNR)	Flooding/ Stormwater
MD iMap	Maryland's database of geographic and non-geographic data sets available for public download including data on jurisdictional boundaries, community demographics, environmental resources, and climate.	Maryland's Mapping & GIS Data Portal	Resilience
Climate Change Atlas for Tree and Bird Species	Potential habitat distributions for future tree and bird species given various climate change scenarios.	United States Department of Agriculture (USDA) Forest Service	Trees
i-Tree Landscape	Allows you to explore tree canopy, land cover, and basic demographic information in a location of your choosing. You learn about the benefits of trees in your selected location, see how planting trees will increase the benefits provided, and map the areas where you decide to prioritize your tree planting efforts.	i-Tree and Partners	Trees