CLIMATE CHANGE STATUS REPORT
2025 ANNUAL REPORT

Maryland Department of the Environment

December 2025

Status Report on Climate Change
2025 Annual Report

Maryland Department of the Environment

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For more information on MDE's efforts, visit: mde.maryland.gov.

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List of Acronyms

- ACC – Advanced Clean Cars Regulations
- ACT – Advanced Clean Trucks Regulations
- ARA – Air and Radiation Administration
- CBP – Chesapeake Bay Program
- CIP - Climate Implementation Plan
- CPRG – U.S. EPA Climate Pollution Reduction Grant
- CSNA – Climate Solutions Now Act of 2022
- DNR - Maryland Department of Natural Resources
- EJ – Environmental Justice
- EPA – U.S. Environmental Protection Agency
- EVs – Electric Vehicles
- GHG – Greenhouse Gas
- IRA – U.S. Inflation Reduction Act
- LMA- Land and Materials Administration
- MCCC – Maryland Commission on Climate Change
- MDE – Maryland Department of the Environment
- MDOT – Maryland Department of Transportation
- MEA – Maryland Energy Administration
- PV – Solar Photovoltaics
- RGGI – Regional Greenhouse Gas Initiative
- SCC – Social Cost of Carbon
- WSA – Water and Science Administration

Message from Secretary Serena McIlwain

Maryland remains a pioneer in climate action, setting ambitious goals and putting proven solutions to work. We stand at a pivotal moment where progress is essential, and our drive to innovate and adapt is stronger than ever.

Under Governor Moore's leadership, we've brought together 25 state agencies through a coordinated climate plan that is driving action across government. We secured $130 million in federal funding to accelerate clean transportation, natural climate solutions, and local community projects. Maryland's leadership has been recognized this year on the global stage, from COP30 in Brazil to the United Nations (UN) Climate Convention in Bonn and the Maryland–EU Circular Economy Forum.

We are advancing cleaner air by developing new standards for zero-emission heating and phasing down harmful emissions and refrigerants. Through the Regional Greenhouse Gas Initiative, Maryland has invested more than $500 million in community-based efficiency and climate programs. We continue to make measurable progress in reducing emissions, expanding renewable energy, and making buildings more efficient.

We are advancing climate resilience by integrating climate-risk mapping into land and stream restoration to reduce flooding and storm damage. A statewide adaptation plan is guiding stronger flood protection, stormwater upgrades, and coastal restoration. New stormwater regulations use climate data to prepare infrastructure for heavier rain and rising seas, while updated mapping tools help direct investments to the communities most vulnerable to climate impacts.

The call to action remains clear. Real progress requires collaboration—among state agencies, businesses, nonprofits, experts, and residents—to protect our environment and strengthen our economy.

Sincerely,

Serena McIlwain

Secretary, Maryland Department of the Environment

Introduction

Department-Wide Overview

The Maryland Department of the Environment (MDE) provides executive leadership and coordination on climate change initiatives at the state, national, and international levels. This includes developing and implementing policies to reduce greenhouse gas (GHG) emissions, aiming for net-zero emissions by 2045, and fostering adaptation and resilience efforts across the state's coastal and non-coastal regions. MDE's work encompasses climate change science, partnership building, environmental planning, and natural resource protection, all while providing updates on regulations, laws, and leadership across its various administrations. MDE is mandated by the Environment Article, Annotated Code of Maryland, § 2-1305 to provide an annual report on climate change activities across the department[1]. This Department-wide and comprehensive report provides updates on programmatic efforts and initiatives across the agency throughout the past year, including the Air and Radiation Administration (ARA), the Land and Materials Administration (LMA), and the Water and Science Administration (WSA).

Figure 1 Governor declares State of Emergency following Allegany County floods in May 2025.

[1] Maryland Department of the Environment, Annual Climate Change Reports to the Maryland Commission on Climate Change (MCCC), https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Pages/Annual-Climate-Change-Reports.aspx.

Climate Change in Maryland

Maryland, with 3,100 miles of shoreline, is highly vulnerable to climate change, particularly rising sea levels, which threaten coastal communities, infrastructure, and ecosystems. Beyond rising waters, the state faces increased droughts, impacting water, agriculture, and wildfire risk, and more severe storms like hurricanes and nor'easters, which harm the Atlantic coast and Chesapeake Bay. All areas, including urban and rural, face risks like heat waves and agricultural changes.Due to climate change, Maryland will experience higher average temperatures, more frequent and longer heatwaves, milder winters and a longer growing season, more intense storms and flooding, increased probability of summer drought, and saltwater intrusion in Chesapeake Bay communities.Maryland is committed to climate adaptation and mitigation through resilient infrastructure, early warning systems, sustainable land use, and clean energy to protect its resources and communities.

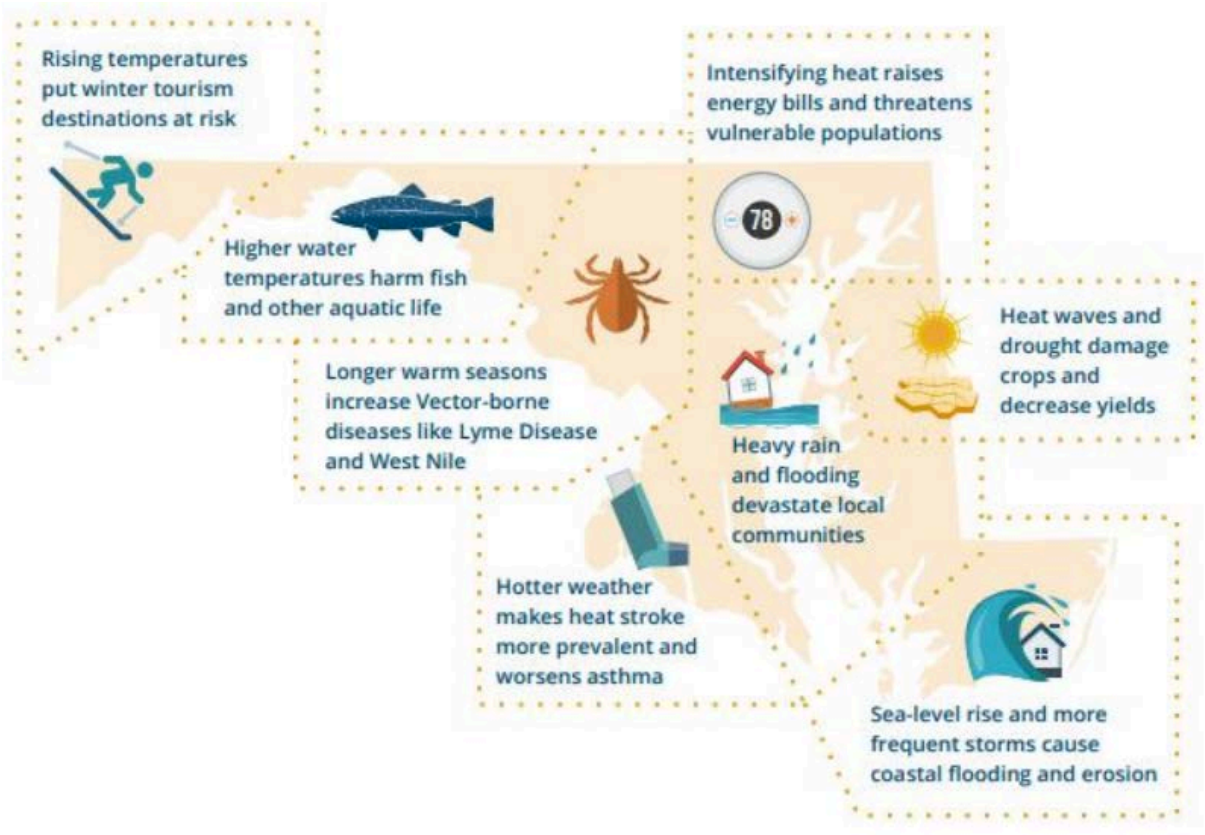

Figure 2 Maryland map of climate-related risks[2]

[2] MDE, Climate Pollution Reduction Plan, Published December 2023, https://mde.maryland.gov/programs/air/Climate-in-md/Pages/Homepage%20For%20Climate.aspx

Key vulnerabilities that have informed MDE's efforts include:

- **Water Quality:** Impacts on coastal, bay, and inland water quality may alter the viable uses of surface water, such as for irrigation, recreation, or human consumption.
- **Economic Impact:** Extreme weather events and sea level rise may directly or indirectly affect Maryland's economy by restricting or disrupting the flow of goods, causing property and infrastructure damage, and impacting workdays.
- **Ecosystem Stressors:** Ecosystems, agriculture, fisheries, and forestry experience stressors from changes in temperature and precipitation regimes, increased extreme weather events, and pressures on native ecology from weeds, diseases, and pests.
- **Environmental Justice:** There is a higher probability of negative outcomes for overburdened, underserved, and other environmental justice communities.
- **Public and Human Health:** Public and human health are affected by weather changes, including hotter summers and more extreme weather, which may impact public services, biodiversity, ecological health, air quality, food and water supply, and increase the risk for vector-borne diseases and unwanted pests such as ticks.
- **Greenhouse gas emissions**: GHGs include the air pollutants carbon dioxide (CO2), hydrofluorocarbons (HFCs), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6).

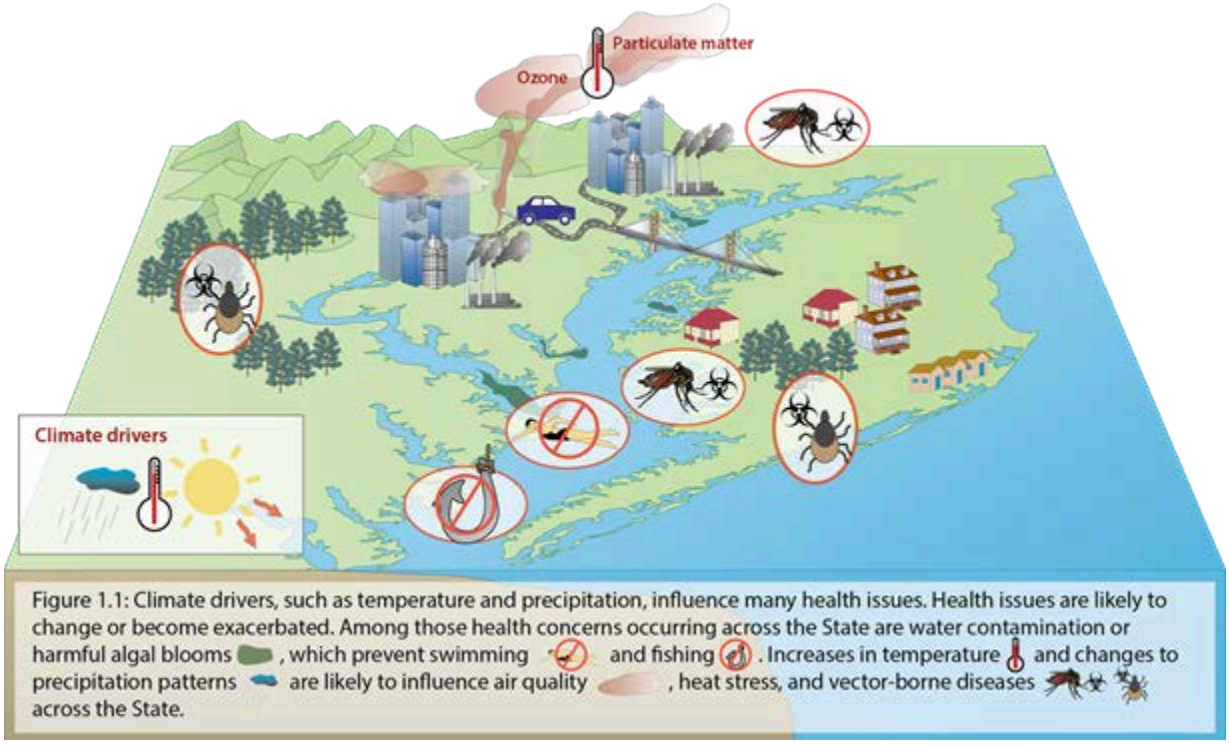

Figure 3 Climate change drivers such as increases in temperature can exacerbate health issues[3].

[3] Maryland Department of Health, 2016 Climate and Health Profile Report, https://health.maryland.gov/phpa/OEHFP/EH/Pages/Climate_Health_Impacts.aspx.

International Affairs and Global Engagement

In 2025, MDE deepened its role as a leading subnational voice on climate action and international cooperation. Through sustained engagement across global forums, MDE advanced Maryland's priorities on decarbonization, resilience, and environmental justice, demonstrating that U.S. states remain vital actors in achieving the goals of the Paris Climate Agreement.

At the United Nations (UN) Bonn Climate Convention and COP 30 Local Leaders Forum in Rio de Janeiro, Maryland represented the highest level of U.S. subnational leadership, joining the Conference of the Parties (COP) Presidency, UN Secretariat, and global partners to advocate for stronger recognition of state and regional governments in international climate negotiations. Maryland's participation underscored the State's commitment to practical, community-centered solutions and deepened collaboration with city and regional partners in Brazil focused on resilience and environmental protection.

At New York Climate Week, Maryland participated for the third consecutive year in high-level roundtables and panels to champion state leadership and forge new partnerships with governments across the Under2 Coalition. During London Climate Week, Maryland represented U.S. state-level leadership on the international stage, countering perceptions abroad that climate action had stalled nationally.

On October 29, 2025, Governor Wes Moore and European Union Ambassador Jovita Neliupšienė co-hosted the inaugural Maryland–EU Circular Economy Forum in Annapolis. The event, led by MDE, convened leaders, diplomats, and business executives to promote circular innovation as a pathway for economic growth, job creation, and waste reduction—underscoring Maryland's commitment to linking climate action with economic growth and prosperity.

Figure 4 Governor Moore and European Union Ambassador to the United States Jovita Neliupšienė at the inaugural Maryland-EU Circular Economy Forum on October 29, 2025[4].

[4] Maryland Department of Health, 2016 Climate and Health Profile Report, https://health.maryland.gov/phpa/OEHFP/EH/Pages/Climate_Health_Impacts.aspx.

Environmental Justice Progress

Climate change and equity are intertwined, as the impacts of climate change often disproportionately affect communities that are underserved or overburdened due to various factors. In addition to heightened risk, vulnerable communities often have fewer resources to cope with and adapt to climate impacts. Addressing this link requires intentional engagement to develop strategies that simultaneously tackle the effects of climate change and the systems that perpetuate inequity. Throughout 2025, MDE worked to improve environmental justice (EJ)-related planning, compliance monitoring, capacity building, community education, outreach events, and overall pollution enforcement across communities with environmental concerns. MDE is supporting EJ best practices through its leadership in convening the Commission on Environmental Justice and Sustainable Communities (CEJSC) and within the Governor's Subcabinet on Climate Change.

MDEnviroScreen Tool with Climate Vulnerability Score

MDE is committed to making environmental justice (EJ) and climate data readily available. The MDEnviroScreen tool was created to inform stakeholders, including but not limited to governments and nonprofits, in building healthier, more sustainable communities[5]. This enhanced online tool enables users to visualize necessary interventions, prioritize resource allocation, and align procedures with on-the-ground conditions. The tool can also guide efforts in engaging communities to design and implement solutions. For instance, interactive maps can illustrate climate change vulnerabilities, fostering constructive dialogue and empowering communities to collaborate on adaptation and resilience-building projects.

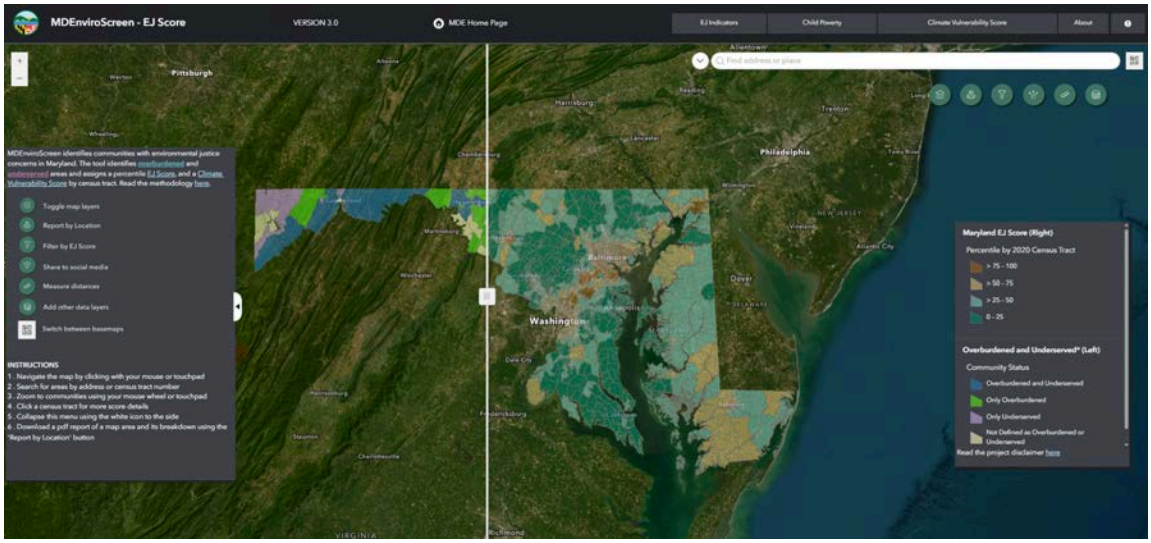

Figure 5 New MDEnviroScreen tool released in June 2025 considers new climate and EJ measures.

[5] Maryland Department of the Environment, Environmental Justice, https://mde.maryland.gov/Environmental_Justice/Pages/Landing%20Page.aspx.

The Climate Solutions Now Act (CSNA) mandated the development of a methodology for identifying communities disproportionately affected by climate impacts. This law requires the inclusion of underserved communities, overburdened communities, and areas vulnerable to climate impacts, such as flooding, storm surges, and urban heat island effects. The Climate Vulnerability Score feature within the MDEnviroScreen tool, released in 2025, fulfills these requirements and incorporates additional state data on drought and tree canopy cover. MDE integrated this supplementary data following consultations with the CEJSC and other key stakeholders. These layers enhance equity and resilience considerations across Maryland.

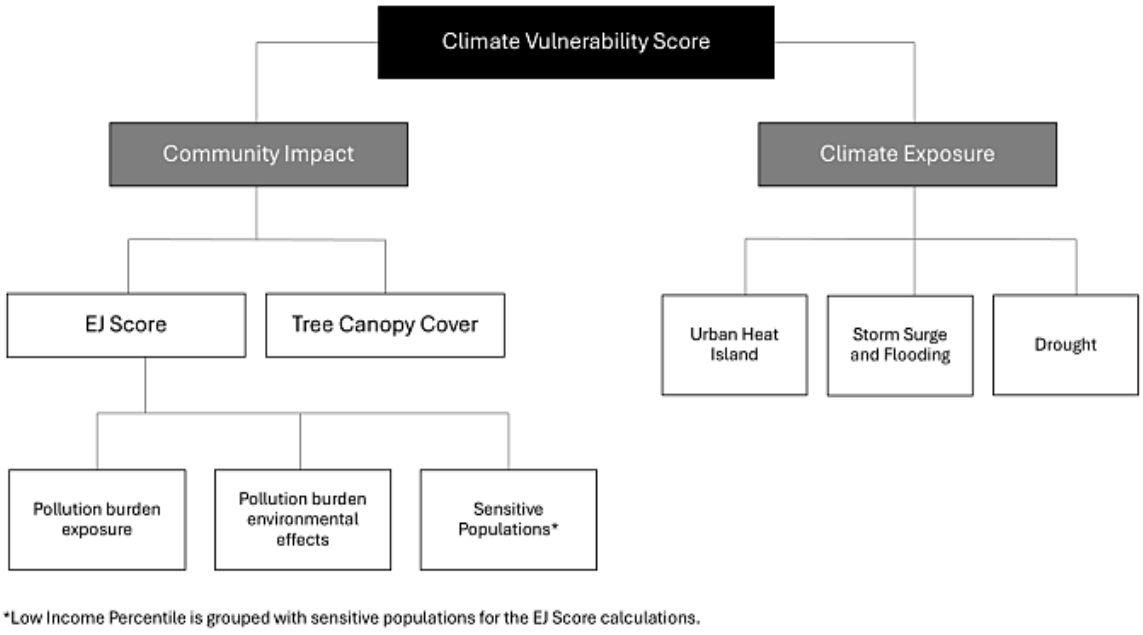

Figure 6 The Climate Vulnerability Score considers community impact and climate exposure.

The MDEnviroScreen tool combines the EJ Score, Climate Vulnerability Score, Child Poverty Map, and Overburdened/Underserved Maps[6]. It helps protect overburdened and underserved communities by using environmental data for informed decisions, aligning with Maryland Environment Article §1-601 and § 1-702. The EJ Score assesses pollution burden, environmental indicators (like air pollution, industrial proximity, traffic, asthma rates), and sensitive populations. An "Overburdened Community" has three or more environmental or health indicators exceeding 75% statewide. An "Underserved Community" considers low-income, nonwhite status, and limited English proficiency. The Climate Vulnerability Score examines these communities and areas vulnerable to climate impacts, including flooding, storm surge, and the urban heat island effect. MDE will continue to support MDEnviroScreen, which allows users to identify areas requiring increased planning.

[6] How to Use MD EnviroScreen: Environmental Justice Tool Overview & EJ Score Calculation, Webinar held on October 21, 2025, https://www.youtube.com/watch?v=xRogL2cVmT0.

Advancing a Focus on Justice Across Agencies

Throughout 2025, MDE continued meaningful leadership across several environmental justice (EJ) initiatives, including but not limited to permitting modernization, enhanced community engagement, and leadership by example initiatives[7]. MDE supports partnerships across local, state, and regional efforts that meaningfully protect communities as well as climate change mitigation and adaptation initiatives. In July, Governor Moore released Executive Order 01.01.2025.17 Valuing Opportunity, Inclusion, and Community Equity (VOICE)[8]. This Order builds upon MDE's groundbreaking leadership that includes the appointment of the First Assistant Secretary for Environmental Justice to oversee efforts to address environmental disparities and reduce pollution in overburdened communities. The EO supports collaboration efforts across executive agencies to occur in a way that benefits and protects Maryland's natural resources and Marylanders' public health. The Order calls for the appointment of EJ leaders across state agencies as well as for the usage of the MDEnviroScreen tool to help inform state initiatives.

Figure 7 New executive order released in June 2025 considers a variety of EJ measures.

At this year's Turner Station Community Resource Fair at the Sollers Point Multipurpose Center, MDE staff spoke with residents about their experience with electric vehicles (EV), their attitudes towards EVs, and barriers to adoption. MDE is working to connect residents with these resources and address community needs through direct, prioritized outreach. These efforts aim to ensure that no resident is left behind in the clean energy transition,

[7] Maryland Executive Order 01.01.2025.17, https://governor.maryland.gov/Lists/ExecutiveOrders/Attachments/89/EO%2001.01.2025.17%20Valuing%20Opportunity,%20Inclusion,%20and%20Community%20Equity%20(VOICE)_Accessible.pdf.
[8] Environmental Justice Legislation in Maryland, https://mde.maryland.gov/Environmental_Justice/Pages/EJ-Maryland-Legislation.aspx.

allowing them to benefit from electric vehicles, and align with efforts led by the Maryland Department of Transportation (MDOT) in electrifying more vehicles statewide.

Whole-of-Government Leadership

MDE's Climate Implementation Plan (CIP) Progress for FY2025

In 2025, MDE worked diligently to implement the directives under Maryland's leading Executive Order on climate change. Maryland doubled-down on its whole-of-government approach when Governor Wes Moore signed Executive Order 01.01.2024.19 - *Leadership by State Government: Implementing Maryland's Climate Pollution Reduction Plan*[9]. The Order required 25 executive branch agencies to work together to develop agency-specific Climate Implementation Plans (CIPs) and take immediate action to implement *Maryland's Climate Pollution Reduction Plan*. The Order also established a Subcabinet on Climate to enhance collaboration to implement the actions needed to meet Maryland's climate goals. The Subcabinet consists of 11 department leaders, the Governor's Chief Sustainability Officer, and the Governor's Chief Resilience Officer. MDE's Secretary and the Governor's Chief Sustainability Officer serve as chair and vice-chair.

Figure 8 The 109th Annual Maryland Farm Bureau (MDFB) Convention was held in December 2024 and featured Secretary McIlwain alongside state leaders from the Maryland Department of Agriculture, the Maryland Department of Natural Resources, and the Maryland Farm Bureau.

MDE supports the Governor's Subcabinet on Climate and a CIP Working Group, coordinating agencies to implement Maryland's Climate Pollution Reduction Plan and State Agency CIPs[10],. MDE facilitates annual public reports to the Governor on this progress and helps agencies set and measure climate pollution reduction goals, adapting to changes to maximize outcomes.

[9] See E.O. 01.01.2024.19 here: https://governor.maryland.gov/Lists/ExecutiveOrders/Attachments/52/EO%2001.01.2024.19%20Leadership%20by%20State%20Government-%20Implementing%20Maryland%27s%20Climate%20Pollution%20Reduction%20Plan_Accessible.pdf.

[10] MDE, Climate Subcabinet and Agency Climate Implementation Plans, https://mde.maryland.gov/programs/air/ClimateChange/Pages/Reports.aspx.

The following table details progress on MDE's CIP measures. These measures support agency goals to safeguard public health and environmental resources across air, land, and water for all Marylanders, now and in the future. By working together, sharing resources, and synchronizing efforts, Maryland's state agencies can and are maximizing positive outcomes.

Action	2025 Progress Highlights
Adopt a Zero-Emissi on Heating Equipment Standard (ZEHES) - FY25 Priority	In 2025, MDE supported the development of Zero-Emission Heating and Energy Standards (ZEHES) as mandated by Executive Order 01.01.2024.19. These standards will establish performance requirements for heating and water heating equipment to ensure they meet zero-emission criteria over time. MDE engaged in stakeholder and public outreach throughout 2025 to gather feedback for the draft rules. Regulations are expected to be proposed in late 2026 and implemented in 2029.
Adopt a Clean Heat Standard (CHS) - FY25 Priority	In 2025, MDE began drafting regulations that would establish the Clean Heat Standard (CHS), a regulation that aims to guide heating fuel providers, including pipeline gas utility companies and fuel oil/propane delivery companies, to gradually reduce emissions by requiring the delivery of clean heat services to Maryland's homes and businesses. Throughout 2025, MDE has been gathering input from various stakeholders, including homeowners, tenants, HVAC contractors, equipment manufacturers, heating fuel providers, state agencies, and nonprofit organizations. Public feedback is helping inform regulations that will include a reporting program for heating fuel providers. Regulations are expected to be released in 2026 through the Air Quality Control Advisory Council (AQCAC).
The Regional Greenhouse Gas Emissions (RGGI) Program - FY25 Priority	In 2025, Maryland and RGGI participating states completed the Third Program Review, with a plan to strengthen the regional carbon dioxide (CO2) emissions cap through 2037. The updates will ensure the initiative's continued success in promoting energy affordability, clean air, and economic benefits across the region. In late 2025, MDE also started the process of updating state regulations to align with the new RGGI program and other needs. In FY24 and FY25, RGGI proceeds totaling over $534 million were invested in state efforts through the Strategic Energy Investment Fund (SEIF), including climate change solutions, clean energy

	projects, energy bill assistance for low-income customers, and acceleration of energy efficiency solutions[11].
Advanced Clean Fleets (ACF) - FY25 Priority	In 2025, MDE is supporting the electrification of fleets, including by evaluating ways to support fleet owners in meeting requirements established by the Clean Air Act, including evaluating policy mechanisms to support the electrification of large fleets (drayage, high-priority, and government fleets). Maryland's Advanced Clean Fleets (ACF) program is on hold due to the federal delay of the 2023 Advanced Clean Trucks (ACT) rule. In 2025, MDE participated in a variety of leadership efforts supporting fleet electrification, including providing federal incentives for charging infrastructure through the Clean Corridor Coalition and more.
Advanced Clean Cars II (ACC II)	In 2025, Governor Moore signed an Executive Order creating the ACC II and ACT Working Group in April 2025. This working group has convened state leaders, industry representatives, and environmental advocates to ensure that Maryland's path forward is both effective and achievable amidst changing federal policies and market dynamics. A final report outlining findings and recommendations will be submitted to the Governor and General Assembly by December 31, 2025.
Advanced Clean Trucks (ACT)	Maryland's Advanced Clean Trucks (ACT) program is on hold due to the federal delay of the 2023 rule. In April 2025, Governor Wes Moore issued an Executive Order delaying penalty enforcement for manufacturers failing to meet ACT sales requirements for model years 2027 and 2028. This action provides a grace period, as the regulation originally required the program to begin with model year 2027 vehicles. The Needs Assessment and Deployment Plan, required by the ACT, is underway and expected to be completed before the end of December 2025.
ZEV School Buses	In 2025, MDE awarded $3 million in grants through the Zero Emission Vehicle School Bus Transition Fund to county boards of education and entities that contract with county boards of education to provide transportation services to purchase Zero Emission School Buses.

[11] Maryland Energy Administration, Strategic Energy Investment Fund, Volume 1 with Activities for Fiscal Year 2024, Published February 2025, https://energy.maryland.gov/SiteAssets/Pages/Strategic-Energy-Investment-Fund-(SEIF)-/SEIF%20Vol%201%20FY24.pdf.

Building Energy Performance Standards (BEPS)	MDE leads Maryland's BEPS program, as required by the CSNA of 2022 and amendments per House Bill 49 - BEPS Alterations and Analysis. The regulation aims to reduce climate pollution from large commercial and multifamily in the state. MDE is supporting building owners through their first requirement; annual benchmarking and reporting of building energy consumption. These first benchmarking reports were completed by building owners on September 30, 2025, with subsequent reports due every June 1st thereafter.
State Government Lead by Example	MDE is leading by example through a variety of efforts that include regional partnership efforts, statewide leadership, and integrating climate considerations across programs. This includes managing Maryland's participation in two multi-state efforts: the Atlantic Conservation Coalition and the Clean Corridors Coalition, and screening environmental permits to identify opportunities to incorporate climate considerations in future permits and renewals. MDE continues to participate in the Governor's Federal Investment Team and supports maximizing external funding opportunities and advancing private-public partnerships. For the third year, MDE partnered with the Chesapeake Bay Trust and DSCI to host a Climate and Conservation Corps (CCCC) Member, who transitioned into full-time MDE staff. MDE also hosted new high school graduates through the Maryland Climate Corps. In 2025, MDE led the establishment of a new Executive Order that complements climate change solutions alongside Governor Moore's call to Leave No One Behind: Executive Order 01.01.2025.17 Valuing Opportunity, Inclusion, and Community Equity (VOICE).
Hydrofluorocarbon (HFC) Regulations	As of January 1, 2025, MDE expanded existing regulations prohibiting the manufacturing and importation of high global warming potential (GWP) HFCs, a fast-acting greenhouse gas used in refrigeration appliances, air conditioners, foam products and aerosol cans. MDE's updated regulations prohibit the sale, distribution, or export within and from Maryland of certain end-use products. Prohibitions have specific dates for different end-uses, with new restrictions beginning as early as January 1, 2024, and including requirements for record-keeping and reporting. The sell and distribute prohibitions took effect January 1, 2025.
Control of Methane Emissions	In 2025, MDE continued to enforce regulations that reduce methane emissions and protect public health. MDE finalized regulations in 2020 to reduce methane emissions from new and existing natural gas transmission

from the Gas Industry	and storage facilities. These regulations target compressor stations, a liquefied natural gas facility, and control measures for compressors and other devices. Maryland regulations mandate leak detection and repair (LDAR), requiring owners/operators to submit a leak monitoring plan, conduct surveys, and repair leaks within 30 days. Annual GHG emission data must also be submitted to MDE.
Landfill Methane Regulations	In 2025, MDE continues to enforce landfill methane regulations which are reducing emissions and protecting public health as designed. Maryland finalized regulations in 2023 to control methane emissions from active and closed municipal solid waste (MSW) landfills (COMAR 26.11.42 – Control of Methane Emissions from MSW Landfills were adopted and finalized as of July 26, 2024). These regulations require gas collection and control systems (GCCS), surface emissions monitoring, and reporting to reduce methane emissions. The new requirements are either equivalent to or more stringent than current federal requirements. One new regulatory requirement per Amendments adopted in July 2024 include annual testing of control devices, which is an improvement from the previous practice of testing only upon initial installation of control devices.
Food Residual Diversion Law	In 2025 MDE hosted a National Food Waste Prevention Week forum, remains active in the Maryland Food System Resiliency Council, and is in the preliminary process of planning for the 2026 Food Summit.
Sustainable Materials Management	In 2025, MDE supported laws to enhance recycling by assessing needs and establishing an advisory council for an Extended Producer Responsibility (EPR) program for packaging. Following a 2024 assessment, a statewide study in 2025 identified modernized packaging and paper product EPR plans to significantly reduce state emissions. By May 2025, the Packaging and Paper Products - Producer Responsibility Plan was enacted, requiring producers to implement programs for increased recycling, reduced taxpayer costs, and emissions reductions. The advisory council continues to monitor progress. MDE also initiated rulemaking and approved a Producer Responsibility Organization (PRO) to develop the plan and manage fee collection.
Maryland 5 Million Trees Initiative	In 2025, the Five Million Trees Initiative hit one million trees towards its five million tree goal. This achievement represents the growth of an additional pathway towards reducing GHG emissions by expanding the State's potential for enhanced carbon sequestration. The EPA Climate Pollution

	Reduction Grant (CPRG) grant for Maryland, as part of the multi-state, bipartisan Atlantic Conservation Coalition (ACC) that commenced in 2025, will further accelerate progress in tree planting efforts on agricultural land, for wetland restoration projects, and towards climate smart forest management. MDE is assessing water permits for climate change adaptation and resilience-building opportunities.

Air and Radiation Administration (ARA) Programs and Initiatives

Climate Change Program

The Climate Change Program is dedicated to developing and implementing plans and policies aimed at reducing GHGs[12]. The Climate Change Program released the Climate Pollution Reduction Plan in December 2023, MDE's Climate Implementation Plan in 2024, and is responsible for various implementation efforts related to the CSNA and tracking greenhouse gas planning efforts. The Climate Change Program manages a wide range of activities for MDE that includes monitoring and updating the state's Greenhouse Gas Inventory, engaging the community around strategies included in the plan, coordinating the Five Million Trees Initiative, supporting the MCCC and the Governor's Subcabinet on Climate, convening state agencies under various federal grants, and leading state-wide decarbonization measures.

Figure 9 Maryland's Climate Pollution Reduction Plan included estimated economic benefits.

Environment Article § 2-1203 requires MDE to review and publish an updated statewide GHG inventory beginning in 2011 and every third calendar year thereafter. Inventories establish an emissions baseline, enabling policymakers and environmental organizations to monitor changes over time, track progress toward reduction targets, and identify both successes and challenges in mitigating emissions. Maryland conducts its comprehensive

[12] MDE Climate Change Program, Climate Change Pollution Reduction Plan, https://mde.maryland.gov/programs/air/ClimateChange/Pages/Reports.aspx.

GHG inventory every three years to assess progress toward its GHG targets. Maryland's 2020 inventory demonstrated that the state had not only achieved but surpassed its 25% GHG reduction goal for 2020, realizing a 30% reduction based on a 2006 baseline. The most recent findings cover statewide efforts during calendar year 2023, and preliminary results suggest that Maryland has maintained its progress in emissions reductions. Continued reductions in the electricity sector have helped offset a rebound in transportation emissions following the pandemic-related dip in 2020. On April 16, 2025, MDE's Climate Change Program presented preliminary findings of the 2023 GHG inventory to the Mitigation Working Group of the MCCC. The 2023 inventory is currently undergoing finalization and is anticipated to be published in early 2026.

The Climate Change Program includes the following Divisions:

- **Technical Division:** This division is responsible for compiling the state's greenhouse gas emissions inventory, such as in the figure below. Conducted every three years, this inventory is a comprehensive database of all Maryland's emissions across eight sectors. It serves as a crucial benchmark for our progress and informs policy decisions that position Maryland as a national leader in climate action. Additionally, the technical division offers analytical and editorial support to all other program areas.
- **Policy Division:** The Policy Division plays a crucial role in implementing the Climate Plan by supporting statewide emissions reductions, from the coastal plains to the Appalachians. It also guides the state toward a clean energy future and provides administrative support for the MCCC.
- **Building Decarbonization Division:** Buildings are directly responsible for 16% of Maryland's greenhouse gas emissions and consume the majority of the state's electricity. This division's primary role is to create regulations that promote the development of efficient buildings, simultaneously working towards healthier air and overall public.
- **Federal Funding:** This group manages Climate Pollution Reduction Grants (CPRG), a specific type of federal funding. Funded by the Inflation Reduction Act and administered by the Environmental Protection Agency, CPRG provides billions of dollars in grants to states, local governments, tribes, and territories to facilitate reductions in greenhouse gas emissions and other harmful air pollution.

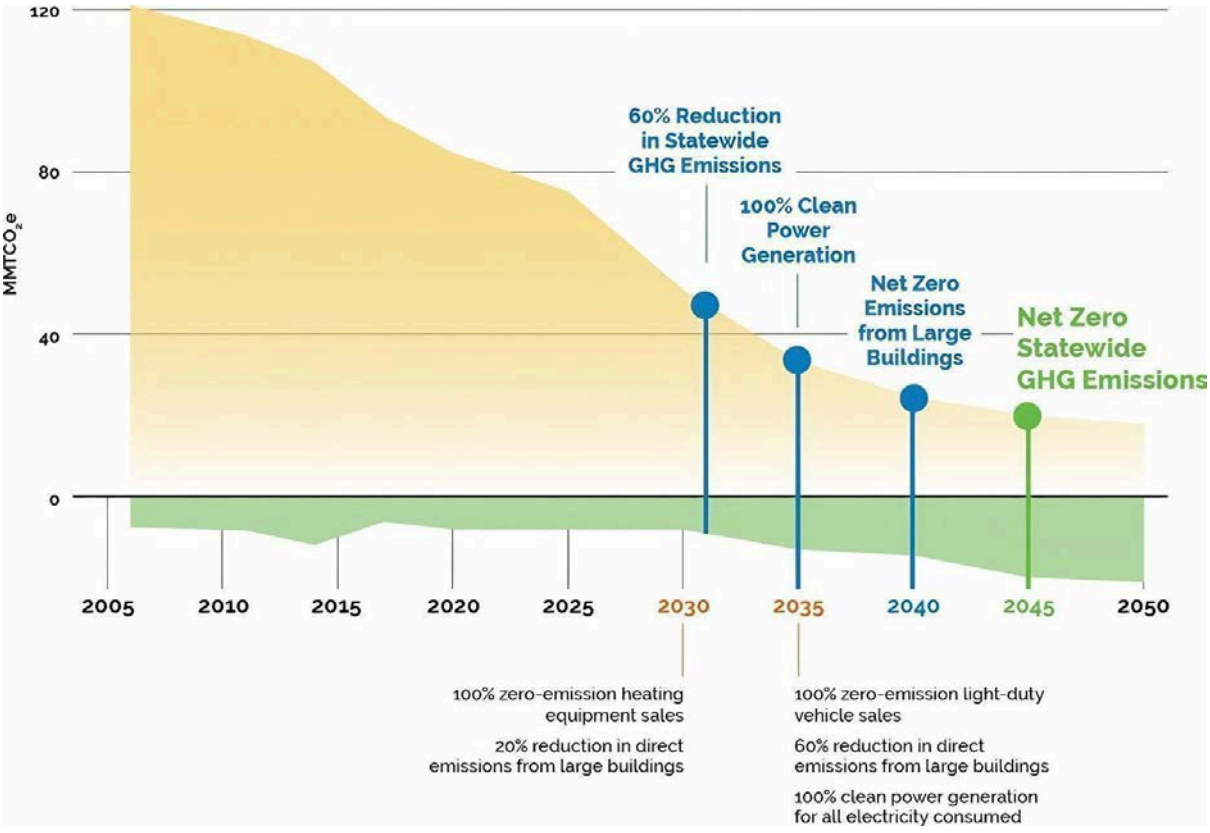

Figure 10 Milestones in decarbonization timeline from the Climate Pollution Reduction Plan of 2023.

Maryland Commission on Climate Change (MCCC)

The Climate Change Program provides staff coordination and support to the MCCC and its working groups, which Secretary McIlwain co-chairs alongside a member of an environmental nonprofit organization. The MCCC is a multi-stakeholder and independent body that advises the Governor and General Assembly "on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change." The MCCC was codified in law in 2015 and is composed of representatives from state government agencies, the legislature, local government, businesses, industry representatives, environmental non-profit organizations, organized labor, philanthropic interests, and the university system. By serving to facilitate multi-agency, executive-level dialogue, the MCCC establishes a framework for collaboration on climate action leadership. The MCCC also offers policy recommendations in its yearly report to the Governor and General Assembly[13]. The MCCC serves as a public forum for public dialogue on critical issues associated with climate change policy and will deliver its annual recommendations to the General Assembly by December 2025.

Maryland Climate Teach-In

The Maryland Climate Teach-In is an annual event focused on climate change education and solutions during the month of April, coinciding with Earth Month. The event brings together educators, students, and community members to discuss this critical issue and empower people to act to mitigate the causes of climate change. The Teach-In was introduced in 2023 by the MCCC and has grown ever since through the support of the ECO Working Group and its partners such as MDE. The 2024 Maryland Climate Teach-In saw more than 70 educators from across the state participate through engaging activities and discussions. In 2025, registered participants tripled from 2024 registration and included a new prize component for educators to win funds for environmental projects at their schools or environmental field trips for their students.[14] As a contributor to the Bard College Worldwide Teach-In, the Maryland Climate Teach-In has been the international, national and subnational leader in the total number of participants in the Bard initiative for two years running. With 223 teach-in participants in 2025, Maryland made up close to a third of total participation globally.

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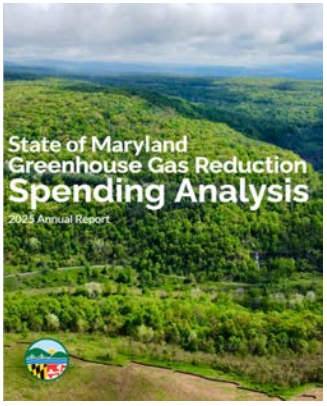
[13] Maryland Commission on Climate Change, https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Pages/index.aspx.

[14] Climate Teach-In, https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Pages/ClimateTeachIn.aspx.

State GHG Reduction Spending Report



The annual FY25 Greenhouse Gas Reduction Spending Analysis Report will be released as an attachment to the MCCC Annual Report as required by the CSNA. The Maryland General Assembly instructed MDE to prepare an analysis that identified the total amount of state money spent on measures to reduce GHGs (and, to the extent practicable, co-pollutants) during the immediately prior fiscal year[15]. In addition, the analysis included an estimate of the percentage of that funding that benefited disproportionately affected communities.

The 2025 report outlines MDE efforts to improve the data collection process, as well as expand partnerships with state agencies and universities. The updated approach focuses on identifying and analyzing state spending intended for reducing GHGs. While some state agencies may indirectly reduce GHGs through their expenditures, the new methodology targets state spending "intended" for direct GHG emissions reductions while acknowledging that it does not encompass all efforts aimed to fight climate change, including efforts to increase resiliency.

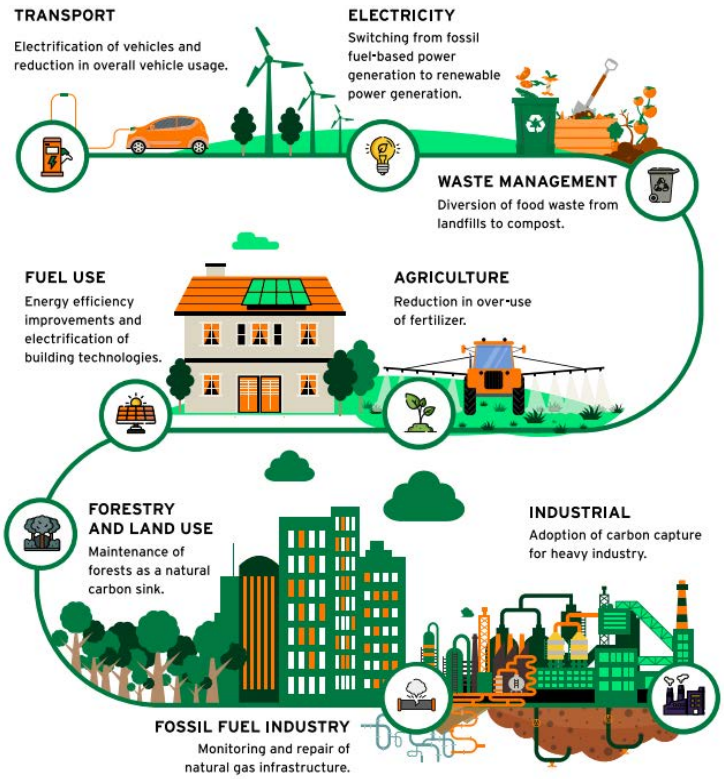
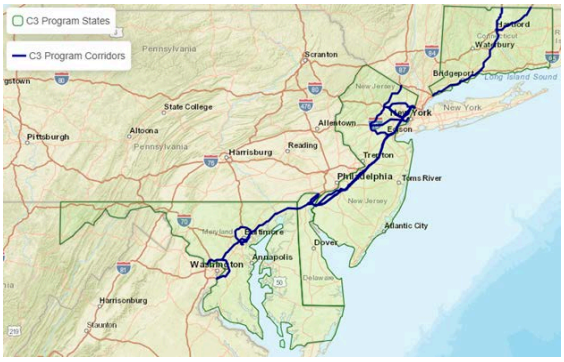


Figure 11 The 2024 Greenhouse Gas Spending Report indicated over $3.1 billion in state investments.

[15] Joyce, P.G., K.M. Kennedy, et al. (2024). "State Spending on Greenhouse Gas Reduction In Maryland." Center for Global Sustainability, University of Maryland. 32 pp.

Climate Pollution Reduction Grants (CPRG)

Through the Inflation Reduction Act's $5 billion Climate Pollution Reduction Grants (CPRG) program, Maryland, led by MDE, participated in four multi-state applications and secured two major implementation awards totaling $130 million in direct investment for projects within the State.



The CPRG Clean Corridor Coalition was awarded a collective $249 million EPA grant in July 2024 to deploy medium- and heavy-duty zero-emission vehicle charging infrastructure along the I-95 corridor from Connecticut to Maryland[16]. Led by the New Jersey Department of Environmental Protection, with agency partners from Connecticut, Delaware, and Maryland, the coalition will fund charging sites, provide technical assistance and workforce training, engage communities, as well as facilitate state and stakeholder planning[17]. This initiative aims to reduce air pollution from trucks in populated corridors.

The CPRG Atlantic Conservation Coalition, led by North Carolina and including South Carolina, Virginia, and Maryland, is a partnership of state agencies and nonprofit organizations working together to protect and restore vital coastal habitats, peatlands, and forests across the eastern U.S. The Coalition was awarded a collective $420 million from the EPA to implement a regional approach to improve forest management, the protection and restoration of threatened coastal habitats, and forests with the greatest carbon sequestration potential[18].

In 2025, Maryland continued to advance statewide and economy-wide climate pollution reduction plans, including the submission and publication of the Maryland CPRG Comprehensive Climate Action Plan (CCAP)[19], aligning with the CPRG and the state's ambitious goal of achieving net-zero emissions by 2045[20].

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[16] EPA Clean Corridor Coalition Award, https://www.epa.gov/inflation-reduction-act/states-new-jersey-connecticut-delaware-and-maryland.
[17] New Jersey Department of Environmental Protection, Clean Corridor Coalition, https://dep.nj.gov/drivegreen/cprg-ccc/.
[18] The Nicholas Institute for Energy, Environment & Sustainability at Duke University, *Atlantic Conservation Coalition Dashboard*, https://experience.arcgis.com/experience/5173013478eb4cf699157a696095478f./
[19] Maryland Comprehensive Climate Action Plan, Published July 2025, https://mde.maryland.gov/programs/air/ClimateChange/CLIMATE%20POLLUTION%20GRANTS/CCAP_State%20of%20Maryland%202025.pdf.
[20] Maryland Climate Pollution Reduction Grants (CPRG), https://mde.maryland.gov/programs/air/ClimateChange/Pages/CPRG.aspx.

Building Energy Performance Standards (BEPS)

Buildings emit climate pollution into the atmosphere, contributing to climate change and air quality concerns in Maryland. The burning fossil fuels for heat and hot water are two of the most common sources of direct emissions from buildings. Recognizing the need for building decarbonization, the CSNA required MDE to develop Building Energy Performance Standards (BEPS)[21]. MDE developed and finalized a BEPS regulation for large "covered" buildings that will achieve:

- A 20% reduction in net direct GHG emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction;
- Net-zero direct GHG emissions from covered buildings by January 1, 2040; and
- Advanced energy efficiency standards by 2027 to follow along the same timeline.

These covered buildings are buildings in Maryland that are 35,000 square feet or larger (excluding the parking garage area). Historic properties, public and nonpublic elementary and secondary schools, manufacturing buildings, agricultural buildings, hospital buildings, and federal buildings are eligible for exemption. Following the initial September 30 submission date, owners of covered buildings will be required to report data to MDE annually on June 1 through a process called benchmarking. Emissions standards begin in 2030 and phase to net-zero direct emissions by 2040. Building owners can opt to pay for their building's excess emissions over the standards.

Efficient net-zero emissions buildings improve occupant comfort, resilience, and reliability, while offering energy cost savings compared to old, inefficient buildings reliant on fossil fuels. Investments in achieving these standards will pay dividends to occupants and building owners for decades. MDE and MEA are collaborating to help buildings realize the benefits of efficient electrification.

Figure 12 MEA provides energy benchmarking tips and some grants may be available to Marylanders.

[21] Building Energy Performance Standards, https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx

Zero Emission Heating Equipment Standard (ZEHES)

Executive Order 01.01.2024.19 requires MDE to propose a Zero-Emission Heating Equipment Standard (ZEHES) for newly installed residential furnaces, boilers, and water heaters. This standard is being designed to phase in zero-emission equipment at the time existing equipment fails. The Northeast States for Coordinated Air Use Management (NESCAUM) released a ZEHES model rule in late 2024. In 2025, MDE conducted significant outreach to collect public feedback on NESCAUM's model rule to inform the design and development of Maryland's program. If fully implemented, ZEHES is estimated to save the state $1.8-$2.3 billion annually in health related expenses and prevent approximately 121-163 premature deaths between 2030 and 2045[22]. MDE is currently working with NESCAUM states to revise the model rule based on feedback.

Figure 13 Montgomery County Buildings.

Clean Heat Standard (CHS)

A Clean Heat Standard (CHS) is a performance standard designed to reduce GHG emissions from the heating sector by requiring fossil fuel providers to gradually increase the percentage of clean heat services they deliver to customers. MDE's CHS regulations aim to accelerate the decarbonization of the building sector to meet climate and building decarbonization goals per the targets established by the CSNA, which mandates net-zero emissions by 2045. The CHS encourages fossil heat providers to become clean heat providers by providing them with credits for installing clean heat measures, such as insulation and heat pumps, or delivering alternative low-carbon fuels. Third parties, such as HVAC contractors and housing providers, are not obligated to participate but can earn and sell credits to obligated parties and therefore provide customers with rebates.

[22] MDE Clean Heat Rules, Accessed October 15, 2025, https://mde.maryland.gov/programs/air/Climate-in-md/Documents/Cleanheatrules/Clean%20Heat%20Rules%20Nov%2021%20Webinar.pptx.pdf

Five Million Trees Initiative

Maryland's Five Million Trees (5MT) Initiative, mandated by the Tree Solutions Now Act (TSNA) of 2021, requires the planting and maintenance of five million native trees by 2031, with 10%, or 500,000, of these trees in urban, underserved areas as defined by the TSNA[23]. This initiative is implemented through a coordinated leadership effort with the Department of Natural Resources (DNR), the Department of Agriculture (MDA), the Chesapeake Bay Trust (CBT), and the Maryland Department of Transportation (MDOT). MDE is required to track and report progress by fiscal year annually to the General Assembly, which encompasses updates on program implementation, contribution to the State's forest carbon sink, and progress towards both the overall and urban, underserved area goals.

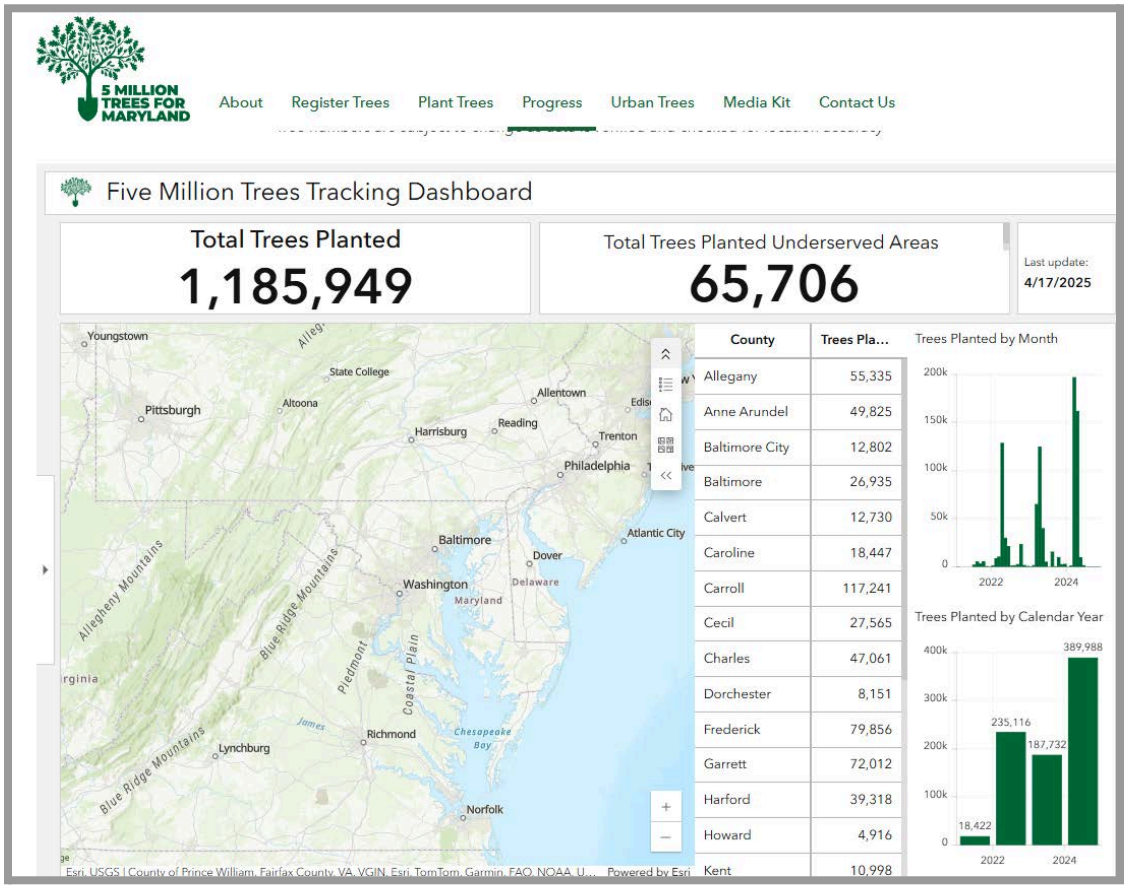


Figure 14 Maryland Five Million Trees Dashboard.

This targeted goal enables all Marylanders to benefit from the many co-benefits trees provide, such as urban heat island mitigation. To track progress, there is a public dashboard that aggregates data from various partners, including nonprofit organizations directly involved in tree planting initiatives and care across Maryland.

[23] Maryland Department of the Environment, Five Million Trees Initiative Dashboard, https://five-million-tree-tracking-tool-maryland.hub.arcgis.com/.

Air Monitoring Program

The Air Monitoring Program measures concentrations of air pollutants and meteorological conditions across a network of 24 monitoring stations throughout the state[24]. There are urban, suburban, and rural sites on the Eastern Shore, in central Maryland, and in the mountains of Western Maryland.

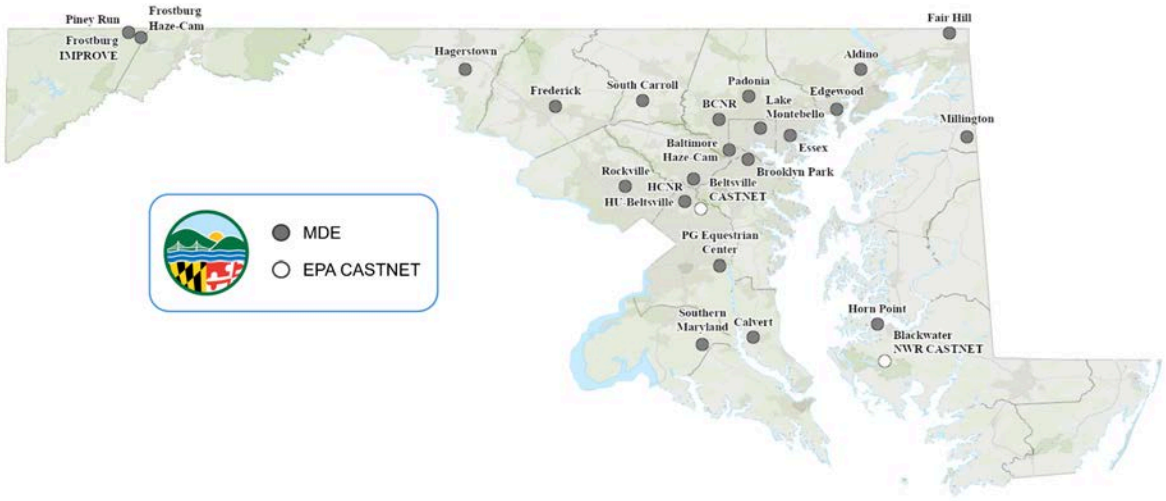


Figure 15 2025 Ambient Air Quality Monitoring map with MDE and EPA CASTNET sites.

The Program performs quality assurance, quality control, and analyses of the pollutant concentrations measured at each of the air monitoring stations. The Program is also responsible for reporting the Air Quality Index (AQI) and issuing daily air quality forecasts.

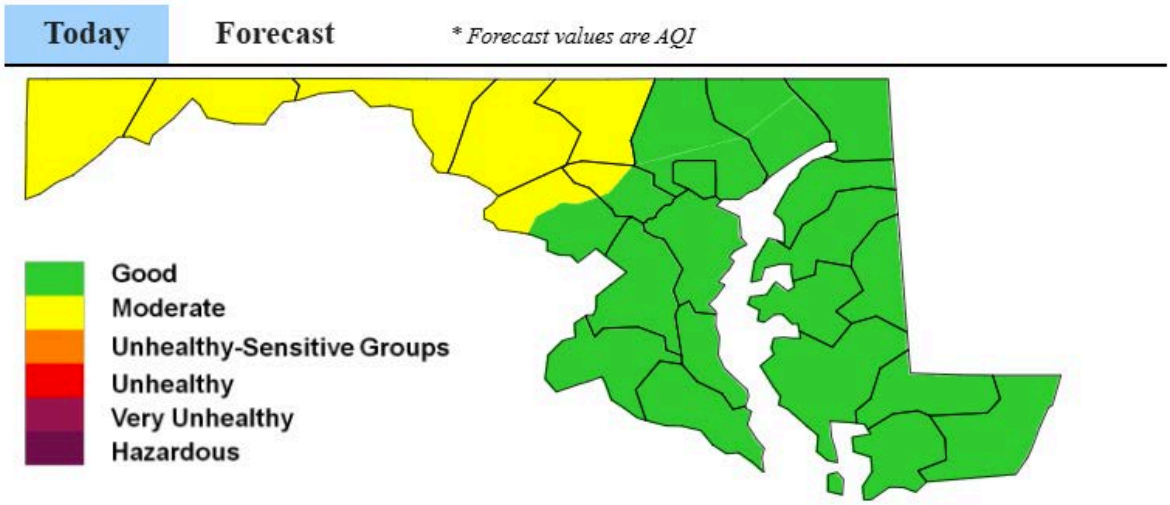


Figure 16 Example of an Air Quality Forecast, put out daily by the Air Monitoring Program. This is the forecast for August 8, 2025.

[24] MDE Ambient Air Monitoring Program, https://mde.maryland.gov/programs/air/airqualitymonitoring/pages/index.aspx.

One of the objectives of the Air Monitoring program is to determine if the state is attaining the National Ambient Air Quality Standards (NAAQS). The Clean Air Act, amended in 1990, mandates the EPA to set NAAQS for six major pollutants called criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM2.5 & PM10), and sulfur dioxide. Primary standards protect public health, especially sensitive groups; secondary standards protect public welfare (e.g., visibility, crops, buildings). These standards are periodically reviewed and revised, with some areas retaining previous standards.

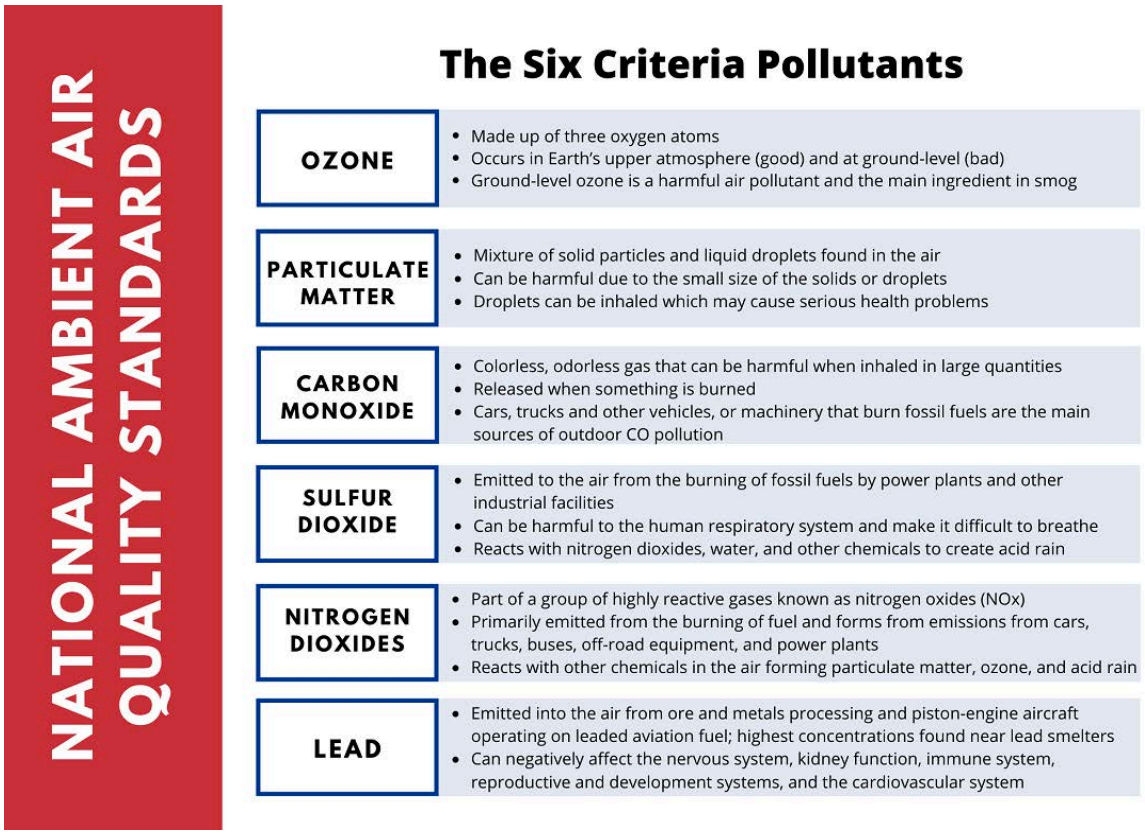


Figure 17 National Ambient Air Quality Standards[25]

The Ambient Air Monitoring Program participates in the latest air pollution research to ensure MDE's policies reflect the current state of the science. Maryland uses a variety of monitoring techniques to address interstate pollutants traveling on prevailing winds into Maryland from surrounding states and regions. Transported pollutants contribute significantly to pollutant levels in Maryland, especially during bad air quality episodes. On other occasions, depending on the weather, both transport and "home-grown" pollution are equally important in Maryland's worst air pollution days. Local sources that can contribute to ozone include vehicle exhaust, industrial emissions, and biogenic sources, such as decaying trees. Days with elevated PM2.5 have been seen in winter due to meteorological phenomena as well as in warmer months as a result of transport from international wildfires.

[25]US Environmental Protection Agency, Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants/naaqs-table.

Air Quality Planning Program

Regional Greenhouse Gas Initiative (RGGI)

Who are the RGGI states? *The participating RGGI states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania,[3] Rhode Island, and Vermont.*

RGGI comprises ten states in the Northeast and Mid-Atlantic regions and is composed of individual carbon dioxide (CO_2) Budget Trading Programs in each participating state.[26] These states adopted market-based CO_2 cap-and-invest programs designed to reduce emissions of CO_2 from fossil fuel-fired electricity generators with a capacity of 25 megawatts or greater. Each participating state's CO_2 Budget Trading Program is based on the RGGI Model Rule,[2] which was developed to guide states as they implemented the RGGI program. In July 2025, RGGI participating states shared results from a Third Program Review,[27] which was a comprehensive evaluation of program successes, impacts, and the potential for additional reductions.

Figure 18 Map of RGGI states in 2025.

Amendments to the RGGI Model Rule were developed as part of the Third Program Review, and a consensus agreement was reached in 2025. This effort was supported by an extensive regional stakeholder process that engaged the regulated community, environmental nonprofits, and other organizations with technical expertise in the design of cap-and-invest programs. The updated Model Rule provides stability and certainty to market participants, including power producers who purchase allowances to match their emissions and developers of new electricity generation resources. Access to sufficient RGGI allowances is ensured to meet expected energy demand and bolster price protection for consumers, while RGGI states will continue to invest the proceeds from those allowances into programs that lower electricity bills and provide economic benefits to local communities, including energy efficiency, renewable energy, and bill assistance programs.

The updated Model Rule reduces the emissions cap in 2027 to 69,806,919 tons of CO_2 from 75,717,784 tons under the previous Model Rule.[28] Allowances decline by an average of 8,538,789 tons per year, which is approximately 10.5 percent of the 2025 budget, thereafter through 2033. Then, from 2034 through 2037, the cap will decline by 2,386,204 tons of CO_2 annually, which is approximately 3 percent of the 2025 budget. Subsequent years are set to match the 2037 emissions cap and no adjustments are made to banked allowances.

[26] Regional Greenhouse Gas Initiative, https://www.rggi.org/.

[27] https://www.rggi.org/sites/default/files/Uploads/Program-Review/Release/Model_Rule_2025_07_03.pdf.

[28] https://www.rggi.org/program-overview-and-design/program-review

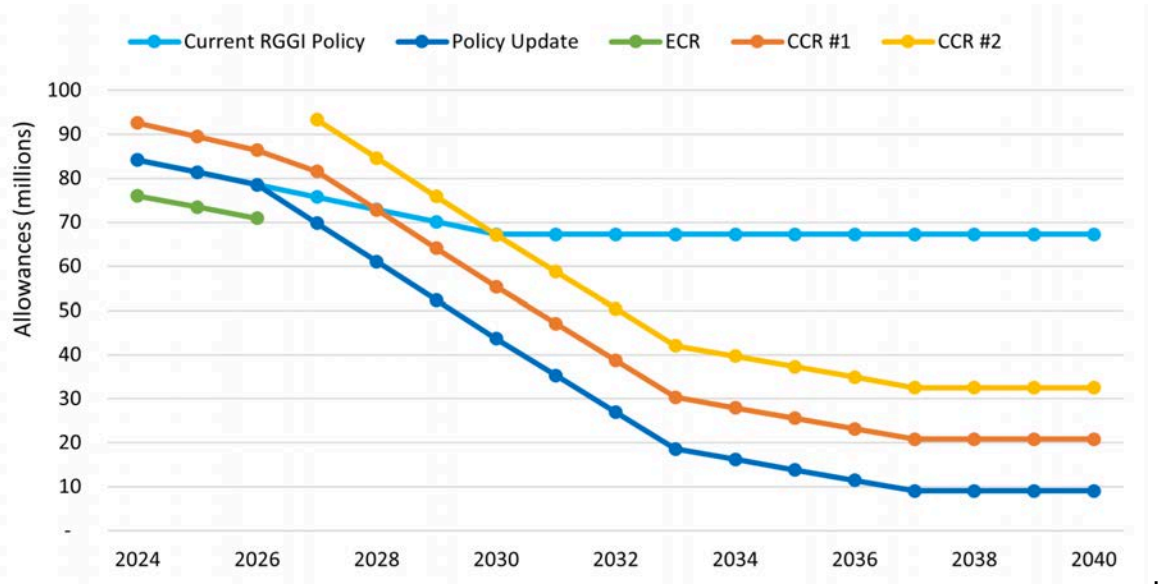


Figure 19 RGGI Cap Trajectory Update. This figure compares the current regional base cap (light blue) with the updated cap trajectory (dark blue). The orange and yellow lines display the total updated regional cap if all allowances are released.

Auction proceeds from Maryland's participation in RGGI support the Strategic Energy Investment Fund (SEIF),[29] which is administered by the MEA and funds several programs across other state agencies and organizations. These programs include direct energy bill assistance and numerous energy efficiency programs, with more than half of all funds collected by Maryland invested in direct energy bill assistance for low-income individuals in 2023, managed by the Maryland Department of Human Services (Figure 14). In 2025, MEA issued several critical grants and incentives to local governments and other stakeholders in projects that support clean energy, economic development, and community resilience. As of the 69th quarterly RGGI auction held on September 3, 2025, Maryland's cumulative RGGI auction proceeds exceeded $1.6 billion.[30]

RGGI comprises eastern states in the Northeast and mid-Atlantic regions. Participating RGGI states require electricity generators to have acquired, through regional auction or secondary market transactions, one CO_2 allowance for every ton of CO_2 emitted over a three-year compliance period. Over time, the regional cap declines, so that CO_2 emissions decrease in a planned and predictable way. As of January 2025, since 2005, the RGGI states have reduced annual power sector emissions by 50%, which is almost 1.5x faster than the nation as a whole, and raised over $7 billion to invest in local communities. These states adopted market-based carbon dioxide (CO_2) programs designed to reduce emissions of CO_2 from fossil fuel-fired electricity generators with a nameplate capacity of 25 megawatts

[29] https://energy.maryland.gov/pages/strategic-energy-investment-fund-(seif)-.aspx
[30] The Regional Greenhouse Gas Initiative Proceeds Report, Published September 2025, https://www.rggi.org/auctions/auction-results.

or greater. In 2024, RGGI states included Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.[31]

Mobile Sources Control Program

The Mobile Sources Control Program is responsible for a variety of initiatives that aim to reduce emissions from on-road and nonroad vehicles, engines, and equipment. According to the Maryland Climate Pollution Reduction Plan, the transportation sector accounted for 35% of Maryland's GHG emissions in 2020. An estimated 82% of these harmful emissions come from on-road vehicles powered by gasoline or diesel, and the rest come from nonroad diesel, nonroad gas, aviation, and other sources. Achieving substantial emissions reductions in the transportation sector necessitates a transition of various vehicle types to more efficient and electric technologies in order to reduce emissions in the long term, as well as strategies that support reaching various customers and communities.

This transition must be supported by the development and installation of new electric vehicle charging infrastructure across the state. Electrified public transportation and micro-mobility options are being supported and enhanced, prioritizing sustainable growth and transit-oriented development that provides Marylanders with ample options to get around their neighborhoods. MDE is supporting a variety of partnership efforts as well as policy measures, as identified in the CIP, that are driving real emissions reductions and sustainable initiatives. Recent leadership efforts include the establishment of Executive Order 01.01.2025.10, the establishment of the Maryland Advanced Clean Cars (ACC) II and Advanced Clean Trucks (ACT) Working Group (Working Group), the Multi-State Zero Emission Vehicle (ZEV) Task Force, and the efforts by the Port Partnership.

The Maryland ACC II and ACT Working Group

The Maryland General Assembly enacted the Maryland Clean Cars Act in 2007, joining the ACC I program, which became effective in Model Year 2011 and concluded in 2025. In 2023, Maryland adopted California's ACC II and ACT programs for Model Year 2027 compliance. However, in May 2025, Governor Moore issued an Executive Order delaying ACC II enforcement until 2029 and ACT until 2028. Recent federal action currently prevents enforcement, as the Congressional Review Act revokes California's waiver to set and enforce ACC II and ACT standards that some states, including Maryland, adopted.

To address federal uncertainties and maintain progress through coordination, Governor Moore established the ACC II and ACT Working Group, focusing on clean transportation goals. This group, composed of state leaders, industry experts, and environmental advocates, convenes monthly to explore and develop recommendations. In its inaugural meeting, the Working Group identified its 2025 priorities: Reduce Transportation Emissions,

[31] RGGI in Maryland, https://mde.maryland.gov/programs/%20Air/ClimateChange/RGGI/Pages/index.aspx.

2. Make Progress Toward Ambitious Climate Goals, and 3. Accelerate EV Adoption & Infrastructure. The final report is due to the Governor and General Assembly by end of 2025.

To navigate federal uncertainties and ensure continued progress, Governor Moore established the ACC II and ACT Working Group. The Secretary of the Environment serves as a member, and the Maryland Department of the Environment (MDE) provides staffing and technical support. This group, focused on clean transportation goals, brings together state leaders, industry experts, and environmental advocates for monthly discussions to develop recommendations. The Working Group's 2025 priorities are to reduce transportation emissions, advance ambitious climate goals, and accelerate the adoption and infrastructure of electric vehicles. The Working Group's final report will be delivered to the Governor and General Assembly by the end of 2025.

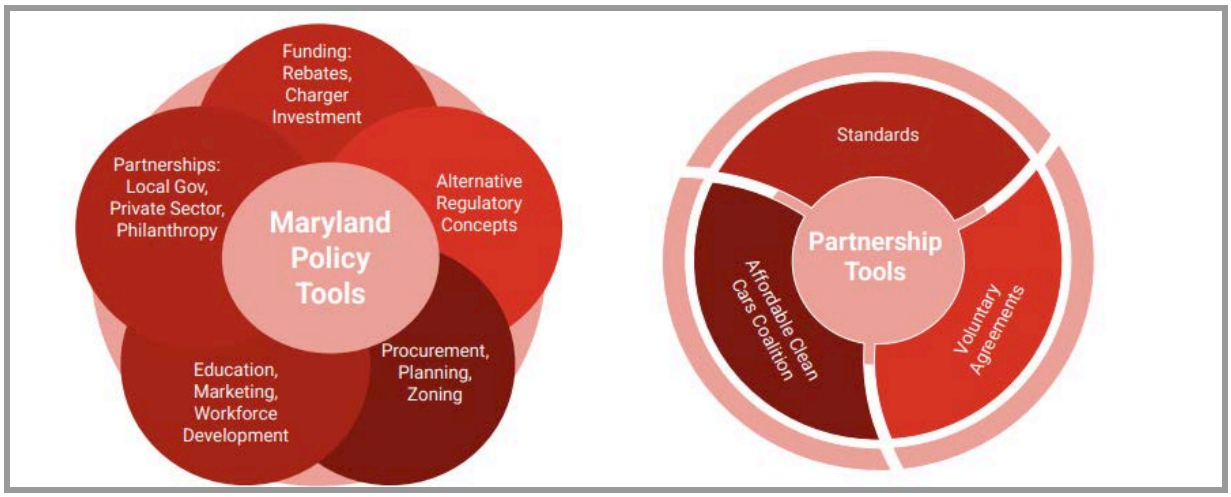


Figure 20 Potential Clean Transportation Policy Action Toolbox[32].

Through the combined efforts of various agencies involved with transportation planning, in 2025 Maryland continued to invest in supporting the purchase of EVs and installing electric vehicle supply equipment (EVSE). This investment is expected to significantly reduce GHG emissions and transportation costs for individuals, businesses, and other entities. Maryland currently offers an EV excise tax credit, administered through the Maryland Motor Vehicle Administration (MVA). The below diagram indicates potential pathways forward that support continued clean transportation progress in 2025 and beyond.

The National Electric Vehicle Infrastructure (NEVI) Plan

Building out zero-emission vehicle (ZEV) infrastructure is essential for Maryland to achieve

[32] ACC & ACT Working Group Presentation, July 8, 2025, https://mde.maryland.gov/programs/air/MobileSources/Doc
20Group/MDE%20Clean%20Vehicles%20Workgroup%20P

its rapid ZEV growth targets. The Maryland National Electric Vehicle Infrastructure (NEVI) Plan, developed in collaboration with various stakeholders, provides the strategic framework for this network expansion. The Maryland Department of Transportation (MDOT) submitted the Plan for NEVI Formula Funding Deployment to the Federal Highway Administration (FHWA) in 2022, followed by an updated version. The 2024 Plan Update details Maryland's efforts to support the successful implementation of charging infrastructure.

The NEVI Plan outlines the strategy for allocating $63 million in NEVI funds to build out and certify Maryland's 23 EV Alternative Fuel Corridors (AFCs)[33]. This initiative ensures reliable EV infrastructure accessibility for the traveling public, with each AFC having a minimum of two stations capable of simultaneously charging four EVs. MDOT anticipates adding 40-48 charging sites along Maryland AFCs to achieve corridor build-out and certification by FHWA. The NEVI Plan is updated annually. In its 2024 update, MDOT is supporting Medium- and Heavy-Duty Vehicle (MHDV)/Trucking infrastructure and community charging investments to enhance equitable charging access across diverse state locations. Throughout this deployment, MDOT is supporting disadvantaged and rural communities, supporting workforce development, and collaborating closely with public and private stakeholders. Remaining NEVI funds will then be invested in community charging to increase equitable charging access across diverse locations in the state.

On June 20, 2018, nine Northeast and West Coast states reaffirmed their commitment to a clean, low-carbon transportation sector with the release of a new Multi-State Zero Emission Vehicle (ZEV) Action Plan (Action Plan) for 2018-2021. This plan supported the successful implementation of the states' ZEV programs, with Maryland playing a leading role. Building on the lessons learned from the earlier 2014 ZEV Action Plan, the 2018-2021 Action Plan presented 80 market-enabling recommendations for states, automakers, dealers, utilities, charging and fueling companies, and other partners. These recommendations aimed to rapidly accelerate mainstream consumer adoption of ZEVs, including plug-in hybrid, battery electric, and hydrogen fuel cell vehicles, and set the stage for collaboration among stakeholders, such as the Zero-Emission Electric Vehicle Infrastructure Council (ZEEVIC). To provide a framework and help coordinate state efforts to meet these goals, Maryland and the other signatory jurisdictions worked through the existing multi-state ZEV Task Force to develop and implement a ZEV Action Plan for trucks and buses. The final Action Plan was released in late July 2022 and built around the jurisdictions' commitments to make at least 30% of new MHDV sales ZEVs by 2030, and 100% of sales by 2050 or sooner.

[33]Maryland Department of Transportation, Dashboard Overview, https://evplan.mdot.maryland.gov/maryland-nevi-plans/

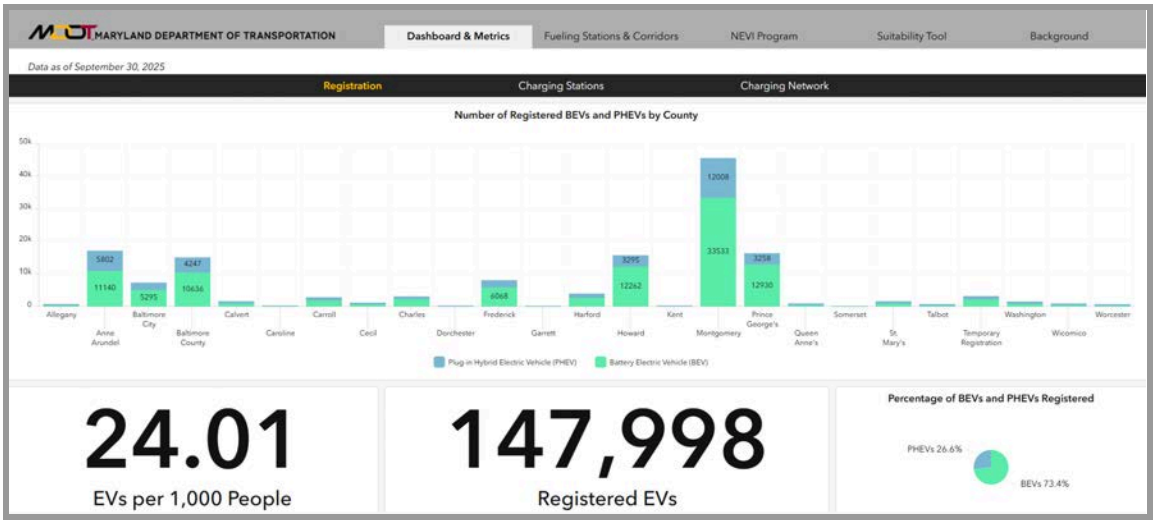


Figure 21 Maryland's EV Dashboard tracks EV ownership increases over time and data is available as of September 30, 2025.

The Port Partnership

MDE, MDOT, MEA, and the MDOT Maryland Port Administration (MPA) continue their cooperative partnership to identify, develop, and, when appropriate, implement voluntary projects that support sustainability at the Port of Baltimore (POB)[34]. The Port Partnership supports emissions reductions at the Port to help the state meet air quality and climate change goals, while acknowledging the role that the Port plays in driving economic growth and creating jobs. The Partnership, made up of senior and technical state agency representatives, has met regularly to effectively leverage resources and support the implementation of the agreement's goals. Maryland has made great strides in implementing grant-funded Port-related projects that have supported emissions reductions. Over the past 20 years, the state, through MDOT MPA and partners, has been diligent in efforts to identify and implement environmental programs.

In 2024, the MPA secured a $147 million grant from the EPA Clean Ports Program, augmented by over $36 million from partners and the State, totaling $182 million. This funding supports climate planning, including workforce development, infrastructure, and equipment electrification. Governor Wes Moore and President Joe Biden visited on October 29, 2024 to announce the award and discuss Inflation Reduction Act (IRA) investments. Nationwide, the Clean Ports Program allocated over $4.3 billion to reduce emissions, enhance energy resiliency, and mitigate community impacts. Maryland is receiving $249 million from a Climate Pollution Reduction Grant, part of the Clean Corridor Coalition, to deploy EV charging infrastructure for commercial vehicles along I-95. In addition to the primary state agency partners, the work group's projects and initiatives have benefited from the active involvement of various public stakeholders, including comments and other

[34]Maryland Port Administration, Sustainability Report, Released on July 23, 2025, https://mpa.maryland.gov/greenport/Documents/MPASustainabilityReportFINAL07232025.pdf.

feedback from the Environmental Defense Fund (EDF), the Maryland Clean Energy Center (MCEC), the U.S. Maritime Administration, and more.

Figure 22 Maryland Port of Baltimore supports innovative reuse of dredged materials.

Advanced Clean Fleets (ACF)

The California Advanced Clean Fleets (ACF) regulation applies to fleets performing drayage operations (freight from an ocean port to a destination), including those owned by state, local, and federal government agencies, and high-priority fleets. High-priority fleets are entities that own, operate, or direct at least one vehicle in the state, and that have either $50 million or more in gross annual revenues, or that own, operate, or have common ownership or control of a total of 50 or more vehicles (excluding light-duty package delivery vehicles). The regulation affects medium- and heavy-duty on-road vehicles with a gross vehicle weight rating greater than 8,500 pounds, off-road yard tractors, and light-duty mail and package delivery vehicles. Under the ACF program, covered fleets are required to make an increasing amount of their new purchases ZEVs. Between 2035 and 2042, all covered fleets are required to make 100% of their new vehicle purchases ZEVs. This regulation would work in conjunction with the ACT regulation, which helps ensure that ZEVs are brought to market. ACF is modeled to avoid annual GHG emissions of 1.8 $MMTCO_2e$ in 2045.

Advanced Clean Cars (ACC)

Vehicle certification in the United States follows one of two pathways: the federal program administered by the U.S. Environmental Protection Agency (EPA) or the California program authorized under Section 177 of the 1990 Clean Air Act Amendments. This provision allows states to adopt California's more stringent standards, provided the rules are identical and include at least a two-model-year lead time before enforcement.

Maryland joined the California program under the Clean Cars Act of 2007, directing the MDE to implement the Advanced Clean Cars I (ACC I) standards. MDE incorporated California's regulations by reference and has updated them regularly to reflect new vehicle technologies through Model Year 2025.

Building on this foundation, MDE finalized the Advanced Clean Cars II (ACC II) regulations (COMAR 26.11.34.02) on September 18, 2023, adopting California's latest standards for Model Year 2027 and beyond. ACC II establishes progressively tighter emission limits for light-duty vehicles (under 14,000 lbs) and sets a path toward 100% zero-emission new vehicle sales by 2035. If fully implemented, ACC II was projected to reduce emissions between 2027 and 2040 by 5,978 tons of NO_x, 585 tons of fine $PM_{2.5}$, and 76.7 million metric tons of CO_2, yielding roughly $604 million in annual health benefits by 2040.

In 2025, congressional action overturned California's federal waiver authority to establish alternative vehicles emissions standards. To maintain progress toward the State's clean transportation and climate goals, Governor Moore established the ACC II and ACT Working Group was established, with the Secretary of the Environment serving as a member and MDE providing staff and technical coordination. Through this forum, MDE continues to advance vehicle electrification, support multi-state collaboration, and prepare for full implementation once federal uncertainty is resolved.

Advanced Clean Trucks (ACT)

The Clean Air Act established a framework for controlling harmful mobile source emissions. Harmful emissions from medium- and heavy-duty trucks pose a serious threat to both public health and climate change. Recognizing this, California adopted the Advanced Clean Trucks (ACT) regulation, designed to reduce on-road emissions from this sector to a greater extent than federal EPA standards. Section 177 of the Clean Air Act allowed states to adopt identical California standards. Maryland's Clean Trucks Act of 2023 mandated that MDE adopt regulations that implement the California ACT program in Maryland. MDE achieved this in 2023 by incorporating the applicable California regulations by reference. The adoption of ACT in Maryland will significantly reduce harmful emissions associated with medium- and heavy-duty trucks, aiding the state in achieving its air quality goals. The ACT program will lead to reductions in NOx, PM2.5, and GHG emissions from the mobile source sector as cleaner, zero-emission trucks replace older internal combustion vehicles.

Electric School Buses

Many cities and school districts are aiming to transition to electric bus fleets. The 2021 Bipartisan Infrastructure Law supported incentives for electric buses. Montgomery County showcases a unique approach to electric school bus adoption. Instead of purchasing buses directly, the county partnered with a private contractor that procured buses, maintained the

buses and installed the charging infrastructure as a service. EPA grant funding was obtained to help fund the project. Montgomery County currently has 285 electric school buses[35].

Figure 23 Montgomery County Public Schools has invested in an electric fleet.

[35] Montgomery County Public Schools, Sustainability, https://www.montgomeryschoolsmd.org/departments/facilities/sustainability/Electric-Vehicles

Land and Materials Administration (LMA) Programs and Initiatives

Oil Control Program

The Oil Control Program (OCP) regulates oil handling activities across Maryland, including aboveground and underground storage facilities and oil-contaminated soil treatment sites. OCP ensures that these facilities are installed, maintained, operated, and removed safely, preventing releases that could harm public health or the environment. The program also oversees remediation efforts when spills or leaks occur and enforces compliance through permitting and inspections.

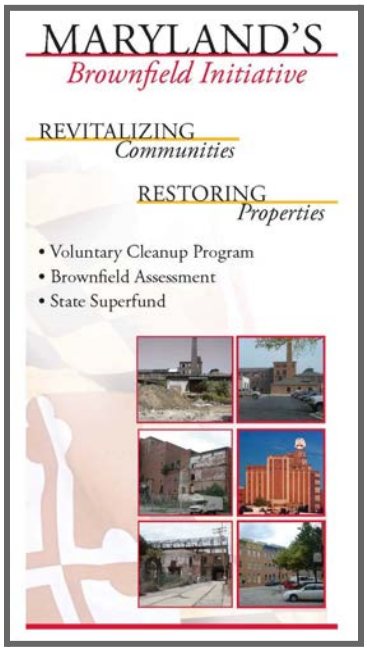
As Maryland experiences more frequent and severe flooding, storms, and sea-level rise due to climate change, oil storage and handling infrastructure faces increasing risk of damage and release. OCP regulations (COMAR 26.10.01.04E) already require new oil storage facilities to meet federal, state, and local standards for construction in or near flood-prone and environmentally sensitive areas.

Looking ahead, OCP will collaborate with other MDE programs to integrate climate risk mapping and resilience planning into oil site management. This includes mapping underground and aboveground tank locations in flood-prone areas and identifying vulnerable remediation sites. Based on these analyses, OCP may recommend or implement additional safeguards—such as strengthened permitting criteria, enhanced inspection protocols, or adaptive infrastructure standards—to prevent oil releases associated with extreme weather and climate-related flooding.

Land Restoration Program

The Land Restoration Program (LRP) protects Marylanders from legacy contamination by overseeing cleanup and long-term management of sites impacted by hazardous substances. Through the Voluntary Cleanup Program (VCP), Controlled Hazardous Substances (CHS) Enforcement Program, and coordination with federal partners on Superfund and other sites, LRP addresses soil, groundwater, and surface-water contamination to safeguard public health and ecosystems.

As climate change increases flooding, precipitation, and groundwater rise, these cleanups are critical to preventing the re-release or spread of pollutants. By stabilizing and restoring contaminated lands, LRP reduces climate-related risks while enabling safe redevelopment for



housing, renewable energy, and green infrastructure. Integrating climate risk assessments into cleanup and land-use decisions ensures remediated sites remain protective, resilient, and supportive of Maryland's broader climate and environmental justice goals.

Encouraging Renewable Energy Projects on Brownfield Sites

LRP encourages renewable energy projects on brownfield cleanup sites through several initiatives. MDE adopted regulations establishing a waiver of the application fee, recently increased to $10,000 for new Voluntary Cleanup Program (VCP) applications that certify they will be used for renewable energy projects generating at least 2 MW per year of clean or renewable energy. The regulations became effective on January 1, 2022. There have been eight applications with fee waivers for solar projects. LRP continues to assist developers researching brownfield sites for renewable energy, most notably solar projects[27].

Remediation of Contamination on Brownfield Sites

LRP oversees the assessment, remediation, and redevelopment of brownfield sites through the VCP and CHS Enforcement Programs, either through voluntary participation by developers or through regulatory requirements for protection of human health and the environment. LRP recently provided formal closure of assessments and remediations of 21 sites, almost 20% of which were in the 100 year floodplain across the state. These investigations and contaminant removal or capping to prevent impacts to human health and the environment reduced potential negative effects of further contamination due to climate change. Many of the sites redeveloped within these flood prone areas increased clean fill levels, increasing the height above sea level, which improves protections against climate change.

Protecting Cleanup Sites with Land Use Controls from Flooding and Extreme Weather

Cleanup sites under LRP's purview use land use controls (LUCs) to reduce or eliminate the risk of exposure to contaminants in the long term. These LUCs may include engineering controls such as caps and vapor mitigation systems which must be maintained in order to ensure their effectiveness over time. LRP has created a map and a searchable table of flood prone sites with LUCs. The listing can be used as a tool to prioritize inspections of LUCs before or after a flooding event to ensure protection of human health and the environment. In 2023, LRP upgraded its publicly available map of Brownfield Master Inventory sites to include EJ scores. Additionally, LRP implemented a proactive approach to prioritize and increase the availability of information for the public record through the digitization of files. LRP also developed a plan to increase inspection and potential enforcement on remediated brownfields sites across communities and to increase the overall number of LUC inspections to ensure protection of remediation and legacy pollution[36].

[36] MDE, Brownfields Redevelopment Initiative, https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Pages/bf_info.aspx.

Pilot Study of Climate Resilience at Naval Support Facility (NSF), Indianhead

The LRP Federal Facilities division is participating in a Climate Resilience Pilot Study conducted by the Navy at NSF Indianhead, with review and input by EPA and MDE. The study is evaluating various models and data related to sea level rise, extreme weather events, and critical resource protection to determine next steps for critical infrastructure needs related to climate resilience.

Solid Waste Program

The Solid Waste Program (SWP) oversees solid and hazardous waste facilities in Maryland through inspections, permitting, and enforcement activities, investigating and overseeing the cleanup of open dumping cases, and regulating generators and transporters of hazardous waste and special medical waste. Solid waste facilities regulated by the SWP include municipal, construction and demolition, and land clearing debris landfills; municipal and medical waste incinerators; processing facilities; transfer stations; natural wood waste recycling facilities; and controlled hazardous substance facilities.

Mapping and Identification of Solid Waste Facilities Potentially Susceptible to Flooding

Much of the SWP's climate efforts have focused on ensuring that regulated solid waste facilities are prepared for flooding and other extreme weather impacts. SWP has examined flood prone areas proximal to permitted solid waste facilities in Maryland based on National Oceanic and Atmospheric Administration (NOAA) sea level rise projections, and possible increases in 100-year flood elevations. SWP identified a few facilities that might be impacted, notably the Somerset County Landfill, a closed Dorchester County landfill, and a Baltimore County transfer station potentially vulnerable to increased precipitation-caused flooding in the Patapsco River basin. Many landfills are proximal to non-tidal streams, and while not subject to flooding, may encounter increased erosion or access issues due to flooding on public roads nearby due to larger precipitation events.

Outreach and Technical Assistance on Flooding and Extreme Weather Preparation

The SWP has and will continue to conduct outreach and provide technical assistance to solid waste facilities on preparing for and recovering from extreme weather impacts. SWP has previously contacted local departments of public works (DPWs) to discuss risks due to weather events, including a presentation at a statewide Solid Waste Managers Meeting, and participates in the Baltimore regional disaster debris task force composed of county and state officials, approximately quarterly, most recently on October 11, 2023.

The SWP routinely communicates with DPWs and solid waste officials prior to and after tropical storms and other heavy weather events to offer assistance with disposal advice, extend hours of operation so facilities can deal with above-normal volumes of disaster debris, or issue emergency disposal orders under Environment Article Sections 9-221 or 9-222 to manage disaster debris on an emergency basis. These are required to legalize temporary solid waste transfer stations and processing facilities that are set up after major

storms to handle debris, so that local governments and the state can seek reimbursement from the Federal Emergency Management Administration (FEMA). In mid May 2025, extreme rainfall caused a stationary low-pressure system in the Ohio River Valley to overflow into several towns in Allegany County, Maryland. Rising waters forced evacuations in both Garrett and Allegany counties. The Maryland Department of Emergency Management awarded Allegany County $459,375 from the State Disaster Recovery Fund on June 10 for emergency funding. An additional $1 million was made available to Allegany and Garrett counties through the Low Income Home Energy Assistance Program.[37]

Facilitating Development of Renewable Energy on Closed Landfills

The SWP has created two fact sheets to facilitate the environmentally responsible development of solar projects on closed landfills. One fact sheet outlines the process and considerations for obtaining SWP approval. The other fact sheet lists current and potential solar projects at landfills throughout the state, including some successful case studies. Both fact sheets are included on SWP's web page at Solid Waste Management in Maryland, and on LRP's website on renewable energy development on brownfields[38].

Reducing Methane Emissions from Landfills

SWP regulates landfills, transfer stations, processing facilities, and other solid waste operations through permitting and inspections. This oversight contributes to the reduction of methane emissions from landfills by requiring gas collection systems, liners and leachate controls. Landfills are required to monitor and report emissions and groundwater impacts, which helps protect both air and water quality.

Enforcing the Balloon Release Ban

SWP enforces the 2021 statewide ban on intentional balloon releases. By reducing balloon litter, the Program helps protect marine ecosystems and wildlife, especially in coastal and bay areas already vulnerable to climate change. Enforcement actions contribute to broader efforts to prevent plastic pollution and microplastic contamination in water bodies.

Future Activities

COMAR 26.04.07 already requires flood plan assessments during the application process for all refuse disposal facilities. SWP will be requiring flood risk assessment plans for active facilities, via permit changes, which can be implemented for renewing permits.

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[37] Maryland Department of Emergency Management, https://news.maryland.gov/mdem/.
[38] MDE Renewable Energy Siting and Development, https://mde.maryland.gov/programs/land/MarylandBrownfieldVCP/Pages/Renewable-Energy-Siting-and-Development.aspx.

Resource Management Program

The Resource Management Program (RMP)[39] regulates several activities to ensure the protection of public health and the environment. These include, but are not limited to:

- Regulating the discharges from animal feeding operations (AFO);
- Implementing state waste diversion programs, including recycling, source reduction, and the review of county solid waste and recycling management plans;
- Regulating composting facilities;
- Regulating the utilization of sewage sludge (Biosolids); and
- Regulating the clean-up, storage, collection, transferring, hauling, recycling, and processing of scrap tires.

Sustainable Materials Management

In 2017, the Department adopted a Sustainable Materials Management (SMM) policy to minimize environmental impacts across the full lifecycle of materials—from production and use to reuse and recovery. This approach aligns with Maryland's climate and circular economy goals by reducing greenhouse gas emissions associated with resource extraction, manufacturing, and waste disposal while keeping valuable materials in circulation longer.

The SMM policy promotes environmentally and economically sustainable methods to capture and reinvest resources—including metals, plastics, energy, nutrients, and soil—back into Maryland's economy. It also launched a stakeholder-driven process to establish measurable goals, improve data tracking, and foster collaboration among state and local agencies, industry, and recycling innovators across the agricultural, energy, and transportation sectors.

MDE's Office of Recycling, within the Resource Management Program (RMP), leads implementation of the SMM framework. The Office administers the Maryland Recycling Act, which requires counties to maintain recycling rates of 20% or 35%, depending on population size, and provides technical assistance, outreach, and planning support to advance statewide SMM initiatives. Together, these efforts drive Maryland's transition toward a low-carbon, circular materials economy that reduces waste, lowers emissions, and supports sustainable job creation.

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[39] MDE, Resource Management Program, https://mde.maryland.gov/programs/land/rmp/pages/index.aspx.

Evaluating Progress Toward SMM Goals

In April 2019, MDE published a set of SMM metrics and goals. These metrics go beyond the weight-based recycling rate that has traditionally been calculated under the Maryland Recycling Act, in an effort to better track the environmental outcomes of Maryland's SMM efforts. Among these metrics are reductions in the quantity of waste generated per person, per day, reductions in GHG emissions, and reductions in energy usage as a result of the state's waste diversion activities. The GHG emissions and energy usage metrics use the EPA's WARM model. Beginning in 2019, RMP tracks these metrics through its annual Maryland Solid Waste Management and Diversion Report[40].

Promoting Food Recovery and Waste Diversion

RMP continues to focus on wasted food as a priority area; food residuals make up almost 20%[41] of all municipal solid waste (MSW) that is disposed of in landfills and other disposal facilities in Maryland, where it generates GHGs. In addition to reducing GHG emissions at landfills, food residuals that are turned into compost also sequester carbon and enrich the soil. Compost, and other organic sources of fertilizer, improve soil health in ways that synthetic fertilizers do not. In recent years, RMP has worked with a variety of stakeholders to promote source reduction, food recovery for donation, and organic recycling in the form of composting or anaerobic digestion. MDE hosted a statewide forum for 2025 National Food Waste Prevention Week and continues to serve as an active member on the Maryland Food System Resiliency Council.

In 2024, MDE held its fourth Maryland Food Recovery Summit, which highlighted the wasted food scale and where local programs are achieving activities within the diversion schemas, a climate change strategy with a panel of presentations on the topic. In 2021, Solid Waste Management - Organics Recycling and Waste Diversion - Food Residuals was enacted, which phases in a requirement for certain businesses and institutions that generate large quantities of food residuals to divert those materials from disposal, through waste prevention, food donation, recycling (composting or anaerobic digestion), or animal feed. The requirement covers entities that generate more than a threshold quantity of food residuals per week (two tons starting in 2023; decreasing to one ton in 2024), and are located within 30 miles of an organics recycling facility that has capacity to and is willing to accept the entity's food residuals for recycling. The types of entities covered include but are not limited to: individual schools, supermarkets, convenience stores, mini-marts, business or institutional cafeterias, and cafeterias operated on behalf of state or local government, if these entities meet the quantity and location criteria described above.

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[40] Maryland Solid Waste Management and Diversion Report, https://mde.maryland.gov/programs/land/RMP/Documents/MSWMaDR%20%2722.pdf.

[41] Waste Characterization Report (2025), Unadjusted Residential Disposed MSW Composition https://mde.maryland.gov/programs/land/RMP/Documents/Appendix%20A%20-%20Waste%20Characterization%20Study_PDFUA.pdf

RMP continues to conduct outreach to covered entities and has developed technical assistance resources that include, among other things, an online map that displays the location and contact information for organics recycling facilities and each facility's 30-mile radius. MDE also developed regulations to implement the food residuals diversion requirements of the law. These regulations were developed using feedback collected in July 2022 from food residuals generators, food recovery and recycling organizations, and other interested parties. Outreach materials, technical assistance, and additional information regarding the law can be found online.

Improving Markets for Recyclable Materials

Roughly one-third of Maryland's municipal solid waste consists of materials that could be recycled through curbside or specialized programs. Diverting these materials from landfills reduces both waste and greenhouse gas emissions from decomposition and new material production.

To expand this climate benefit, MDE launched the Recycling Market Development Initiative under HB 164 (2021). The program strengthens Maryland's circular economy by identifying and supporting local businesses that use recycled feedstocks, fostering new markets for recycled products, and reducing the need for energy-intensive raw materials.

Through the Office of Recycling, MDE works with the Department of Commerce, local governments, and industry to connect recyclers with manufacturers, streamline permitting, and build stable, in-state markets that turn waste into economic opportunity while advancing Maryland's climate and zero-waste goals.

Solid Waste Infrastructure for Recycling (SWIFR) Grant

In 2023, MDE received a three year grant from the EPA. The grant's activities have two focus areas: organics and the circular economy.

Under the Organics Assessment activity within the grant, MDE will be researching, evaluating and considering local and state data to identify where potential organics recycling infrastructure could be located with the greatest benefit. Benefits align with the Food Loss and Waste Reduction Goal. Evaluating existing data sources and working with local government and businesses to generate mapping that identifies potential infrastructure locations and collection opportunities. MDE has held virtual and in-person presentations to a variety of stakeholders to identify confidence or roadblocks in perception associated with the potential infrastructure locations. Based on discussions, MDE is developing education and outreach to increase participation and opportunities for infrastructure expansion. MDE will revise the current mapping of high potential infrastructure locations with an associated confidence rating. Once the visual tool is live, MDE will coordinate a state-wide event to promote the tool and host follow-up meetings and presentations to support organics diversion efforts. MDE will collaborate with other state and local agencies to develop a plan for providing equitable opportunity to attend education and outreach on topics including

compost operator training, community compost programs, co-digestion considerations and feedstock, and sustainable workforce development.

Under the circular economy activity, MDE will review current tonnage, processors, and markets. MDE then will analyze to determine where there are consistent gaps and identify how those markets can grow. Depending on the materials being evaluated, MDE may suggest policy revisions to local or state statutes or work with regional businesses and institutions to drive supply and marketing. MDE will generate online tools that promote publicly available data to continue to drive the circular economy. MDE will identify existing reuse markets, and analyze fiscal and waste impacts for utilization of reuse programs in publicly operated facilities specifically focused on food serviceware. MDE will evaluate the impact reuse will have on local workforce development and reduction in environmental impacts associated with transportation and disposal.

Polystyrene Ban

Maryland's ban on expanded polystyrene (EPS) food service products helps reduce both plastic pollution and the greenhouse gas emissions associated with producing and disposing of single-use plastics. EPS is made from fossil fuels and generates significant emissions during manufacturing; it also persists in the environment, breaking into microplastics that harm ecosystems.

Under state law, MDE conducts outreach to support compliance and education, while county health and environmental agencies enforce the ban and assess fines for violations. Additional details, including the full law, public notice, and FAQs, are available on MDE's EPS Food Service Products Ban webpage.[42]

Packaging and Paper Products (PPP) Extended Producer Responsibility

In the 2025 legislative session, SB 901[43] was signed into law. This law will shift the burden of recycling from the taxpayers to the producers of PPP. MDE was also given the authority to establish greenhouse gas emission goals associated with recycling and reuse activities.

The Solar Photovoltaic Systems Recovery, Reuse, and Recycling Working Group

The Solar Photovoltaic Systems Recovery, Reuse, and Recycling Working Group was created by the CSNA to focus on options for recycling or reusing solar panels. The Working Group submitted the study, "A Circular Economy Approach to Solar Photovoltaics in Maryland," to the Commission and to the General Assembly by December 2024 and completed its primary mandate set by the CSNA.

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[42] Expanded Polystyrene (EPS) Food Service Products Ban, https://mde.maryland.gov/programs/land/RecyclingandOperationsprogram/Pages/Expanded-Polystyrene-Food-Service-Products-Ban.aspx.
[43] Packaging and Paper Products - Producer Responsibility Plans https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0901.

The study, prepared by the University of Maryland Center for Global Sustainability and Johns Hopkins University, responds to the mandate outlined in Section 2–1303.4 of the CSNA. This study was designed to inform the state's decision-making regarding policy options for solar PV management in Maryland, including an exploration of how circular economy principles can be applied to solar photovoltaics to manage waste and mitigate supply chain risks, policy frameworks in other jurisdictions, and recommendations for best practices in Maryland.

With this statutory requirement satisfied, the working group has been placed on pause and will not meet actively until further notice. If the Commission has additional requests, the working group may reconvene at a future date.

Future Activities

Renewable energy and EV adoption are important components of the state's overall climate change goals. In order to support these efforts, RMP will work to facilitate the proper recycling of waste streams generated by these beneficial technologies. Both solar panels and lithium ion batteries can be challenging to manage because both contain constituents that are potentially hazardous, solar panels are bulky, and lithium ion batteries can pose a risk of fire if not properly managed. Lithium ion batteries contain resources that are in critical need to create new batteries and are in scarce supply globally.

First, RMP will work with the SWP to create a fact sheet on solar panel recycling considerations. It will also follow developments in federal guidance on solar panel recycling and update its own information as needed. Second, RMP will create a website to act as a clearinghouse on lithium battery recycling opportunities, including existing opportunities through local household hazardous waste collection programs and industry led programs. Finally, markets for lithium ion batteries and solar panels, including reuse opportunities, will be evaluated as part of the recycling markets initiative previously described.

Further Food Waste Reduction and Recycling

The U.S. EPA and the U.S. Department of Agriculture have a joint food loss and waste goal of 50% by 2030. The EPA recently announced that it has reinterpreted that 50% goal to mean a reduction in the pounds of food per person that are sent to landfill, controlled combustion, sewer, co/anaerobic digestion, compost/aerobic digestion, and land application. This highlights the relative importance that the EPA places on source reduction and food donation relative to other forms of food diversion (composting and anaerobic digestion). This is relevant from a climate change standpoint in that GHG emissions are reduced more from food waste prevention efforts and food donation than from other forms of food waste diversion. RMP will review the EPA's recent interpretation and determine how to better prioritize and encourage source reduction and food donation efforts.

Biosolids Land Application Activities

A significant quantity of biosolids generated in Maryland are managed through land application on in-state agricultural land as well as export. Timing for land application is

important, because there are restrictions on the time of year that biosolids may be land applied, as well as restrictions on application to saturated ground. Flooding or extreme weather can therefore impact the availability of land application as a means of managing biosolids. As a result, RMP has been in contact with wastewater treatment plants and land application companies to encourage them to plan ahead for adequate regular and emergency storage, taking into account potential weather impacts. Land-applying biosolids can be an important step to sequester carbon, improve soil health, and reduce GHG emissions from biosolids that would have otherwise been landfilled.

Animal Feeding Operations

Program Overview

The RMP regulates over 500 animal feeding operations (AFOs) under a General Discharge Permit for Animal Feeding Operations. The permit requires each operation to have an approved Comprehensive Nutrient Management Plan and comply with certain BMPs designed to effectively protect water quality by containing animal manure, poultry litter and processed wastewater, separating the material from clean stormwater, and properly managing the material through on-site land application or export offsite. AFOs must have waste storage structures with adequate storage capacity to fully contain animal manure, poultry litter and process wastewater generated on site prior to land application or export. Flooding or extreme weather events have the potential to compromise the containment of wastes within these structures and could result in potential impacts to waters of the state.

Current Activities

RMP has conducted a review of AFOs to determine those that may be affected by flooding or sea level rise. To date, RMP has identified 33 existing AFOs that are located in 100- and 500-year tidal and non-tidal floodplains. Specifically, RMP has created a map identifying 22 farms in the 100-year floodplain and 11 farms in the 500-year floodplain. These are facilities confirmed to be producing animals as of February 2022. When an extreme weather event that could impact AFOs is anticipated, RMP has sent guidance and reminders to AFO operators about emergency preparedness at AFOs.

Future Activities

RMP will establish a system of prioritizing AFO inspections that considers, in addition to existing inspection priorities, enhanced inspections for AFOs that may be more susceptible to flooding, including those identified above. RMP will work on updating and improving the map of potentially flood-prone AFOs to assist in this effort.

RMP will partner with the Natural Resources Conservation Service, Maryland Department of Agriculture (MDA), and local soil conservation districts to identify effective BMPs for existing AFOs located in tidal and non-tidal flood-prone areas. This partnership will also involve a process for evaluating new AFOs for permit coverage, taking into account areas currently or projected to be subject to flooding, as well as the structural condition and storage capacity of waste storage structures.

Lead Poisoning Prevention Program

The Maryland Lead Poisoning Prevention Program (MLPPP) plays a critical role in safeguarding public health from the dangers of lead exposure, including for children. While the program's primary focus is on lead-based paint hazards, the broader context of climate change introduces new dimensions to the challenge of heavy metal exposure.

The Impact of Climate Change on Lead and Other Heavy Metal Exposures for the Public: A Maryland Lead Poisoning Prevention Program Perspective

Climate change, with its predicted increases in extreme weather events, rising temperatures, and altered precipitation patterns, presents an emerging and significant concern for the MLPP in its efforts to protect the public from lead and other heavy metal exposures. While the Program's core mandate is addressing lead-based paint hazards, the Program recognizes that a changing climate can exacerbate existing risks and create new risks based on threats to infrastructure and intensified exposure.

Program Descriptions and Objectives

The MLPPP's overarching mission is to protect the health of Marylanders, especially children, by preventing and reducing lead exposure. MLPP's key objectives include:

- **Enforcing Lead Risk Reduction in Rental Properties:** Assuring compliance with mandatory requirements for lead risk reduction in rental units built before 1978, including annual registration and inspection at each change in occupancy.
- **Childhood Blood Lead Surveillance and Case Management:** Maintaining a statewide registry of blood lead test results for all children, overseeing case management follow-up by local departments for children with elevated blood lead levels (EBLs), and providing environmental investigations for lead-poisoned children.
- **Contractor and Inspector Certification:** Certifying and enforcing performance standards for inspectors and contractors working in lead hazard reduction.
- **Public Education and Outreach:** Providing community education to parents, tenants, rental property owners, homeowners, and healthcare providers to enhance their role in lead poisoning prevention.
- **Promoting Lead-Safe Practices:** Encouraging and facilitating the remediation of lead hazards through various programs and resources.

From a climate change perspective, MLPP's objectives include:

- **Anticipating and Mitigating Climate-Exacerbated Risks:** Understanding how climate impacts (e.g., floods, severe storms, heat) can dislodge lead paint, contaminate soil, or disrupt infrastructure, leading to new or intensified exposure.

- **Integrating Climate Resilience into Hazard Reduction:** Promoting lead hazard reduction strategies that also enhance the climate resilience of older housing stock.
- **Collaborating on Broader Environmental Health:** Working with other agencies to address the intersection of climate change and other environmental contaminants, including heavy metals.

Maryland has made significant strides in lead poisoning prevention, largely attributed to the "Reduction of Lead Risk in Housing Law" enacted in 1994.

Key Milestones

- **Significant Decline in Childhood Lead Poisoning:** Maryland has seen a remarkable decline of over 98% in childhood lead poisoning cases (at 10 µg/dL) from 1993 to 2016.
- **Lowering of EBL Thresholds:** The state has progressively lowered the EBL requiring intervention, aligning with CDC guidelines.
    - In 2019, the EBL for intervention was lowered from 10 µg/dL to 5 µg/dL.
    - Effective October 28, 2022, when a child under the age of 6 or a pregnant woman has an EBL of ≥ 3.5 µg/dL, MDE or the local health department must notify the parent/guardian or pregnant woman and the property owner.
    - Effective January 1, 2024, an environmental investigation must be conducted for children under 6 or pregnant women with an EBL of ≥ 3.5 µg/dL. This is a crucial step in proactive identification and remediation.
- **Statewide Testing Requirements:** Maryland mandates blood lead testing for all children at ages 12 and 24 months, regardless of insurance coverage (for children born on or after January 1, 2015).
- **Establishment of a Comprehensive Registry:** MDE maintains a robust Childhood Lead Registry for blood lead surveillance, sharing data with state and local health departments and Medicaid Managed Care Organizations (MCOs).

Challenges and Enhancement Opportunities

- **Increased Workload with Lowered EBL:** The recent lowering of the EBL to 3.5 µg/dL significantly increases the number of notifications and required environmental investigations. Meeting the demand for these investigations and subsequent follow-up requires substantial resources, which can be further strained by climate-related events.
- **Aging Housing Stock Vulnerability:** While much progress has been made on pre-1978 rental units, a large number of older homes in Maryland (90% of housing units built before 1980 in Baltimore City alone) still contain lead paint hazards, many of which are owner-occupied and not subject to the same strict regulations. These

homes are particularly vulnerable to damage from climate events, increasing the risk of lead dust dispersion.

- **Addressing Lead Beyond Paint:** While the program focuses on paint, heavy metals can be present in soil, water, and other building materials. Climate change impacts like flooding can mobilize these contaminants, and increased soil erosion from intense rainfall can expose underlying lead in contaminated land. The current program may not fully capture these broader environmental exposures.

To better address the intersection of climate change and heavy metal exposures, the MLPPP sees several enhancement opportunities:

- **Proactive Hazard Mapping and Risk Assessment:** Develop advanced mapping tools that integrate lead hazard data with climate vulnerability assessments (e.g., flood plains, areas prone to storm damage) to identify high-risk communities for proactive intervention.
- **Climate Resilient Homes Initiatives:** Expand existing home renovation programs to explicitly incorporate climate resilience measures during lead hazard reduction activities (e.g., using moisture-resistant materials, improving drainage to prevent water damage that exacerbates lead paint deterioration).
- **Cross-Agency Collaboration on Contaminant Mobilization:** Strengthen partnerships with agencies focused on water quality, soil remediation, and disaster response to develop coordinated strategies for addressing lead and other heavy metal contamination following climate-related events.
- **Enhanced Training for Inspectors and Contractors:** Provide specialized training for lead inspectors and contractors on recognizing and mitigating lead hazards exacerbated by climate change, such as those caused by water intrusion, mold growth (which can indicate water damage leading to lead paint deterioration), and structural damage from extreme weather.
- **Public Awareness Campaigns on Climate-Related Lead Risks:** Educate the public on the potential for increased lead exposure due to climate impacts, providing guidance on protective measures during and after extreme weather events (e.g., safe cleanup practices after floods).
- **Leveraging Green Infrastructure for Remediation:** Explore opportunities to integrate lead-safe practices with green infrastructure projects (e.g., bioswales, rain gardens) that can help manage stormwater runoff and potentially cap or contain lead-contaminated soil.

The MLPPP receives funding from various sources, including state appropriations, federal grants, and administrative funds.

- **Increased Demand, Stagnant Resources:** The lowered EBL and increasing awareness of lead exposure necessitate more resources for testing, investigations, and remediation. Climate change adds another layer of financial strain, as repairs and mitigation in older homes may become more frequent and complex due to climate impacts.
- **Need for Dedicated Climate-Health Funding:** There is a growing need for dedicated funding streams that specifically address the nexus of climate change and public health, including heavy metal exposures. This could involve federal and state climate resilience grants or public health preparedness funds, including for homeowners and landlords to undertake lead hazard reductions.

The MLPPP faces several challenges, some of which are amplified by climate change:

- **Aging Housing Stock:** Maryland has a significant inventory of pre-1978 housing, much of which contains lead-based paint. The deterioration of this housing, accelerated by climate-related stresses like extreme heat and moisture, increases the risk of lead dust generation.
- **Limited Regulatory Scope:** The current law primarily regulates pre-1978 rental units. Owner-occupied homes, which also pose significant lead risks, are largely outside the regulatory framework, making intervention more challenging, especially after climate events.
- **Mobilization of Lead from Non-Paint Sources:** Climate change impacts, such as flooding and soil erosion, can mobilize lead from contaminated soil, water pipes, and other sources not directly covered by lead paint regulations. Detecting and addressing these new pathways requires expanded remediation strategies.
- **Displacement and Re-exposure after Disasters:** Extreme weather events can displace communities and damage homes, potentially re-exposing individuals to lead and other hazards during cleanup and rebuilding efforts.
- **Data Integration and Predictive Modeling:** Effectively predicting and responding to climate-driven lead exposure requires robust data integration across environmental, health, and climate sectors.
- **Public Awareness and Behavioral Change:** Educating the public about the complex interplay of climate change and lead exposure, and encouraging preventative behaviors, can be challenging.

The MLPP's primary mandate is public health protection from lead exposure, not GHG reductions. Therefore, the program does not typically track or report on direct GHG emissions reductions. However, there are indirect contributions and potential synergies.

- **Energy Efficiency during Renovations:** When lead hazard reduction work involves window replacement or other structural improvements, there is an opportunity to incorporate energy-efficient materials and practices. This can lead to indirect GHG reductions by decreasing energy consumption for heating and cooling.
- **Sustainable Building Practices:** Promoting "healthy homes" often aligns with sustainable building practices that minimize waste and reduce the carbon footprint of construction and renovation, but this is a secondary benefit.
- **Interconnectedness of Environmental Health:** The MLPPP strongly emphasizes the interconnectedness of lead exposure with other environmental health concerns, a relationship that is increasingly evident in the context of climate change. Lead-contaminated dust, for example, can be exacerbated by increased wind events or water damage from floods.
- **Focus on Vulnerable Populations:** Climate change disproportionately affects vulnerable communities, which often include those residing in older, less resilient housing that is more likely to contain lead hazards. This can exacerbate existing environmental injustices.
- **Long-term Health and Economic Impacts:** The irreversible health damage caused by lead poisoning highlights the critical need for prevention. When climate change risks reversing progress or creating new exposure routes, the long-term health and economic burden on individuals, families, and the government increases.

Water and Science Administration (WSA) Programs and Initiatives

Climate change is water change. The warming of the Earth causes changes throughout the water cycle and many of these changes, often expressed as extreme weather events and sea level rise, are detrimental to Maryland communities. Many communities are at greater risk due to location and a lack of capacity to cope with these changes, particularly those communities that have been historically lacking in public and private investments.

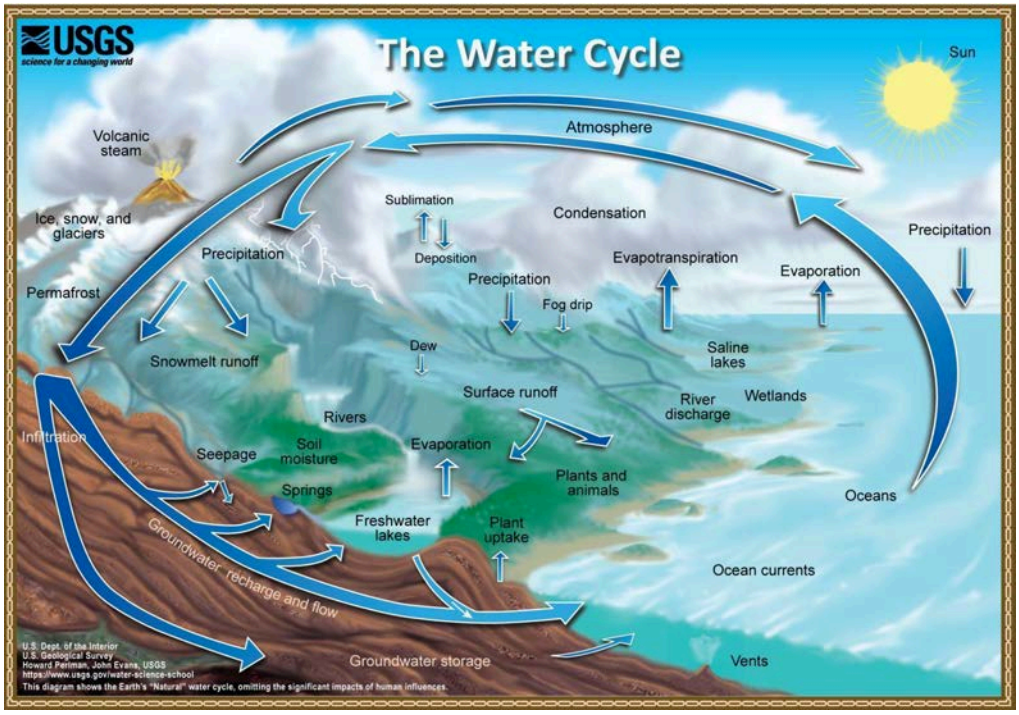


Figure 24 The Water Cycle, https://www.usgs.gov/water-science-school/water-cycle.

WSA is responsible for managing Maryland's water resources. WSA has engineers, scientists, and natural resource professionals who implement and enforce state and federal water quality and safe drinking water laws as well as state laws governing water appropriations, wetlands protection, and water and sewer planning. WSA sets science-based standards; issues legally enforceable permits and approvals; monitors water bodies, public drinking water supplies, and wastewater systems; performs inspection and compliance activities; and responds to water pollution incidents and emergencies. WSA is committed to taking action to avoid or mitigate impacts of climate change through enhancements to its routine regulatory functions.

WSA's section of this report is organized in two subsections: a summary of WSA's Climate Adaptation Plan, which represents its commitment to strategic priorities and a transparent

accountability framework (Climate Dashboard), and an Inventory of Accomplishments and Initiatives, some which are not included in WSA's Climate Adaptation Plan.

WSA's Climate Adaptation Plan

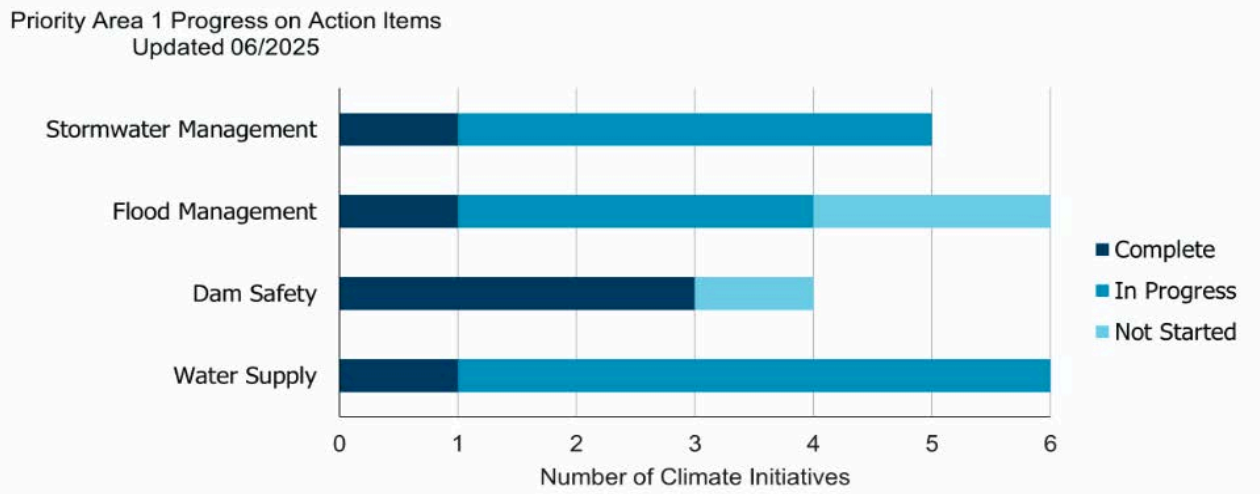
WSA integrates climate change impacts into its regulatory functions, addressing intensified extreme weather. WSA had identified four Priority Climate Change Action Areas.

1. **Science and Planning:** Harness science and planning to adjust water programs and policy decisions, ensuring they account for changing climate conditions such as rising sea levels, increased rainfall, and prolonged droughts.
2. **Climate Smart Water Permits:** Review regulatory approval procedures and permits to ensure they support the safe and sustainable management of water resources and infrastructure in the context of a changing climate.
3. **Blue, Green, and Traditional Infrastructure:** Accelerate the implementation of green, blue, and traditional infrastructure to enhance resilience. These assets are crucial for clean water, preventing flooding, and supporting community health.
4. **Emergency Preparedness and Response:** Periodically update and exercise response procedures to safeguard public health, water resources, and critical infrastructure from increasingly frequent and severe weather incidents.

In 2020, WSA leadership formed a Climate Matrix Team to expedite action on these priority areas. The Team has developed a public facing accountability framework, which takes the form of WSA's Climate Adaptation Dashboard[44]. The Climate Dashboard, which went live in November 2023, highlights a set of top climate action priority areas and key climate adaptation activities for each. The Dashboard progress is updated semi-annually, with the latest update completed in June 2025.

Priority Area 1: Science and Planning

Harness science and planning to integrate climate resilience into MDE's water resource

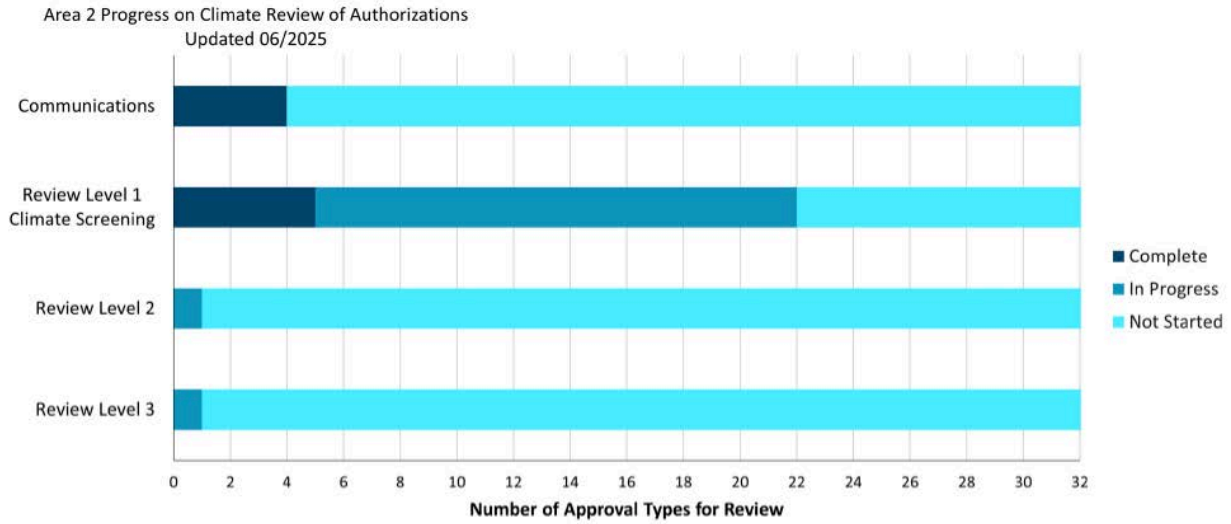


[44] https://mde.maryland.gov/programs/water/Pages/WSA-Climate-Dashboard.aspx.

management responsibilities [45]. This includes proactive steps in regulations, studies, and design upgrades, ensuring the safety of the state's drinking water supplies, enhancements in stormwater and flood management, erosion and sediment controls, and dam safety.

Priority Area 2: Climate Smart Water Permits

Review and adapt MDE's water regulatory approval instruments -- including permits, authorizations, and licenses -- to be "climate smart" and ensure they promote resilience to climate change impacts. The graph outlines three levels of review, each representing an increasing level of scrutiny. Higher-level reviews require more time to complete. A more detailed description of these review levels is provided in the footnote.[46]



Priority Area 3: Green, Blue, and Traditional Infrastructure

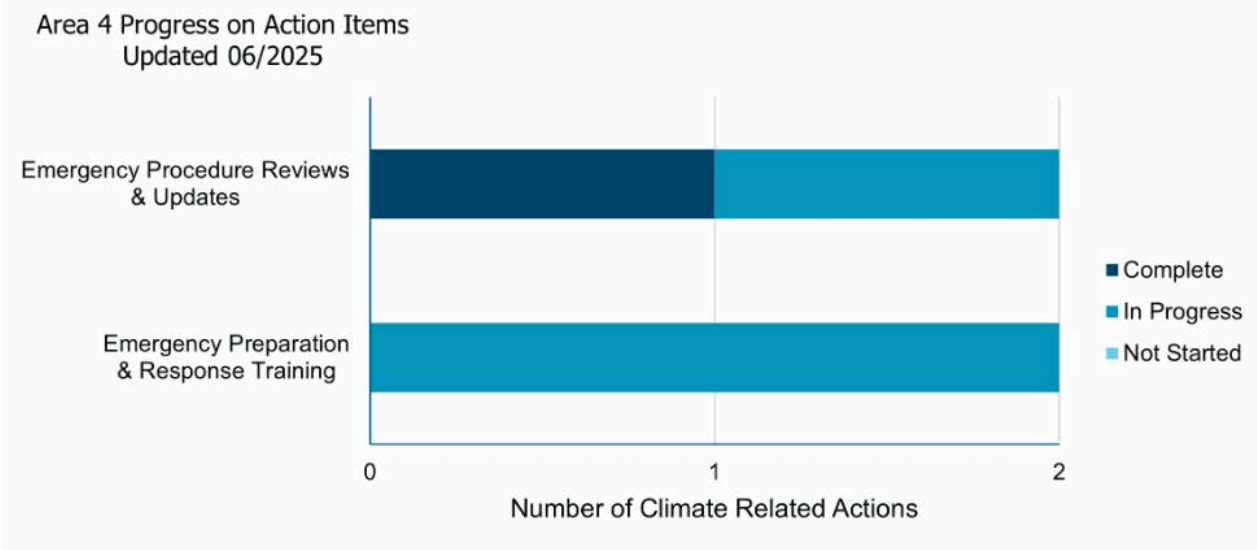
Accelerate the scale and pace of implementing green, blue, and traditional infrastructure[47]. This will build resilience to climate change stresses, mitigate pollution, and enhance natural habitat. Traditional infrastructure, sometimes called "gray infrastructure" due to its common use of gray colored materials, refers to conventional human-made materials like concrete, stone or metal. Blue and green infrastructure refers to nature-based practices, like aquatic grasses, wetlands, upland vegetation, and trees. This natural infrastructure can lessen the

[45] Priority Area 1: Science and Planning https://mde.maryland.gov/programs/water/Documents/Climate_Dashboard/Area1Detail.pdf.
[46]Climate Smart Permits Review, https://mde.maryland.gov/programs/water/Documents/Climate_Dashboard/Area2Detail.pdf.
[47] Green, Blue, and Traditional Infrastructure, https://mde.maryland.gov/programs/water/Documents/Climate_Dashboard/Area3Detail.pdf.

impact of climate change by reducing flooding, damping tidal storm surges, trapping pollutants, serving as a windbreak, and moderating local temperatures

Priority Area 4: Emergency Preparedness

Emergency preparedness and response training is critical to better avoid, respond to, and reduce impacts of extreme events, such as floods and heat waves, that are becoming more frequent and severe due to climate change[48]. WSA annually reviews and updates emergency response standard operating procedures and hosts annual training seminars and workshops for Climate Emergency Preparedness.



WSA's Key Initiatives and Accomplishments

The following are highlights of accomplishments and new initiatives of the MDE's WSA. For brevity, this inventory covers the period of approximately 2023 through mid-2025. Prior accomplishments can be found in previous annual reports.

Stormwater & Flood Management

Although traditional stormwater and floodplain management are separate and distinct programs, their relationship has been acknowledged in State law for decades (Environment Article § 5-803). That's because land development can exacerbate downstream riverine flooding as well as localized pluvial flooding (flooding due to overwhelmed drainage systems). The increased intensity of some rainstorms associated with climate change has prompted renewed efforts to integrate stormwater and flood management.

[48] MDE, Emergency Preparedness, https://mde.maryland.gov/programs/water/Documents/Climate_Dashboard/Area4Detail.pdf.

Figure 25 Key A-StoRM Considerations

A-StoRM (Advancing Stormwater Resiliency in Maryland)

In 2021, the Maryland General Assembly adopted amendments to the State's stormwater management statute[49]. The amendments call for State stormwater regulations to better account for flooding and climate change. In response, WSA submitted an action plan to the General Assembly in November 2021 entitled, Advancing Stormwater Resiliency in Maryland (A-StoRM): Maryland's Stormwater Management Climate Change Action Plan. Since then, the A-StoRM initiative has convened several stakeholder groups, including the Regulation Technical Advisory Group (TAG), focused on updating the regulations; the Watershed TAG, focused on challenging technical and policy issues associated with regulating stormwater and flooding at a watershed scale; and the Stakeholder Consultation Group reflects a broad spectrum of interested parties.

As of the Summer of 2025, MDE's Stormwater, Dam Safety, and Flood Management Program leads the A-StoRM initiative and has released proposed changes to the State of Maryland Stormwater Management Regulations and the Maryland Stormwater Design Manual for public review[50]. An Advance Notice of Proposed Rulemaking was published in the Maryland Register in September 19, 2025 for public comment[51].

A-StoRM Communications

The A-StoRM initiative involves major communications and outreach actions:

- In July 2023, WSA's A-StoRM team circulated Proposed Stormwater Management Regulatory Requirements[52] for public comment.

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[49] Maryland Senate Bill 227, https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0227?ys=2025RS.
[50] Maryland Stormwater Design Manual, https://mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/stormwater_design.aspx.
[51] Advanced Notice of Proposed Rulemaking, Updates to Maryland's Stormwater Management Regulations and Design Manual, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/ANPRM%209-25/2025%20September%2019%20Advanced%20Notice%20of%20Proposed%20Rulemaking.pdf.
[52] Proposed Stormwater Management Regulatory Requirements, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/AStoRM/SWM%20Regulation%20Proposal%20for%20Stakeholder%20Group%207_26_2023.pdf.

- In April 2024, WSA offered the Maryland Stormwater Regulatory Proposal[53] for discussion with the Regulations Technical Advisory Group.

- In August 2025, WSA developed stormwater quantity control regulations and associated updates to best management practices (BMP) and conveyance system design criteria for flood protection that account for climate change. This will help to control street and property flooding. These updated regulations were developed using the latest science on climate driven increases in precipitation, included input from a broad stakeholder advisory committee, and are supported by both the development and environmental advocacy communities. They are expected to provide greater regulatory clarity and predictability, while enhancing environmental protection and public safety.

For more information visit the Advancing Stormwater Resiliency in Maryland Website.[54]

A-StoRM & Flood Management

- In April 2024, WSA offered its current thinking on the flood management components of Maryland's Stormwater Management regulations[55] (Slides 35-43).

- Identification of Flood-prone Areas: In 2023, WSA continued a collaborative effort with local governments to identify and characterize flood-prone areas. MDE worked with local jurisdictions to understand the availability of data, data gaps, and the needs of local jurisdictions to collect, store, share, and analyze these data. These local data will be incorporated with other data into a statewide watershed prioritization tool.

- Watershed Flood Management Studies: In 2023, WSA applied for a Federal Emergency Management Agency (FEMA) grant to conduct watershed flood studies. In 2024, WSA was awarded $3 million to develop: (1) a statewide watershed prioritization tool; (2) a framework for how to best model watersheds for establishing watershed studies and plans; and, (3) use this information to model three watersheds, identify the flood impacts, and identify mitigation options from which cost-effective alternatives can be selected in coordination with local stakeholders. These studies will inform the development of guidelines for local governments to conduct similar studies.

Flood Management Infrastructure Funding

Legislation has been adopted to restore funding to the Comprehensive Flood Management

[53] Maryland Stormwater Regulatory Proposal, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/AStoRM/TAGs/R-TAG%20Meeting%2004292024.pdf.
[54] Advancing Stormwater Resiliency in Maryland Website, https://sb-227-maryland.hub.arcgis.com/.
[55] Flood management components of Maryland's Stormwater Management regulations, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/AStoRM/TAGs/R-TAG%20Meeting%2004292024.pdf.

Grant Program[56] (CFMGP) over several recent years. The program aids localities with their comprehensive flood management plans to better protect their communities from floodwaters. Between FY20-24 the Maryland General Assembly authorized over $49 million in capital funding for flood mitigation, which can have local stream and Bay restoration co-benefits. However, no funding has been made available to develop watershed studies and plans using the CFMGP to ensure capital improvement projects are appropriately planned and prioritized. MDE has introduced legislation the last two years that would make CFMGP funds available for studies and plans as originally envisioned in 1976.

Flood Awareness Month

WSA staff participate in planning and hosting events of Maryland's Flood Awareness Month (FAM) each April. The FAM is coordinated by the Maryland Resiliency Partnership[57]. In addition to a wide variety of educational outreach activities, WSA has produced several short flood awareness videos with key messages (the Frederick City video was produced by MDE's Office of Communications): Chaptico and Charlotte Hall - Water Rescue[58], Leonardtown - Be the Help Until Help Arrives[59], Frederick - Three Step Plan[60].

Industrial Stormwater General Permits - Climate Enhancements

WSA staff, in coordination with Environmental Protection Agency (EPA) Region III staff, have conducted screening-level climate reviews of several sector-specific industrial stormwater general permits. This activity is part of WSA's Climate Adaptation Plan, *Climate Smart Permits* priority. The reviews involved the following permits: Industrial Sources that Discharge Stormwater Only (20-SW), Surface Coal Mining and Related Facilities (19-CM), Mineral Mines, Quarries, Borrow Pits, and Concrete and Asphalt Plants (15-MM), and Discharges from Marinas including Boat Yards and Yacht Basins (16-MA).

Examples of changes, depending on the permit, include things like requirements to identify specific factors related to climate change that must be considered when designing and implementing control measures on-site, identification of considerations for planned operational changes to reduce the likelihood of the flooding of new structures or pollutant sources at the industrial site, more explicit thermal discharge limits to cold water streams, and requirements for climate change vulnerability assessments of industrial sites.

Erosion and Sediment Control

Standards & Specifications Update Initiative

[56] Comprehensive Flood Grant Management Program, https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/floodmgmt.aspx.
[57] Maryland Resiliency Partnership, https://md-resiliency-partnership-maryland.hub.arcgis.com/.
[58] Chaptico and Charlotte Hall - Water Rescue, https://youtu.be/uXG1EdHkgcs.
[59] Leonardtown - Be the Help Until Help Arrives, https://youtu.be/YTzfmy7v4pA.
[60] Frederick - Three Step Plan, https://youtu.be/GFu8l1GSA9E.

In 2023, the Maryland General Assembly adopted amendments to the state's erosion and sediment control (ES&C) statute (Senate Bill 471[61]). The amendments require the Department to review and update specifications for sediment control plans (ES&C Handbook) in a certain manner on or before December 1, 2025, and every 5 years thereafter accounting for updated precipitation data. In November 2023, the WSA published a report for the Maryland General Assembly entitled, Plans And Resources Needed for Reviewing and Updating Specifications For Sediment Control Plans. MDE recognizes that more intense rainfall events, due to climate change, warrant consideration of improved erosion and sediment control methods. In FY26, resources have been allocated to begin this work through WSA's Special Water Fund that collects penalties from violations of water quality permits.

Stormwater Industrial Permit Associated with Construction Activity - Climate Enhancements

As part of WSA's Climate Adaptation Plan, staff conducted a screening-level review of Maryland's general permit for Discharges of Stormwater from Construction Activity (20-CP). This activity was done as part of WSA's Climate Adaptation Plan, *Climate Smart Permits* priority. It puts design engineers and others on notice that they are required to account for "The expected amount, frequency, intensity, and duration of precipitation" in designing E&SC controls. Licensed engineers have a professional duty to be knowledgeable about and account for climate change in meeting the intent of the E&SC general permit.

Compliance Training for New Erosion and Sediment Control General Permit

In 2023, WSA notified the regulated community that the general permit for the Discharges of Stormwater Associated With Construction Activity (20-CP) would be effective April 1, 2023. WSA provided training for the regulated community to roll-out the updated general permit. This permit includes enhancements intended to mitigate climate change risks. Training included at least nine online sessions and other presentations to stakeholder organizations throughout 2023. Training included MDE WSA compliance inspection staff.

Dam Safety

Probable Maximum Precipitation Tool for Resilient Dam Design

In April 2025, the Maryland Dam Safety program completed an update of statewide Probable Maximum Precipitation (PMP) data through a two-year PMP study conducted by Applied Weather Associates (AWA). The PMP is an estimate of the highest rainfall that could fall in a specific area and timeframe. Engineers rely on the PMP to design infrastructure including dams and levees, roads, and railways. The PMP is an integral part of hydrology, hydraulics, and dam safety in Maryland.

[61] Maryland Senate Bill 471, Maryland General Assembly of 2023, https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/SB0471?ys=2023RS.

Dam Information Mapping Tool

Water storage is a critical aspect of water resource management. However, the dams used for this purpose can pose a hazard if they are not maintained over time, particularly as climate change places more stress on aged infrastructure.

In 2024, WSA's Dam Safety Program released a revamped Dam Information Mapping Tool[62] that offers the location and basic information for more than 550 dams. Most importantly the tool includes mapped areas of potential dam failure inundation floods, which is itself a newly finalized analysis product. This mapping tool supports Maryland's resilience to climate change by providing essential information to dam owners, the dam safety community, emergency management professionals, land use and planners, and the citizens of Maryland.

Dam Removal Guidance

When removal is the best option for an aged dam, the removal process and aftermath pose risks to downstream property owners and the natural environment. As a consequence, dam removal is a complex process for the dam owners, engineering consultants, and others involved. Recent large federal infrastructure funding laws are driving more dam removal projects, which is good for climate resilience and the environment if done properly. To help expedite the proper removal of dams, MDE, in collaboration with the Department of Natural Resources (DNR), the Maryland Department of Planning (MDP), and others, finalized the Maryland Dam Removal Guidelines[63] in April 2024.

Dam Safety Emergency Preparedness

Emergency preparedness for dams is essential to bolstering Maryland's climate change resilience. Past State legislation strengthened MDE's authority to require the repair or removal of unsafe dams and required owners of higher hazard dams to develop, maintain, and regularly exercise emergency action plans (EAPs). In Spring 2022, MDE WSA staff participated in a FEMA initiative that included a tabletop exercise centered on the town of Oakland, MD, involving the scenario of an extreme rainfall event, which placed several dams at risk of failure simultaneously.

In 2023, WSA's Climate Team organized a workshop centered on its After-hours Emergency Response procedures. The workshop featured a what-if scenario focused on a dam at risk of failure. In 2024, WSA's Climate Team organized a webinar on dam safety.

Financial Resources for Dam Safety

Several legislative changes regarding dam safety permits and related fees in Maryland were enacted during the 2025 legislative session, primarily through Senate Bill 250[64] (Chapter

[62] Dam Information Mapping Tool https://mdewin64.mde.state.md.us/WSA/DamSafety/.
[63] Maryland Dam Removal Guidelines https://mde.maryland.gov/programs/water/DamSafety/SiteAssets/Pages/index/Dam%20Removal%20Guidelines.pdf.
[64] Maryland Senate Bill 250, https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0250.

432). A Dam Safety Permit Fee is now required before MDE issues a permit for construction, reconstruction, repair, removal, or modification of a dam. Dam safety permit fees are deposited into the newly established Private Dam Repair Fund, which provides financial assistance for the repair, upgrade, or removal of private dams. Beginning January 1, 2027, dam owners must annually register their dams with MDE and pay a registration fee to the Private Dam Repair Fund. MDE is required to notify affected dam owners about this fee by October 1, 2025, and by October 1, 2026, must establish criteria for full or partial fee waivers due to financial hardship.

In 2023, WSA staff worked with several dam owners to solicit funding from FEMA's High Hazard Potential Dam grant. This grant, administered by the Maryland Department of Emergency Management (MDEM), is supported in part by the federal Infrastructure Investment and Jobs Act (IIJA). In 2024, WSA was awarded about $4.26 million for maintenance projects associated with six dams. The funding goes directly to dam owners, $500,000 of which has been successfully allocated as of August 2025.

Water Supply and Drought Management

Water Appropriations Permit and Regulation Climate Reviews

In 2023, WSA completed a draft screening-level review of MDE's water appropriation and use permit that focuses on drought risks[65]. The assessment offers recommendations for improving future permits and suggests additional studies. A key recommendation is to ensure that permit holders collect sufficient data from water wells in regions of the State that rely on fractured rock groundwater aquifers for water sources. In 2024, WSA's Climate Team conducted a review of the Water Appropriations and Use regulations (COMAR 26.17.06[66]) -- Level 2 climate review. The Team offered recommendations to WSA's Water Supply Program, which is undertaking a general review of the regulation.

Indirect Potable Reuse (IPR) for Drought Resilience

In 2023, the Maryland General Assembly adopted legislation authorizing WSA to develop an Indirect Potable Reuse Pilot Program. The purpose is to allow the safe, regulated use of highly treated municipal wastewater as an indirect source for drinking water treatment facilities. The source is "indirect" in the sense that the treated wastewater will first be mixed with protected raw water (natural water) before being treated for potable water use. Maryland has received one application for an IPR project to augment a water supply reservoir, and is currently reviewing that proposal. WSA submitted the IPR Report to the Governor's Office and General Assembly on December 23, 2024. In fall 2025, WSA is

[65] Maryland Department of the Environment, Water Supply Program, Climate Change, https://mde.maryland.gov/programs/water/water_supply/Pages/ClimateChange.aspx.

[66] MDE Regulations, COMAR 26.17.06, https://dsd.maryland.gov/regulations/Pages/26.17.06.01.aspx.

researching technical information and expects to begin developing draft regulations.

Climate Change and Drought Risk Communications

In 2023 MDE activated its drought notification process in response to lower-than-normal groundwater levels and stream flows in Central and Western Maryland. WSA elevated the drought status to “watch” (and later to “warning” status for Central Maryland). WSA convened a meeting of county drought coordinators to ensure clear communications and understanding of drought response procedures. Summer 2024 was the second consecutive summer that Maryland experienced a drought. Low precipitation led to a Drought Watch declaration for the Eastern shore at the end of June 2024, followed by Western Maryland in mid-July 2024. The Frostburg and Oakland reservoirs in Western Maryland nearly emptied.

At the end of July 2024, the Washington Suburban Sanitary Commission declared a drought watch due to high summer use driven by a heatwave, as well as lowered streamflow in the Potomac River and lowered levels in the Patuxent Reservoirs. Dry conditions intensified into the fall and persisted through the winter. Eastern and Southern Maryland moved to Drought Warning in November 2024, and by April 2025, all four drought regions were in a Drought Warning. A lack of precipitation over the winter meant surficial aquifers did not recharge, which in turn drove streamflow levels down. Baltimore City implemented water use restrictions in May 2025 due to low water levels in the Liberty Reservoir. The state eventually saw relief with a wetter-than-average May, June, and July 2025, leading to increased groundwater, streamflow, and raising reservoir levels across the state. As of August 2025, Central Maryland remains in a Drought Watch due to lowered groundwater levels in Baltimore and Harford counties. In 2025, MDE has been publishing drought status updates via its drought information webpage[67] and has been communicating with counties.

[67] Maryland Drought Information and Current Status, https://mde.maryland.gov/programs/water/droughtinformation/pages/index.aspx.

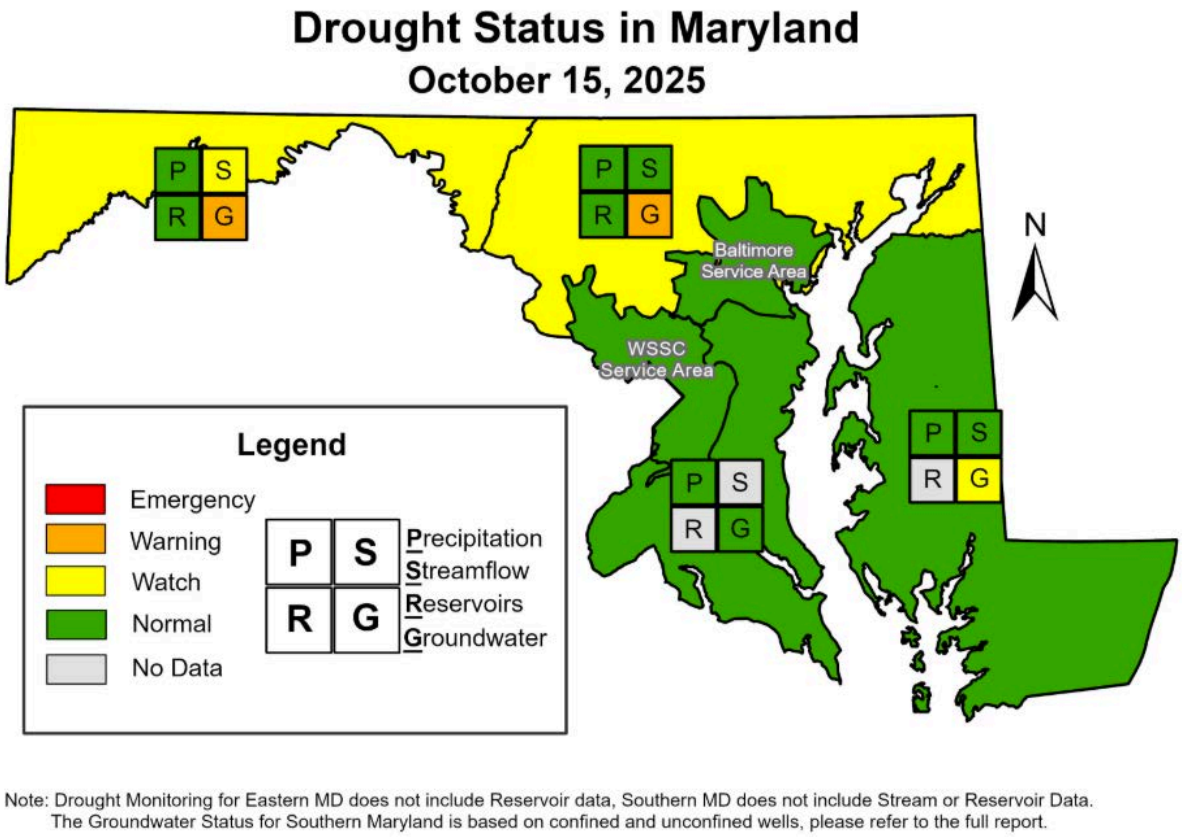

Figure 26 Drought monitoring map is updated regularly by MDE.

Wastewater Management

NPDES Municipal Wastewater Discharge Permit and General Permits

In 2021, WSA staff developed special condition permit language to increase climate resilience for individual National Pollutant Discharge Elimination System (NPDES) municipal wastewater discharge permits based on a screening-level climate review. This included accounting for peak flows as a trigger for requiring a treatment plant wastewater volume capacity management plan, including more explicit requirements for maintaining 24-hour holding capacity for plants that discharge near shellfish waters, and requiring more explicit responsibility for ensuring backup power even under extreme weather conditions. In 2022, MDE began incorporating this language into permits as they came up for renewal. Screening-level climate reviews for several general discharge permits have been conducted between 2021 and 2024. These include the permits for Seafood Processing, Swimming Pools and Spas, and Pesticides discharges.

Bermed Infiltration Ponds

In July 2021, MDE issued a 15-month suspension on the construction of Bermed Infiltration Ponds (BIPs) due in part to rising water tables associated with climate change. BIPs have been used as a means of sewage disposal in Talbot, Somerset, and Dorchester counties in locations where traditional septic systems do not readily function. Site inspections indicate aging BIPs are beginning to fail or are at risk of failure. The location of these systems tend to be in sensitive coastal areas subject to anticipated climate change impacts, including sea level rise, water table rise, and increased rainfall volume and intensity.

WSA conducted an in-depth assessment of BIPs, which was finalized in a report in November 2022[68] that lays out steps for moving forward on managing BIPs. One step completed is a ranking of BIP failure risk, which is part of a roadmap for county action. The roadmap includes a system of tracking that involves tiers of monitoring over time.

A pilot project in Dorchester County was completed in 2024 that included connection of fourteen (14) properties to public sewer and discontinuing the use of one BIP located in a high risk area for flooding and shellfish harvesting. Based on this action and water quality analysis, WSA reclassified the area to be approved for harvesting of shellfish. WSA is actively working with Dorchester County to target other BIP systems in the county and connect residential properties to public sewer based on the outcome of the pilot project.

Water & Wastewater Utility Climate Vulnerability Assessments

In summer 2022, WSA helped MDP host several of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) webinars. These events led to technical assistance opportunities for three Maryland coastal communities sponsored by the EPA's Creating Resilient Water Utilities program in 2023 (Crisfield, Cambridge, and Chesapeake Beach). During 2023, several western Maryland communities were recruited to receive technical assistance using EPA's CREAT in 2024 (Middletown, Boonsboro and Emmitsburg).

[68] MDE Bermed Infiltration Pond Study, https://mde.maryland.gov/Documents/BIP%20REPORT.pdf.

Wetlands Protection and Waterway Construction

Climate Awareness through Wetlands Pre-Application Meetings & Routine Correspondence

The Wetlands and Waterways Protection Program is taking steps to phase in accountability for climate change. Routine regulatory correspondence provides WSA an opportunity to communicate key climate change messages. In 2021, WSA's Wetlands Program began adding climate awareness language to permit application acknowledgment letters. The language advises permittees and their consultants to consider the effects of climate change when planning projects that require wetland or waterway construction permits. In 2022, the Program enhanced its Pre-Application Meeting[69] webpage to include a section on climate change impacts with links to resources for the evaluation of climate change risks.

Living Shoreline Protection

Living shorelines offer sustainable coastline stabilization by utilizing natural elements such as vegetation and oyster reefs. They not only protect against erosion and storm surges, but also enhance biodiversity and resilience. However, despite Maryland's 2008 Living Shoreline Protection Act requiring the use of living shoreline protection methods, many landowners seek waivers to install hardened shorelines. Between 2015 and 2020, living shorelines accounted for about one-third of projects on undeveloped shorelines, while structural controls made up roughly two-thirds. Since then, program improvements have helped shift more projects toward living shorelines, reflecting progress toward resilient management.

WSA's Tidal Wetlands Division hosted a Chesapeake & Climate Change Conservation Corps member for one year between Aug 2023-2024. The Corps member improved the tracking of progress toward increasing living shoreline adoption rates relative to the adoption of hardened shorelines. They also developed public outreach material to help promote the use of living shoreline protection techniques by coastal landowners, and conducted a cost-benefit analysis of different shoreline erosion control methods in coordination with the U.S. EPA's Office of Policy. This work included economic modeling to assess how living shorelines affect property values.

[69] Pre-Application Meeting https://mde.maryland.gov/programs/Water/WetlandsandWaterways/Pages/PreApplicationIntroduction.aspx.

Figure 27 Living Shoreline at the South River in Anne Arundel County. [70]

In 2023, the Maryland Living Shoreline Stabilization Mapper was launched[71]. The Mapper is an online tool to assist with decision-making and plays a key role in streamlining the living shoreline waiver process. Key updates underway include the integration of sediment and nutrient load reduction estimates and the addition of wave attenuation potential metrics to assess shoreline protection performance. In 2024, MDE adopted a metric for measuring a goal of promoting more living shoreline stabilization versus hardened shorelines, which WSA is the lead in implementing. WSA has developed a proposed living shoreline supplemental permit checklist[72] for applicants seeking a living shoreline permit. These new tools will promote easier adoption and permitting of living shorelines in Maryland, a more climate and ecologically resilient feature compared to hardened shorelines (bulkhead or revetment).

The 2008 Shoreline Manual is being updated to integrate modern design techniques, such as living shorelines, with a strong focus on addressing climate change impacts. This update

[70] Living Shorelines for Ecological Benefits and Shoreline Erosion Control in Maryland: Rapid Assessment Tool and Data Management Methodology, https://mde.maryland.gov/programs/water/WetlandsandWaterways/Documents/Living%20Shoreline%20Assessment%20Final%20with%20ES.pdf.
[71] Maryland Living Shoreline Stabilization Mapper https://cmap22.vims.edu/MSSMTool/.
[72] Living Shoreline Supplemental Permit Checklist, https://mde.maryland.gov/programs/water/WetlandsandWaterways/PermitsandApplications/Documents/www.mde.state.md.us/assets/document/wetlandswaterways/Supplemental%20Living%20Shoreline%20Checklist.pdf.

aims to provide more resilient shoreline management solutions in the face of rising sea levels, increased storm intensity, and other climate-related challenges. The efforts are supported by a three-year grant, subcontracted to the Virginia Institute of Marine Science (VIMS), with funding from an EPA grant awarded in the fall of 2024. Stakeholder engagement will ensure that experts contribute to the development of climate-responsive strategies for shoreline stabilization.Wetlands and Waterways Ecological RestorationIn 2022, WSA's Wetlands and Waterways Protection Program was tasked by State legislation to conduct a study on the process for permitting ecological restoration projects, such as stream restoration, wetlands creation and restoration, and shoreline erosion control involving living shoreline techniques – Maryland House Bill 869[73].During much of 2023, the study was conducted, involving a series of stakeholder group meetings. The process was part of a comprehensive analysis of the technical and procedural aspects of permitting ecological restoration projects. The Study generated recommendations for permitting and/or regulatory updates. Although the legislation is not explicit about climate change, WSA's report acknowledges its intent for projects to account for climate change considerations. The report summarizing the Study process and findings was completed and submitted to the Maryland General Assembly in August 2024. Implementation of recommendations began in 2025.

Further, on May 9, 2024, Governor Moore signed the *Whole Watershed Act* (Chapters 558 and 559) into law, enacting significant changes to MDE's permitting process for stream and floodplain restoration projects. The Act introduces a collaborative, science-based approach to watershed restoration and establishes a new Title 18 under the Environment Article to regulate projects. Key provisions took effect July 1, 2025, and apply to all new restoration project applications submitted on or after that date. Notable requirements include:

- Expanded **public notice and community engagement**;
- A **holistic evaluation of co-benefits** for proposed restoration projects;
- **Post-construction monitoring** for five years

MDE created applicant and permittee guidance materials, including an Frequently Asked Questions document and a revised Stream Restoration Authorization (SRA) Checklist published on the MDE website. An annual report is due December 1 to the General Assembly on any updates to MDE's SRA Checklist.

Cold Water Protection

Heat Pollution: Water Temperature Total Maximum Daily Loads (TMDLs)

WSA's Watershed Protection, Restoration, and Planning Program continues developing water temperature models for streams that exceed their temperature water quality criteria. These models will be used to develop Total Maximum Daily Loads (TMDL) in specific

[73] Maryland House Bill 869, https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/HB0869.

geographic areas of concern, required by the federal Clean Water Act. The TMDLs will set protective regulatory limits on heat loads to the streams and establish a quantitative framework for reducing water temperatures.

MDE sent out a draft temperature TMDL for the coldwater portion of the Gwynns Falls watershed for public review during the winter of 2025. The public comment period closed on February 24, 2025. Many comments were submitted during the public review period, and the Department has been working to address those comments. Once all comments are addressed, the Department will submit the draft TMDL to EPA Region III for review and approval. MDE continues to work on draft temperature TMDLs for other coldwater streams, notably the coldwater portion of the Prettyboy Reservoir watershed.

Cool and Cold Water Protection: Water Quality Standards & Permitting

In 2022, WSA adopted clarifications to Maryland's regulatory antidegradation procedures for Tier 1 waters that have cold water existing uses, redesignating some streams as Class III cold water and identifying others as having unique cold water existing uses (See Antidegradation Policy[74]). As part of these regulatory changes, WSA incorporated by reference (COMAR 26.08.02.04-1[75]) a set of procedures and policy for identifying coldwater existing uses[76] so as to protect the unique biota (e.g., trout) that depend on these waters and the water quality required to support them. This action, plus the Department's collaboration with DNR and other stakeholders to monitor for previously undiscovered and undesignated cold water streams, helps to enhance current and future protections for this important resource. In the fall of 2024, in consultation with DNR, the Department proposed for public review of cold or cool water existing use determinations for 7 different waters of the State. Comments were received during the public review process to which MDE is finalizing responses before publishing the existing use determinations and posting these determinations to the Department's website.

WSA continues to evaluate its coldwater protection mechanisms for its permitting programs. This effort has already resulted in improved screening for sensitive coldwater resources, which have led to more protective permit conditions.

[74] Maryland's 2019 Triennial Review of Water Quality Standards https://mde.maryland.gov/programs/water/TMDL/WaterQualityStandards/Pages/Maryland-2019-Triennial-Review-of-Water-Quality-Standards.aspx.
[75] COMAR 26.08.02.04-1 https://dsd.maryland.gov/regulations/Pages/26.08.02.04-1.aspx.
[76] Cold Water Existing Use Determinations https://mde.maryland.gov/programs/water/TMDL/WaterQualityStandards/Documents/Cold%20Water%20Existing%20Use%20Determinations%20Policy%20and%20Procedures.pdf.

Emergency Preparedness

Harmful Algal Blooms

Climate change induced warming of waters and more nutrient runoff from increased rainfall is predicted to cause more harmful algal blooms (HABs). WSA's Field Services Program responds to algal blooms with the potential to generate toxins and coordinates with the Water Supply Program when drinking water sources are involved. MDE WSA has invested in laboratory analysis equipment to automate enzyme-linked immunosorbent assay analyses used to identify waterborne toxins associated with HABs. By cutting the testing time for multiple HAB toxins by days, WSA can more rapidly respond to multiple simultaneous emergency events that might require issuing hazard advisories to water supplies, shellfish harvesting areas, and water contact recreation areas. WSA has developed a draft policy for HABs that is currently in review in fall 2025. This policy establishes Health Advisory Thresholds for Maryland and offers guidance for water systems.

Emergency Preparedness Training

In 2023, WSA's Climate Team initiated the Climate Emergency Preparedness (CEP) Training initiative. This training is intended to build a culture of emergency preparedness and response among WSA staff. This awareness will enable staff to align with, contribute to, and draw upon this knowledge to make the State more resilient to climate emergencies.

- 2023 Training sessions covered situations encountered by WSA's Water Supply Program, WSA's After Hours Emergency Response Procedures, Coordination with the Department of Emergency Management, Dam Safety, and Algal Blooms.
- 2024 Training sessions covered Dam Safety, Shellfish Harvesting Area Emergency Response, and Responding to and Recovering From Catastrophic Emergencies.
- 2025 MDE-hosted listening sessions include a presentation on new regulations and Design Manual updates by MDE.

After-Hours Emergency Response Procedures Update

In 2024, WSA completed the update of its After-Hours Emergency Response Procedures document. Also known as the Duty Office Manual, this document serves as both training and reference material for staff members of WSA's Compliance Program. Compliance Program Duty Officers serve as WSA's primary point of contact with the MDEM Emergency Operations Center during off-hours. The Manual was updated in recognition of climate change being a threat multiplier. The image below depicts the hub and spoke conceptualized information flow from MDEM to WSA's Compliance Duty Officer to WSA Programs and beyond as needed.

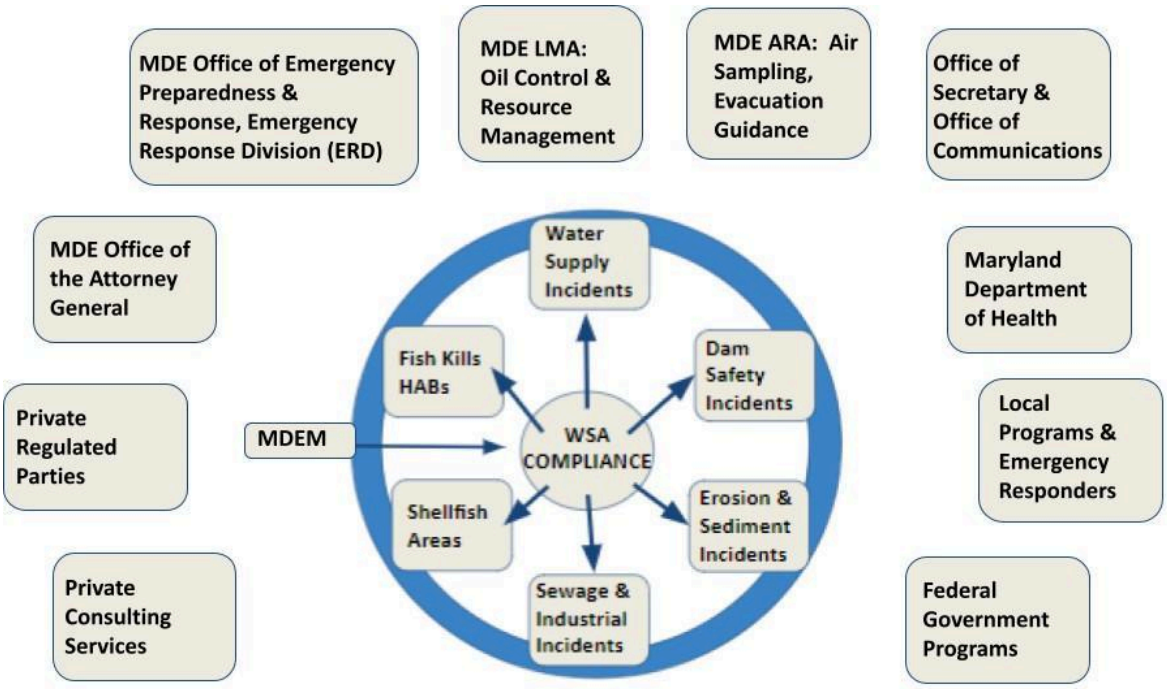

Figure 28 After-Hours Emergency Procedures hub and information flow.

Research, Planning, and Analyses

Maryland Climate Change Adaptation Strategic Planning

In 2023, WSA collaborated with DNR to translate Maryland's Climate Change Adaptation Framework[77] into Maryland's Next Generation Climate Adaptation Plan[78]. The Plan includes near- and long-term action milestones. The Water element of the Next Generation Climate Adaptation Plan aligns with WSA's four Climate Adaptation Priority Areas.

Chesapeake Bay Restoration Planning

In 2021, WSA analyzed predicted increases in nitrogen and phosphorus loading due to climate change. In 2022, an Addendum to Maryland's Phase III Watershed Implementation Plan (WIP) was produced, accounting for climate change in nutrient pollution reduction targets. By 2024, Maryland achieved 97% of nitrogen and 100% of phosphorus load reduction goals, including climate change offsets. The remaining 3% nitrogen reduction is expected by late 2025. Post-2025, further nutrient reduction offsets will be needed due to

[77] Adaptation and Resilience Working Group, Maryland Commission on Climate Change, Maryland's Climate Change Adaptation Framework, Maryland Climate Adaptation and Resilience Framework Recommendations.
[78] Maryland's Next Generation Climate Adaptation Plan Maryland's Next Generation Climate Adaptation Plan.

additional climate impacts on the Chesapeake Bay watershed, with quantities to be determined in the next WIP.

Water and Sewer Plan Reviews

Maryland requires local governments to adopt formal plans when expanding water and sewer service. WSA water and sewer plan reviews and approvals are now screened for various climate change vulnerabilities. This is intended to ensure local planners and engineers are aware of their responsibilities to incorporate climate change and resilience into their planning.

Water Resources Element (WRE) of Local Comprehensive Land Use Plan

In 2022, the Water Resources Element (WRE) Climate Change guidance was released through the MDP website.[79] The purpose of the WRE is to identify: "(1) drinking water and other water resources that will be adequate for the needs of existing and future development proposed in the land use element of the plan; and, (2) suitable receiving waters and land areas to meet stormwater management and wastewater treatment and disposal needs of existing and future development proposed in the land use element of the plan." In 2024, recommendations and resource links were added to guide water resources planning decisions in relation to EJ and climate change considerations.

[79] Maryland Department of Planning, https://planning.maryland.gov/Pages/OurWork/RRP/envr-planning/water-resources-mg/2022/2022-guidance-update.aspx.

Maryland
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