

Adaptation and Resilience Work Group (ARWG)
2020 Work Plan

PURPOSE

The Maryland Commission on Climate Change (MCCC) is charged with advising the governor and the Maryland General Assembly on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change and maintaining and strengthening the state's existing Greenhouse Gas Reduction Plan (GHG Plan). The Commission is supported by four work groups. The members are appointed by the MCCC Chair and include representatives of academic institutions, environmental organizations, government agencies, labor organizations, renewable and traditional energy providers, and representatives of the business community. The Adaptation and Resilience Working Group (ARWG) is charged with developing and implementing a comprehensive strategy for reducing Maryland's climate change vulnerability and providing state and local governments with tools to plan for and adapt to climate impacts such as extreme weather and sea level rise.

At the same time the state moves forward with actions that are reducing greenhouse gases, increasing energy efficiency, and improving air quality, we must also adequately adapt or climate impacts will remain a concern into the future. Maryland has been experiencing an increase in extreme weather events, presenting new adaptation challenges in both coastal and non-coastal communities.

ADAPTATION PROGRESS

The "Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change"¹ (henceforth referred to as the Adaptation Strategy) includes short-term and long-term measures that state and local governments can implement to plan for and adapt to the diverse impacts of climate change. Eleven years have passed since the MCCC drafted the "Adaptation Strategy Phase I: Sea-level rise and coastal storms" and it has been eight years since "Phase II: Building societal, economic, and ecological resilience" was published. Last decade a tremendous amount of progress has been made, but new information and data has become available and there is still much work to be done to ensure a resilient, prosperous future for Maryland's people, environment, and economy.

Throughout 2018 and 2019, the ARWG undertook an assessment to analyze progress made on implementing the Adaptation Strategy. That progress review, along with conversations about agency- and issue-specific adaptation challenges, informed ARWG priorities for 2020. While the issues presented below are not an exhaustive list of all the climate change adaptation-related topics ARWG member agencies will work on this year, these have been identified as some of the most pressing issues with the most opportunity for progress to be made in 2020. Many items are exploratory, and therefore may become recommendations or work plan items for 2021 and beyond.

¹ The Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change includes both [Phase I: Sea-level rise and coastal storms](#) published July 2008 and [Phase II: Building societal, economic, and ecological resilience](#) published January 2011.

2020 PRIORITIES FOR ARWG ACTION

1. *Develop and adopt indicators to track progress:* The State of Maryland has been making progress across adaptation efforts for more than a decade. As increased investments in programs, siting and design, restoration, adaptation and monitoring occurs, there has been an identified need to better clarify what adaptation targets Maryland should focus on and how we measure progress and success. Following MCCC and workgroup discussions in 2018 and 2019, the ARWG, in partnership with the University of Maryland Center for Environmental Science Integration and Application Network, will develop a suite of adaptation indicators to track adaptation progress across the state in 2020. The indicators will then be used by ARWG, the MCCC and others within the state to inform decisions and better monitor future actions.
2. *Evaluate and update the adaptation strategy.* Following the assessment of progress made on implementing the Adaptation Strategy, ARWG will work to scope out the framework for a Phase III Adaptation Strategy in 2020. Six sectors and two focus areas have been identified. The sectors are:
 - Water resources (quantity and quality)
 - Natural resources and ecosystems
 - Local government action and state service delivery
 - Human health
 - Natural and working lands and
 - Protecting critical infrastructure

Two focus areas, diversity and environmental justice and climate jobs and training, will be integrated across all of the above mentioned sectors and efforts. ARWG members, partner agencies, organizations and stakeholders will work collaboratively to understand how the previous plans have been implemented across these sectors, where work is ongoing, what the science tells us and finally what are some potential strategies to include in a Phase III plan.

3. *Advance saltwater intrusion plan recommendations.* In compliance with the passage of House Bill 1350/Senate Bill 1006 in 2018 and House Bill 1427 in 2019, the Maryland Department of Planning (MDP) published “Maryland’s Plan to Adapt to Saltwater Intrusion and Salinization”² in December 2019. ARWG members reviewed and provide input during 2019. In 2020, the ARWG will support the Maryland Department of Planning in furthering the recommendations set forth in the final plan.
4. *Review nuisance flood plans from local jurisdictions.* In compliance with the passage of House Bill 1350 /Senate Bill 1006 in 2018 and House Bill 1427 in 2019, the Maryland Department of Natural Resources (DNR) in partnership with the Maryland Department of Planning (MDP) published nuisance flood plan development guidance for local jurisdictions³ in October 2019. ARWG members will work to identify additional tools, resources or support that could be provided to local jurisdictions related to nuisance flood planning in addition to providing review of local plans when requested.

² Maryland’s Plan to Adapt to Saltwater Intrusion and Salinization. <https://planning.maryland.gov/Documents/OurWork/envr-planning/2019-1212-Marylands-plan-to-adapt-to-saltwater-intrusion-and-salinization.pdf> published Dec 2019.

³ Nuisance Floodplain Development Guidance. <https://dnr.maryland.gov/ccs/Documents/NuisanceFloodPlan.pdf> published October 2019

5. *Maryland Climate Leadership Academy*. In 2019, ARWG members assisted in the development of a Local Government Certificate “short course” which launched on January 7, 2020. Building on the previous year’s effort, ARWG partners will continue to foster a community of climate-smart local government and infrastructure leaders through the participation in and promotion of the Maryland Climate Leadership Academy. ARWG members will assist DNR in identifying Maryland case studies for inclusion in the training and support identification of climate leaders who can serve as instructors for the certification program in the future.
6. *Water Quality and Climate Change Resiliency Portfolio*. ARWG will support the formative stage of development for a water quality and climate change resiliency portfolio of projects that will optimize water quality, resiliency and greenhouse gas benefits in Maryland. With DNR as lead, the initial focus will be on natural and nature-based restoration and conservation projects. ARWG and other Maryland agencies will be engaged and provide support during this initial stage of development. Efforts will include a statewide assessment of vulnerable assets and opportunities as well as identifying smaller geographic areas for targeting.

ONGOING WORK FOR 2020: STATUS UPDATES

7. *Environmental Justice*: Environmental justice will be considered in all of the work the ARWG undertakes. The ARWG recognizes the need to elevate and coordinate work on this topic with the MCCC Steering Committee. ARWG will continue coordinating with other MCCC working groups and engaging environmental justice partners to ensure underserved communities are prepared for and can adapt to the impacts of climate change.
8. *Healthy Soils Initiative*: House Bill 1063, which passed during the 2017 legislative session, established the Healthy Soils Program and requires the Maryland Department of Agriculture (MDA) to provide incentives, including research, education, technical assistance, and subject to available funding, financial assistance to farmers to implement the management practices that promote soil health and sequester carbon. The Maryland Department of Agriculture (MDA), the Department of Natural Resources (DNR) and the Maryland Department of the Environment (MDE) are working together through the ARWG and Mitigation Working Groups and the Soil Health Advisory Committee to identify dedicated, long-term sources of funding to support the purposes of the Healthy Soils Act.
9. *Human Health Implications of Climate Change*: ARWG partners will continue to provide tools, resources, and technical assistance for citizens, communities, non-governmental organizations, schools, local governments, planners, and state agencies to consider health impacts and use health data as they develop climate change plans. ARWG partners will also continue to ensure public health considerations are integrated in community forums that address climate adaptation efforts. ARWG members commit to tracking these efforts via the Maryland Environmental Public Health Climate Adaptation Tracker online mapping portal.
10. *Building Financial Resilience*: Continuing discussions from 2019, ARWG will engage in discussions around building financial resilience. The Department of General Services (DGS) currently is at an exploratory stage on developing Capital Improvement Plans and Operation & Maintenance

Strategies for state buildings using Asset Management as a decision-making tool. This initiative could be expanded to include the development of Climate Change Response Plans utilizing the same tool. The Response Plans could create a framework for evaluating climate change impacts on levels of service, risk and cost; optimizing climate change response projects; and identifying the best long-term funding strategies. This initiative, combined with initiatives from other ARWG partners, could build financial resilience for the state's buildings and infrastructure.

11. *Addressing Increased Precipitation at the Local Level:* Maryland's average annual precipitation is projected to increase by 10% over the current average by the year 2100. The frequency of extreme precipitation events is also anticipated to increase. Existing gray infrastructure (e.g. stormwater systems) and green infrastructure investments (e.g. water quality BMPs) may not be able to effectively manage these increases. Computer models, such as those used by the Chesapeake Bay Program Partnership, are now being used to predict possible changes to precipitation regimes resulting from climate change. Continuing in 2020, MDE, DNR, and other partners will assess the ability of these models to predict climate change impacts on precipitation, with a focus on design storms. This could help Maryland communities better assess their localized flood risks and plan to become more resilient to precipitation-induced flooding.
12. *Dam Safety:* As precipitation increases, it is vital to ensure Maryland dams are resilient to the effects of climate change. Continuing in 2020, MDE will lead work to: prioritize inspections of significant and high hazard dams, assess their condition, and require repair or removal of dams where necessary to protect life and property. MDE, in consultation with the Maryland Emergency Management Agency (MEMA) and other ARWG partners, also will ensure adequate emergency preparedness by requiring owners to complete routine updates of dam Emergency Action Plans and by providing technical assistance to dam owners to implement table-top exercises for these Emergency Action Plans. MDE will develop intra-agency standard operating procedures for emergency response to individual and multiple dam failure incidents.
13. *Climate Change Management Opportunities through Environmental Compliance:* In 2019, ARWG heard from MDE on climate change management opportunities through environmental compliance. Topics included where the current opportunities are, what activities are ongoing and a potential path forward. ARWG will continue the discussions on multiple areas of environmental compliance including assistance with compliance to achieve results, compliance assurance (inspection and enforcement), prioritizing inspections and enforcement if climate change is a factor, and potential follow up actions.
14. *Building Capacity to Compete for Natural Infrastructure Resiliency Funds* - The ARWG continues to recognize the need to prepare Maryland and its communities to take advantage of upcoming federal funding (e.g. FEMA, NOAA, USACE) and public private partnership (P3) opportunities that promote the use of natural infrastructure to build resilience to climate impacts. DNR is already leveraging beneficial use of dredged material opportunities to reduce project costs and make applications more competitive. This could serve as a model as these larger-scale funding opportunities emerge. DNR will lead a group of ARWG partners throughout 2020 to discuss landscape-level needs for natural and nature-based (NNBF) project identification so that Maryland and its communities are better situated to compete for future funding.

15. *Mapping Zones of Vulnerability* - In October 2018, the MCCC Scientific and Technical Work Group (STWG) updated Maryland's sea-level rise projections⁴. Separately but concurrently in 2018, the Maryland General Assembly passed a bill concerning Sea Level Rise Inundation and Coastal Flooding - Construction, Adaptation, and Mitigation⁵. Part V of this bill requires the Maryland Coast Smart Council to establish criteria to evaluate whether state funds may be used to mitigate hazards associated with sea level rise inundation and coastal flooding and to incorporate tools to assess the vulnerability of an area or structure to those hazards.

The ARWG will advise the Maryland Coast Smart Council as they work to produce a uniform set of maps or mapping tools that are practical for use by local governments, practitioners and the public. The ARWG will then work with the Education, Communication and Outreach Working Group (ECO) to disseminate and communicate the appropriate uses of these mapping products. Periodic updates will be provided at ARWG meetings as appropriate.

16. *Integrating Climate Change into the Phase III Watershed Implementation Plan* - The ARWG and partners will continue to work with the Chesapeake Bay Program Phase III Watershed Implementation Plan (WIP) teams to determine how best to account for additional nutrient and sediment loads resulting from climate change. Through this engagement, ARWG members and partners will provide updates on activities that are listed in Maryland's WIP and milestones to ensure that comprehensive activities and progress on climate change efforts are adequately captured. Maryland's Phase III Watershed Implementation Plan (WIP)⁶ was submitted to EPA in August

⁴ Boesch, D.F., W.C. Boicourt, R.I. Cullather, T. Ezer, G.E. Galloway, Jr., Z.P. Johnson, K.H. Kilbourne, M.L. Kirwan, R.E. Kopp, S. Land, M. Li, W. Nardin, C.K. Sommerfield, W.V. Sweet. 2018. [Sea-level Rise: Projections for Maryland 2018](#), 27 pp. University of Maryland Center for Environmental Science, Cambridge, MD.

⁵ [Sea Level Rise Inundation and Coastal Flooding - Construction, Adaptation and Mitigation](#). HB 1350. 2018.

⁶ Maryland's Final Phase III Watershed Implementation Plan.

<https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/Phase3WIP.aspx> Published August 2019

MCCC Quarterly Meetings and ARWG Meetings in 2020:

Date/Time	Host	Agenda Topics
February 10 2-4pm	DNR (Tawes)	Adaptation & Response Work Group Q1 Meeting - Partner presentations - 2020 Priority action plan discussion
April 20	MDE	Maryland Commission on Climate Change Meeting
May 11 2-4pm	DNR (Tawes)	Adaptation & Response Work Group Q2 Meeting - 2020 Work Plan review and approval - Status update on 2020 priorities - Partner presentations
June 15	MDE	Maryland Commission on Climate Change Meeting
August 3 2 - 4p	DNR (Tawes)	Adaptation & Response Work Group Q3 Meeting - Topic TBD
September 9	MDE	Maryland Commission on Climate Change Meeting
November 16 2 to 4 pm	DNR (Tawes)	Adaptation & Response Work Group Q4 Meeting - Finalization of 2021 Recommendations - Update on 2020 recommendations

Schedule reflects major ARWG and MCCC meetings and actions. It does not reflect subgroup conversations or milestones that may be established to address work plan issues.

During the current State of Emergency and social distancing guidelines associated with COVID-19, meetings will be conducted virtually.