

ADDRESSING SEA LEVEL RISE AND A CHANGING CLIMATE

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INTRODUCTION

Climate change presents Virginia with a number of pressing challenges that require immediate action, including sea level rise, recurrent flooding, increased air and water temperatures, and increased frequency and intensity of storms and heavy rainfall. The potential effects on our environment, economy, citizens, and communities were initially documented by the 2008 Governor's Commission on Climate Change. Since that time, little progress has been made towards implementing the recommendations of the Commission. Significant work is needed in Virginia to ensure that our natural systems, infrastructure, economy and citizenry remain healthy and resilient in the face of change.

BACKGROUND

Virginia is experiencing a changing climate: carbon dioxide levels have increased by more than 45% since the late 1700s due to the burning of fossil fuels and human industrial activity. These greenhouse gases have warmed the surface and lower atmosphere by approximately 1.8°F during the last 50 years; in 2008, Governor Kaine's Climate Change Commission estimated a 3.6- degree increase by 2100. As the atmosphere warms, large volumes of melting glacial water and warmer ocean temperatures contribute to accelerating sea level rise - but in Virginia, that's only part of the problem. The southeast corner of the Commonwealth is sinking, increasing the relative rate of rising seas.

A warmer atmosphere also increases rain intensity. The Southeast has experienced a 27% increase in the frequency of its heaviest precipitation events, and some scenarios in the 2018 National Climate Assessment suggest additional increases of more than 40% in decades to come. Studies in Virginia Beach confirm the rise of high-intensity rainfall events in the 10-year storm precipitation rates. These studies recommend a 20% increase in the design criteria for stormwater practices to accommodate these precipitation increases.

The state conducted a comprehensive review of these impacts through the 2008 Governors Climate Change Commission and again through the 2014 Climate Change and Resiliency Update Commission. In addition, many other studies have been conducted

that project sea level rise and increased rainfall intensity impacts coming to coastal Virginia. Until last year, nothing was done at the state level to respond to these projections, leaving local governments in Virginia to find their own way. As a result, there are a variety of uncoordinated approaches to increased resilience needs in the state.

AS THE ATMOSPHERE WARMS, LARGE VOLUMES OF MELTING GLACIAL WATER AND WARMER OCEAN TEMPERATURES CONTRIBUTE TO ACCELERATING SEA LEVEL RISE - BUT IN VIRGINIA, THAT'S ONLY PART OF THE PROBLEM. THE SOUTHEAST CORNER OF THE COMMONWEALTH IS SINKING, INCREASING THE RELATIVE RATE OF RISING SEAS.

In November 2018, Executive Order 24 began a long overdue state effort to address sea level rise. The Executive order mandates some agency reviews and appoints a special assistant to the Governor for Coastal Adaptation and Protection. There is no state guidance being provided to localities on the future impacts for which they should be planning. While the Virginia Shoreline Resiliency Fund was created to fund adaptation efforts, no state funding has been provided to begin adaptation actions. The federal government's initiatives on sea level rise and climate change were reversed, ironically, ten days before Hurricane Harvey made landfall in Texas and unleashed record-setting destruction. Without state action, Virginia communities are increasingly vulnerable to the economic, physical, and environmental consequences of climate change.

CONCLUSION

Virginia has acknowledged the impact of sea level rise and climate change on coastal communities. Numerous studies have made recommendations on actions for Virginia to address sea level rise and mitigate the impacts of a changing climate. The state needs a targeted and coordinated response for state programs and explicit guidance for action by Virginia's localities.

POLICY RECOMMENDATIONS

Reduce Greenhouse Gas Emissions through mitigation (see *Investing in Virginia's Energy Efficiency*, p. 52; see *Offshore Wind: Made in Virginia*, p. 60; see *Regional Action on Climate with Local Benefits*, p. 54; and, see *Curbing Vehicle Pollution*, p. 36).

Refine Virginia-specific projections for temperature change, sea level rise, storm intensity, and changes in rainfall intensity.

Provide consistent guidance, updated regularly, on climate change benchmarks for which localities should plan.

Evaluate and consider climate impacts when making decisions on agency operations, programs, funding allocations, planning documents, and regulations. Existing studies should be considered during this process.

Establish a state requirement that all state agencies, regional planning authorities, and localities include climate impacts in all long- range planning processes (e.g. comprehensive, transportation, water-supply, hazard mitigation) and land use decisions.

Fund adaptation efforts through existing funding mechanisms beginning with \$50 million annually to the Virginia Shoreline Resiliency Fund.

Develop new or refocus existing programs to facilitate utilization of natural and nature based strategies in sea level rise resiliency efforts including programs that support re-naturalization of lands to support their most sustainable use.

Revise design-storm criteria in Virginia's water quality regulations to ensure that they reflect current precipitation data.

Establish a fund to subsidize flood insurance for low-income residents.

In real estate transactions, all potential buyers and renters should receive information regarding the flood history of the property in consideration.